# GLOBAL CUSTOMER PCN NOTIFICATION

**PCN Number:** PCN_CO118434

| | |
|---|---|
| PCN Notification Date | *03/01/2022* |
| Submitter's Name | *Audrey Boulot* |
| Submitter's Contact Details | Audrey.Boulot@belf.com |
| PCN Number | *PCN_CO118434* |
| Description of Change | *Due to the EOL of Voltage Regulator (BPS # 130-25080-G) VKA.20232.0 and/or VKA.20032.0 will replace voltage regulatro (BPS # 130-25080-G) at locations U1,U2,U3* |
| Reason for Change | *IC, Voltage Regulator 130-25080-G has reached its End of Life.* |
| Summary of Changes Between New and Old Part | *VKA.20232.0 and/or VKA.20032.0 to replace 130-25080-G at locations U1,U2,U3* |
| Traceability Guidelines (lot code/date code, markings, ship date) | *Refer to the table on the bottom for power supplies revision changes.* |
| Last Time Buy Date | *N/A* |
| Datasheet | Datasheet - BPS Linear Series.pdf |
| Qualification/Test Data | Characterization Test Report.zip |
| Impact on Reliability | *N/A* |

| Bel Power Solutions Old PN or Process | | Bel Power Solutions New PN or Process | | PCN Effective Date | Sample Availability Date | Last Date Manuf of Unchanged PN | Expected Customer Qualification Date |
|---|---|---|---|---|---|---|---|
| OBJEECT No. | Revision | OBJEECT No. | Revision | | | | |
| HTAA-16W-AG | AG | HTAA-16W-AG | AH | 04/20/2022 | 05/20/2022 | 03/23/2022 | 06/20/2022 |
| HAA15-0.8-AG | AF | HAA15-0.8-AG | AG | 04/01/2022 | 05/01/2022 | 03/30/2022 | 06/01/2022 |
| HB24-1.2-AG | AJ | HB24-1.2-AG | AK | 04/01/2022 | 05/01/2022 | 03/30/2022 | 06/01/2022 |
| HC5-6/OVP-AG | AH | HC5-6/OVP-AG | AJ | 04/11/2022 | 05/11/2022 | 03/17/2022 | 06/11/2022 |
| HC12-3.4-AG | AH | HC12-3.4-AG | AJ | 03/23/2022 | 04/23/2022 | 09/30/2021 | 05/23/2022 |
| HC24-2.4-AG | AJ | HC24-2.4-AG | AK | 04/04/2022 | 05/04/2022 | 03/17/2022 | 06/04/2022 |
| HCAA-60W-AG | AK | HCAA-60W-AG | AM | 05/04/2022 | 06/04/2022 | 03/03/2022 | 07/04/2022 |
| HCBB-75W-AG | AK | HCBB-75W-AG | AM | 04/11/2022 | 05/11/2022 | 12/30/2021 | 06/11/2022 |
| HD24-4.8-AG | AM | HD24-4.8-AG | AN | 03/23/2022 | 04/23/2022 | 03/17/2022 | 05/23/2022 |
| HDCC-150W-AG | AM | HDCC-150W-AG | AN | 05/09/2022 | 06/09/2022 | 09/30/2021 | 07/09/2022 |
| HBAA-40W-AG | AK | HBAA-40W-AG | AM | 04/18/2022 | 05/18/2022 | 12/09/2021 | 06/18/2022 |
| HCC15-3-AG | AJ | HCC15-3-AG | AK | 04/04/2022 | 05/04/2022 | 03/03/2022 | 06/04/2022 |
| | | | | | | | |
| | | | | | | | |

# Linear Series
## AC-DC Power Supplies

The Bel Power Solutions produces the industry's broadest selection of Linear power supplies with output voltages from 5 to 48 Volts. Rugged technology and proven design merge to create quiet, highly-regulated, dependable DC power.

The Linear power supplies are approved to domestic and international regulatory standards, and are CE Marked to the Low Voltage Directive (LVD).

RoHS Compliant

### Key Features & Benefits

- RoHS compatible for all six substances
- Worldwide AC Input Capabilities:
- 100/120/220/230/240 VAC
- ±0.05% Output Regulation
- Low Output Ripple
- Mean Time Before Failure (MTBF) 300,000 Hours
- CE marked to Low Voltage Directive
- 100% Burn-In
- 2 Year Warranty
- Overvoltage Protection (OVP) Standard on 5 V Single Outputs, Optional for other outputs under 48 V

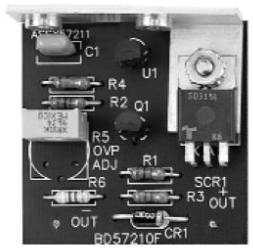
### Applications

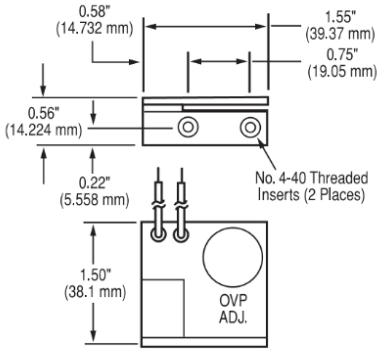
Used in industrial and medical applications needing low noise/ripple – amplifiers, acoustic, broadcast, ATE and control equipment.

## 1. OVERVOLTAGE PROTECTION OPTIONS

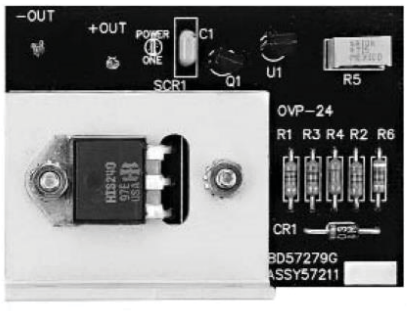
These optional overvoltage protection modules are offered for use with Linear Power Supplies. Each is user adjustable from 6.4 V to 34 V.

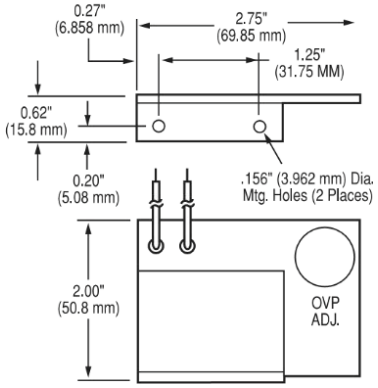
### OVP-12G




### OVP-24G




## 2. OVP SELECTION GUIDE

| MODEL | CASE SIZE | OVP MODULES REQUIRED * |
|---|---|---|
| **SINGLE OUTPUT** | B, C, N, D | OVP-12G |
| | E, F | OVP-24G |
| **DUAL OUTPUT** | AA, B, BB, CC | OVP-12G protects both outputs |
| | E | OVP-24G protects both outputs |
| **TRIPLE OUTPUT** | AA, BAA, D<br>CBB, 131<br>DBB, DCC | OVP-12G protects both 12 V through 15 V outputs |
| **PEAK CURRENT MODELS** | N, BAA, CBB<br>131 | OVP-12G protects any output not provided with built-in OVP |

* Outputs with factory built-in OVP are indicated in the Voltage/Current Rating Chart for each model. OVP is not available for 48 V models.



## 3. MODEL SELECTION – SINGLE OUTPUT

| Model Input 100 to 264 VAC | Nominal Vout* | Max Amps | Case Type | Additional Features |
|---|---|---|---|---|
| **5 Vout** | | | | |
| HA5-1.5/OVP-AG | 5 | 1.5 | B | A |
| HB5-3/OVP-AG | 5 | 3 | B | A, C |
| HC5-6/OVP-AG | 5 | 6 | C | A, C |
| HN5-9/OVP-AG | 5 | 9 | N | A, C |
| HD5-12/OVP-AG | 5 | 12 | D | A, C |
| HE5-18/OVP-AG | 5 | 18 | E | A, C |
| F5-25/OVP-AG | 5 | 25 | F | A, C, D, H |
| G5-35/OVP-AG | 5 | 35 | F | A, C, D, H |
| CP197-AG | 5 | 50 | F | A, C, D |
| **12 to 15 Vout** | | | | |
| HA15-0.9-AG | 12 | 0.9 | B | |
| HB12-1.7-AG | 12 | 1.7 | B | C |
| HC12-3.4-AG | 12 | 3.4 | C | C |
| HN12-5.1-AG | 12 | 5.1 | N | C |
| HD12-6.8-AG | 12 | 6.8 | D | C |
| HE12-10.2-AG | 12 | 10.2 | E | C |
| F15-15-AG | 12 | 16 | F | C, D, H |
| HA15-0.9-AG | 15* | 0.9 | B | |
| HB15-1.5-AG | 15 | 1.5 | B | C |
| HC15-3-AG | 15 | 3 | C | C |
| HN15-4.5-AG | 15 | 4.5 | N | C |
| HD15-6-AG | 15 | 6 | D | C |
| HE15-9-AG | 15 | 9 | E | C |
| F15-15-AG | 15* | 15 | F | C, D, H |

| Model Input 100 to 264 VAC | Nominal Vout* | Max Amps | Case Type | Additional Features |
|---|---|---|---|---|
| **24 to 28 Vout** | | | | |
| HA24-0.5-AG | 24 | 0.5 | B | |
| HB24-1.2-AG | 24 | 1.2 | B | C |
| HC24-2.4-AG | 24 | 2.4 | C | C |
| HN24-3.6-AG | 24 | 3.6 | N | C |
| HD24-4.8-AG | 24 | 4.8 | D | C |
| HE24-7.2-AG | 24 | 7.2 | E | C |
| F24-12-AG | 24 | 12 | F | C, D, H |
| HA24-0.5-AG | 28* | 0.5 | B | |
| HB28-1-AG | 28 | 1 | B | C |
| HC28-2-AG | 28 | 2 | C | |
| HN28-3-AG | 28 | 3 | N | C |
| HD28-4-AG | 28 | 4 | D | C |
| HE28-6-AG | 28 | 6 | E | C |
| F24-12-AG | 28* | 10 | F | C, D, H |
| **48 Vout** | | | | |
| HB48-0.5-AG | 48 | 0.5 | B | |
| HC48-1-AG | 48 | 1 | C | |
| HD48-3-AG | 48 | 3 | D | C |
| HE48-4-AG | 48 | 4 | E | C |

* May require jumpering or potentiometer adjustment.

Model numbers highlighted in yellow are not recommended for new designs or reached End-Of-Life (EOL) status.

| Case Type | Dimensions | |
|---|---|---|
| | inches | millimeters |
| AA | 6.50 x 4.00 x 2.10 | 165.10 x 101.60 x 53.34 |
| B | 4.87 x 4.00 x 2.10 | 123.70 x 101.60 x 53.34 |
| BAA | 10.25 x 4.00 x 2.95 | 260.35 x 101.60 x 74.93 |
| BB | 7.00 x 4.87 x 2.95 | 177.80 x 123.70 x 74.93 |
| C | 5.62 x 4.87 x 2.95 | 142.75 x 123.70 x 74.93 |
| CBB | 11.00 x 4.87 x 3.28 | 279.40 x 123.70 x 83.31 |
| CC | 9.38 x 4.87 x 3.28 | 238.25 x 123.70 x 83.31 |
| CP131 | 11.00 x 4.87 x 3.28 | 279.40 x 123.70 x 83.31 |
| D | 9.00 x 4.87 x 3.28 | 228.60 x 123.70 x 83.31 |
| DBB | 14.25 x 4.87 x 3.38 | 361.95 x 123.70 x 85.85 |
| DCC | 15.00 x 4.88 x 4.55 | 381.00 x 123.95 x 115.57 |
| E | 14.00 x 4.87 x 3.53 | 355.60 x 123.70 x 89.66 |
| F | 16.75 x 4.88 x 5.00 | 425.50 x 123.95 x 127.00 |
| N | 7.00 x 4.87 x 3.28 | 177.80 x 123.70 x 83.31 |

**Additional Features:**

- A Overvoltage protection, set at 6.2 V ±0.4 V.
- B Non-adjustable 3-terminal regulator.
- C Remote sense provided.
- D With output inhibit & parallel operation master/slave capability.
- E With output inhibit.
- F Adjustable 3-terminal regulator.
- G Can be made into an isolated output by removing jumper W1.
- H Model requires 100 LFM forced-air cooling above 75% of rated output power at 50°C.

bel POWER SOLUTIONS & PROTECTION
a bel group

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**Europe, Middle East** +353 61 49 8941
**North America** +1 866 513 2839

 

## 4. MODEL SELECTION – DUAL OUTPUT

| Model Input 100 to 264 VAC | Nominal Vout* | Max Amps | Case Type | Additional Features |
|---|---|---|---|---|
| **5 to 15 Vout** | | | | |
| HAA5-1.5/OVP-AG | +5, –5 | 1.5, 1.5 | AA | A |
| HBB5-3/OVP-AG | +5, –5 | 3, 3 | BB | A |
| HCC5-6/OVP-AG | +5, –5 | 6, 6 | CC | A, C |
| HAA512-AG | 5, 12 to 15 | 2, 0.5 | AA | A |
| HBB512-AG | 5, 12 to 15 | 3, 1.25 | BB | A, C |
| HCC512-AG | 5, 12 to 15 | 6, 2.5 | CC | A, C |
| HAA15-0.8-AG | +12, –5* | 1, 0.4 | AA | C |
| HBB15-1.5-AG | +12, –5* | 1.7, 0.7 | BB | C |
| HAD12-0.4-AG | +12, –12 | 0.4, 0.4 | B | B |
| HAA15-0.8-AG | +12, –12 | 1, 1 | AA | C |
| HBB15-1.5-AG | +12, –12 | 1.7, 1.7 | BB | C |
| HCC15-3-AG | +12, –12 | 3.4, 3.4 | CC | C |
| HDD15-5-AG | +12, –12* | 5, 5 | E | C |
| HAA15-0.8-AG | +12, –15* | 1, 0.8 | AA | C |
| HBB15-1.5-AG | +12, –15* | 1.7, 1.5 | BB | C |
| HCC15-3-AG | +12, –15* | 3.4, 3 | CC | C |
| HDD15-5-AG | +12, –15* | 5, 5 | E | C |
| HAA15-0.8-AG | +15, –5* | 0.8, 0.4 | AA | C |
| HBB15-1.5-AG | +15, –5* | 1.5, 0.7 | BB | C |
| HAA15-0.8-AG | +15, –12* | 0.8, 1 | AA | C |
| HBB15-1.5-AG | +15, –12* | 1.5, 1.7 | BB | C |
| HCC15-3-AG | +15, –12* | 3, 3.4 | CC | C |
| HDD15-5-AG | 15, –12* | 5, 5 | E | C |
| **15 to 24 Vout** | | | | |
| HAD15-0.4-AG | +15, –15 | 0.4, 0.4 | B | B |
| HAA15-0.8-AG | +15, –15 | 0.8, 0.8 | AA | C |
| HBB15-1.5-AG | +15, –15* | 1.5, 1.5 | BB | C |
| HCC15-3-AG | +15, –15* | 3, 3 | CC | C |
| HDD15-5-AG | +15, –15 | 5, 5 | E | C |
| HAA24-0.6-AG | +24, –24 | 0.6, 0.6 | AA | |
| HBB24-1.2-AG | +24, –24 | 1.2, 1.2 | BB | |
| HCC24-2.4-AG | +24, –24 | 2.4, 2.4 | CC | C |

* May require jumpering or potentiometer adjustment.

Model numbers highlighted in yellow are not recommended for new designs or reached End-Of-Life (EOL) status.

| Case Type | Dimensions | |
|---|---|---|
| | inches | millimeters |
| AA | 6.50 x 4.00 x 2.10 | 165.10 x 101.60 x 53.34 |
| B | 4.87 x 4.00 x 2.10 | 123.70 x 101.60 x 53.34 |
| BAA | 10.25 x 4.00 x 2.95 | 260.35 x 101.60 x 74.93 |
| BB | 7.00 x 4.87 x 2.95 | 177.80 x 123.70 x 74.93 |
| C | 5.62 x 4.87 x 2.95 | 142.75 x 123.70 x 74.93 |
| CBB | 11.00 x 4.87 x 3.28 | 279.40 x 123.70 x 83.31 |
| CC | 9.38 x 4.87 x 3.28 | 238.25 x 123.70 x 83.31 |
| CP131 | 11.00 x 4.87 x 3.28 | 279.40 x 123.70 x 83.31 |
| D | 9.00 x 4.87 x 3.28 | 228.60 x 123.70 x 83.31 |
| DBB | 14.25 x 4.87 x 3.38 | 361.95 x 123.70 x 85.85 |
| DCC | 15.00 x 4.88 x 4.55 | 381.00 x 123.95 x 115.57 |
| E | 14.00 x 4.87 x 3.53 | 355.60 x 123.70 x 89.66 |
| F | 16.75 x 4.88 x 5.00 | 425.50 x 123.95 x 127.00 |
| N | 7.00 x 4.87 x 3.28 | 177.80 x 123.70 x 83.31 |

**Additional Features:**

- A Overvoltage protection, set at 6.2 V ±0.4 V.
- B Non-adjustable 3-terminal regulator.
- C Remote sense provided.
- D With output inhibit and parallel operation master/slave capability.
- E With output inhibit.
- F Adjustable 3-terminal regulator.
- G Can be made into an isolated output by removing jumper W1.
- H Model requires 100 LFM forced-air cooling above 75% of rated output power at 50°C.

## 5. MODEL SELECTION – TRIPLE OUTPUT

Unsigned output voltages are isolated and can be used as either + or - polarities.

| Model Input 100 to 264 VAC 5 to 24 Vout | Nominal Vout* | Max Amps | Case Type | Additional Features |
|---|---|---|---|---|
| HTAA-16W-AG | +5, +12, –5* | 2, 0.4, 0.4 | AA | A |
| HBAA-40W-AG | 5, +12, –5* | 3, 1, 0.4 | BAA | A, C |
| HCAA-60W-AG | +5, +12, –5* | 6, 1, 0.4 | D | A, C |
| HCBB-75W-AG | 5, +12, –5* | 6, 1.7, 0.7 | CBB | C |
| CP131-AG | 5, +12, –5* | 8, 1.7, 0.7 | CP131 | A, C |
| HDBB-105W-AG | 5, +12, –5* | 12, 1.7, 0.7 | DBB | A, C |
| HTAA-16W-AG | 5, +12, –12 | 2, 0.4, 0.4 | AA | A |
| HBAA-40W-AG | 5, +12, –12 | 3, 1, 1 | BAA | A, C |
| HCAA-60W-AG | +5, +12, –12 | 6, 1, 1 | D | A, C |
| HCBB-75W-AG | 5, +12, –12 | 6, 1.7, 1.7 | CBB | C |
| CP131-AG | 5, +12, –12 | 8, 1.7, 1.7 | CP131 | A, C |
| HDBB-105W-AG | 5, +12, –12 | 12, 1.7, 1.7 | DBB | C |
| HDCC-150W-AG | 5, +12, –12 | 12, 3.4, 3.4 | DCC | A, C |
| HTAA-16W-AG | 5, +12, –15* | 2, 0.4, 0.4 | AA | A |
| HBAA-40W-AG | 5, +12, –15* | 3, 1, 0.8 | BAA | A, C |
| HCAA-60W-AG | +5, +12, –15* | 6, 1, 1 | D | A, C |
| HCBB-75W-AG | 5, +12, –15 | 6, 1.7, 1.5 | CBB | C |
| CP131-AG | 5, +12, –15 | 8, 1.7, 1.5 | CP131 | A, C |
| HDBB-105W-AG | 5, +12, –15* | 12, 1.7, 1.5 | DBB | C |
| HDCC-150W-AG | 5, +12, –15 | 12, 3.4, 3 | DCC | A, C |
| HTAA-16W-AG | 5, +15, –5* | 2, 0.4, 0.4 | AA | A |
| HBAA-40W-AG | 5, +15, –5* | 3, 0.8, 0.4 | BAA | A, C |
| HCAA-60W-AG | +5, +15, –5* | 6, 1, 0.4 | D | A, C |
| HCBB-75W-AG | 5, +15, –5* | 6, 1.5, 0.7 | CBB | C |
| CP131-AG | 5, +15, –5* | 8, 1.5, 0.7 | CP131 | A, |
| HDBB-105W-AG | 5, +15, –5* | 12, 1.5, 0.7 | DBB | C |
| HTAA-16W-AG | 5, +15, –12* | 2, 0.4, 0.4 | AA | A |
| HBAA-40W-AG | 5, +15, –12* | 3, 0.8, 1 | BAA | A, C |
| HCAA-60W-AG | +5, +15, –12* | 6, 1, 1 | D | A, C |
| HCBB-75W-AG | 5, +15, –12 | 6, 1.5, 1.7 | CBB | C |
| CP131-AG | 5, +15, –12 | 8, 1.5, 1.7 | CP131 | A, C |
| HDBB-105W-AG | 5, +15, –12* | 12, 1.5, 1.7 | DBB | C |
| HDCC-150W-AG | 5, +15, –12 | 12, 3, 3.4 | DCC | A, C |
| HTAA-16W-AG | 5, +15, –15* | 2, 0.4, 0.4 | AA | A |
| HBAA-40W-AG | 5, +15, –15* | 3, 0.8, 0.8 | BAA | A, C |
| HCAA-60W-AG | +5, +15, –15* | 6, 1, 1 | D | A, C |
| HCBB-75W-AG | 5, +15, –15 | 6, 1.5, 1.5 | CBB | C |
| CP131-AG | 5, +15, –15 | 8, 1.5, 1.5 | CP131 | A, C |
| HDBB-105W-AG | 5, +15, –15* | 12, 1.5, 1.5 | DBB | C |
| HDCC-150W-AG | 5, +15, –15 | 12, 3, 3 | DCC | A, C |

| Case Type | Dimensions | |
|---|---|---|
| | inches | millimeters |
| AA | 6.50 x 4.00 x 2.10 | 165.10 x 101.60 x 53.34 |
| B | 4.87 x 4.00 x 2.10 | 123.70 x 101.60 x 53.34 |
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**Additional Features:**

A Overvoltage protection, set at 6.2 V ±0.4 V.
B Non-adjustable 3-terminal regulator.
C Remote sense provided.
D With output inhibit and parallel operation master/slave capability.
E With output inhibit.
F Adjustable 3-terminal regulator.
G Can be made into an isolated output by removing jumper W1.
H Model requires 100 LFM forced-air cooling above 75% of rated output power at 50°C.

* May require jumpering or potentiometer adjustment.
Model numbers highlighted in yellow are not recommended for new designs or reached End-Of-Life (EOL) status.



## 6. INPUT SPECIFICATIONS

| PARAMETER | CONDITIONS / DESCRIPTION | | MIN | NOM | MAX | UNITS |
|---|---|---|---|---|---|---|
| AC Input Voltage [1, 2] | Jumper selectable, shipped factory configured for 120 VAC operation. All models must be externally fused for proper operation.<br>Fuse ratings are marked on each unit.<br>Consult factory for each unit's fuse requirements. | 100 VAC Tap<br>120 VAC Tap<br>220 VAC Tap<br>240 VAC Tap | 87<br>104<br>191<br>209 | 100<br>120<br>220<br>240 | 110<br>132<br>242<br>264 | VAC |
| Input Frequency | AC input. | | 47 | | 63 | Hz |
| Line Regulation | Output voltage charge for a 10% line change: F case models.<br>HAD12, HAD15.<br>Outputs with adjustable three terminal regulators.<br>All other models. | | -0.01<br>-1.0<br>-0.5<br>-0.05 | | +0.01<br>+1.0<br>+0.5<br>+0.05 | % |

## 7. OUTPUT SPECIFICATIONS

| PARAMETER | CONDITIONS / DESCRIPTION | MIN | NOM | MAX | UNITS |
|---|---|---|---|---|---|
| Output Adjustment | Minimum output adjustment range [3] | -5 | | +5 | % |
| Efficiency | 5 volt outputs. | | 45 | | |
| | 12 volt and 15 volt outputs. | | 55 | | % |
| | 24 volt and higher outputs. | | 60 | | |
| Ripple and Noise [4] | F case models. | | | 3.0 | $mV_{PK-PK}$ |
| | 5 volt, 12 volt, and 15 volt models. | | | 5.0 | $mV_{PK-PK}$ |
| | All three terminal regulator outputs. | | | 0.2 | $\%_{PK-PK}$ |
| | 24 volt through 48 volt models. | | 3.0 $mV_{PK-PK}$ plus 0.02% of output voltage, max | | |
| Load Regulation | Output change for a 50% load change: F case models. | -0.02 | | +0.02 | |
| | HAD12, HAD15.<br>Outputs with adjustable three terminal regulators. | -1<br>-0.5 | | +1<br>+0.5 | % |
| | All other models. | -0.05 | | +0.05 | |
| Transient Response | Recovery time, to within 1% of initial set point due to a 50% load change. | | | 50 | µs |

[1] Derate output current 10% for 50Hz operation.
[2] Input voltage tolerance for 230 VAC operation is +15%, -10%.
[3] Output voltage adjustments can be made to within ±5% of factory setting of nominal output voltage. Locate the "Vadj" potentiometer on the power supply PCB and use a screwdriver to adjust the output pot. The HAD12 and HAD15 3 terminal regulator outputs are not adjustable.
[4] Full load, 20 MHz bandwidth.



## 8. SAFETY, REGULATORY AND EMI SPECIFICATIONS

| PARAMETER | CONDITIONS / DESCRIPTION | MIN | NOM | MAX | UNITS |
|---|---|---|---|---|---|
| Agency Approvals | Approved to the latest edition of the following standards; UL/CSA 60950-1 and IEC/EN 62368-1 | | | | |
| Dielectric Withstand Voltage | Input to case<br>Input to output (tested by manufacturer only) | 2121<br>4242 | | | VDC |
| Electromagnetic | FCC CFR title 47 Part 15 Sub-Part B - conducted. | | | | |
| Interference | EN 55022 / CISPR 22 conducted.<br>EN 55022 / CISPR 22 radiated. | Compatible with system compliance to Level B. | | | |
| Leakage Current | Per EN 62368-1 (264 VAC) | | 23 | 50 | µA |

## 9. SIGNALS AND INTERNAL PROTECTION

| PARAMETER | CONDITIONS / DESCRIPTION | MIN | NOM | MAX | UNITS |
|---|---|---|---|---|---|
| Overvoltage Protection | Provided on 5 V output units where indicated. Other outputs may use optional overvoltage protectors OVP-12 and OVP-24. | 5.8 | | 6.6 | V |
| Remote Sense | Total voltage compensation for cable losses with respect to the main output. Provided on models where indicated. | | | 250 | mV |
| Overcurrent/Short Circuit Protection | Automatic current limit/foldback. Rated as a percentage of output power. | 115 | 120 | 140 | % |
| Master/Slave Operation | For parallel operation of up to 6 units. Master/slave pin provided on F case models only. Contact factory for application notes. | | | | |

## 10. ENVIRONMENTAL SPECIFICATIONS

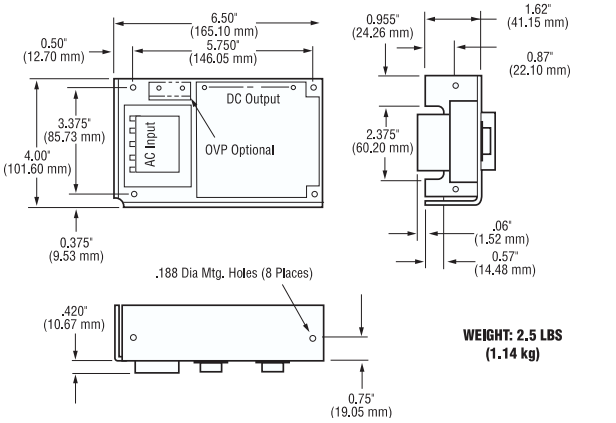
| PARAMETER | CONDITIONS/DESCRIPTION | | MIN | NOM | MAX | UNITS |
|---|---|---|---|---|---|---|
| Operating Temperature | Derate output power linearly above 50°C by 3% per °C. | @ 100% load | 0 | | 50 | °C |
| | | @ 40% load | | | 70 | °C |
| Storage Temperature | | | -40 | | 85 | °C |
| Temperature Coefficient | 0°C to 50°C (after 15-minute warm-up). | | | 0.1 | 0.3 | %/°C |
| | 24 hours after warm-up. | | -0.3 | | +0.3 | % |
| Shock | Operating. | | | | 20 | $G_{PK}$ |
| Vibration | Random vibration from 10 Hz to 2 kHz, 3 axis. | | | | 6.15 | $G_{RMS}$ |
| Relative Humidity | Non-Condensing. | | 5 | | 95 | %RH |



## AA CASE

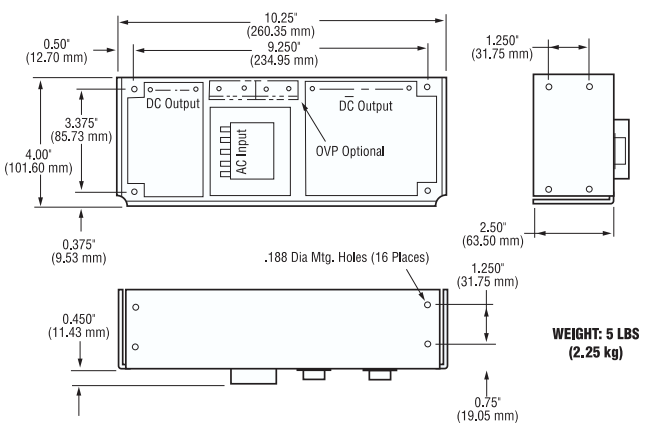
**OVERALL SIZE**
**6.50" x 4.00" x 2.10"**
**(165.10 mm) x (101.60 mm) x (53.34 mm)**




**WEIGHT: 2.5 LBS**
**(1.14 kg)**

## BAA CASE

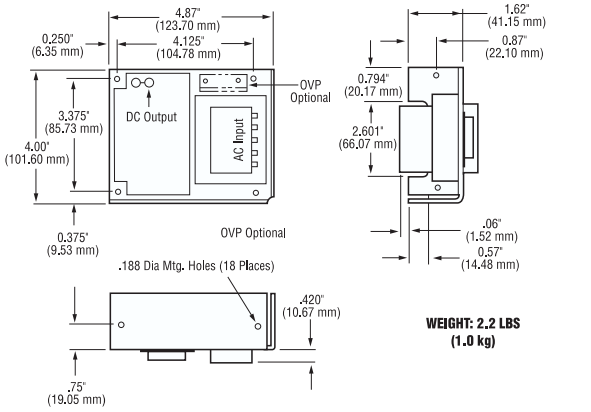
**OVERALL SIZE**
**10.25" x 4.00" x 2.95"**
**(260.35 mm) x (101.60 mm) x (74.93 mm)**




**WEIGHT: 5 LBS**
**(2.25 kg)**

## B CASE

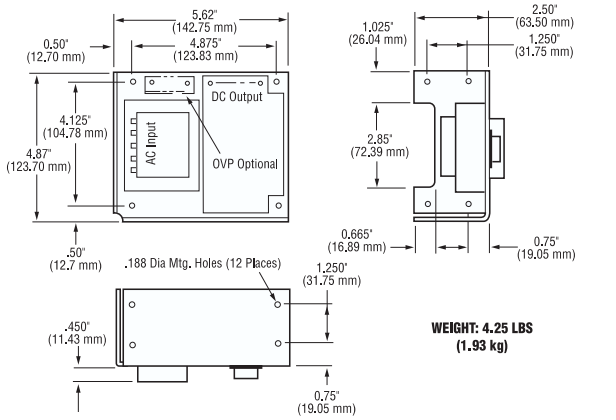
**OVERALL SIZE**
**4.87" x 4.00" x 2.10"**
**(123.70 mm) x (101.60 mm) x (53.34 mm)**




**WEIGHT: 2.2 LBS**
**(1.0 kg)**

## C CASE

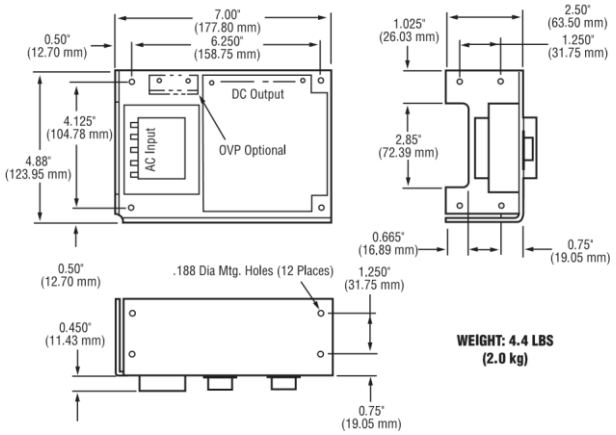
**OVERALL SIZE**
**5.62" x 4.87" x 2.95"**
**(142.75 mm) x (123.70 mm) x (74.93 mm)**




**WEIGHT: 4.25 LBS**
**(1.93 kg)**

## BB CASE

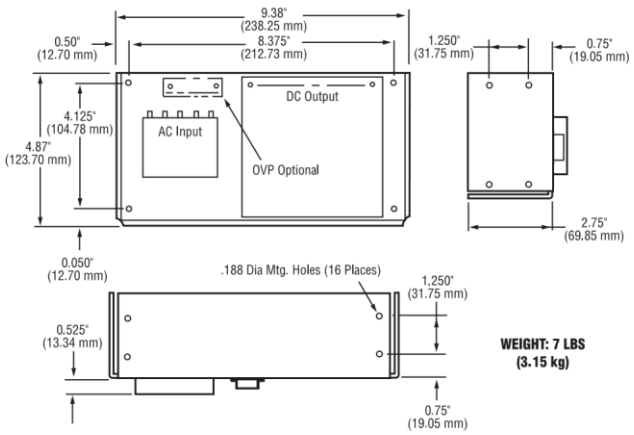
**OVERALL SIZE**
**7.00" x 4.87" x 2.95"**
**(177.80 mm) x (123.70 mm) x (74.93 mm)**




**WEIGHT: 4.4 LBS**
**(2.0 kg)**

## CC CASE

**OVERALL SIZE**
**9.38" x 4.87" x 3.28"**
**(238.25 mm) x (123.70 mm) x (83.31 mm)**




**WEIGHT: 7 LBS**
**(3.15 kg)**

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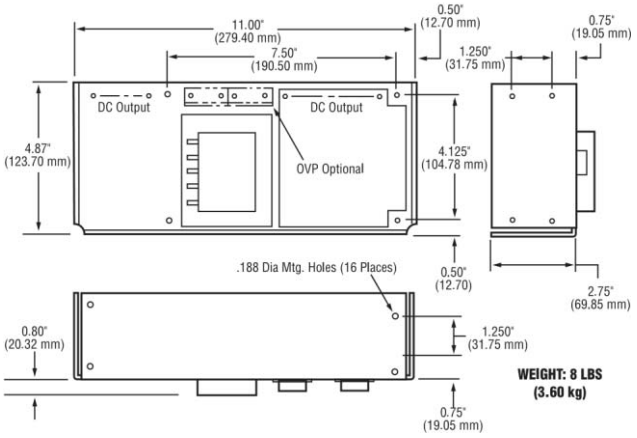
**North America** +1 866 513 2839

## CBB CASE

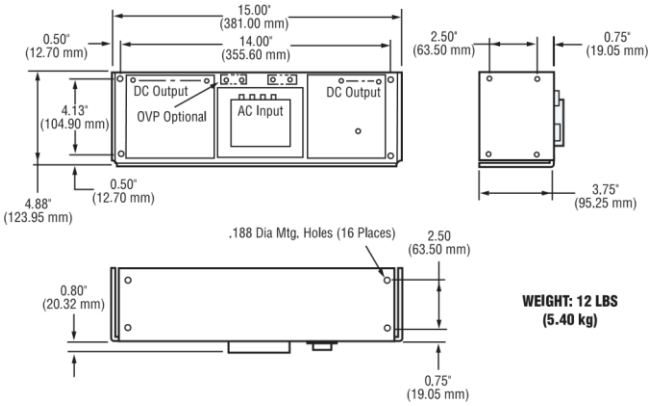
**OVERALL SIZE**
**11.00" x 4.87" x 3.28"**
**(279.40 mm) x (123.70 mm) x (83.31 mm)**




**WEIGHT: 8 LBS**
**(3.60 kg)**

## DCC CASE

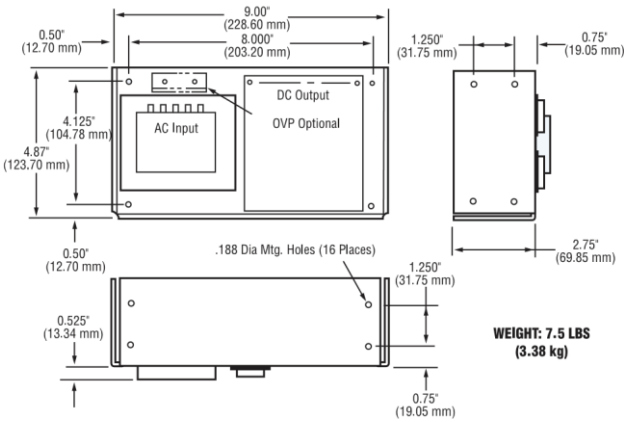
**OVERALL SIZE**
**15.00" x 4.88" x 4.55"**
**(381.00 mm) x (123.95 mm) x (115.57 mm)**




**WEIGHT: 12 LBS**
**(5.40 kg)**

## D CASE

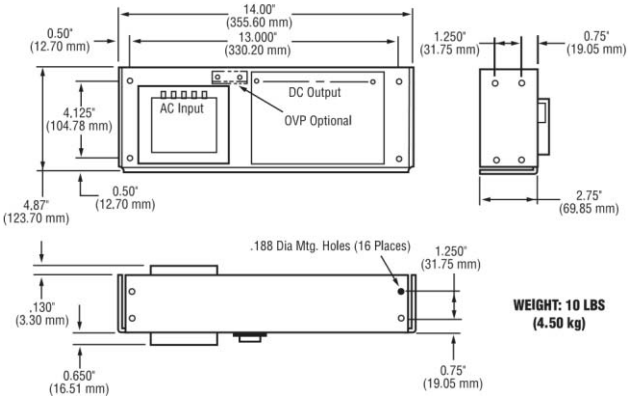
**OVERALL SIZE**
**9.00" x 4.87" x 3.28"**
**(228.60 mm) x (123.70 mm) x (83.31 mm)**




**WEIGHT: 7.5 LBS**
**(3.38 kg)**

## E CASE

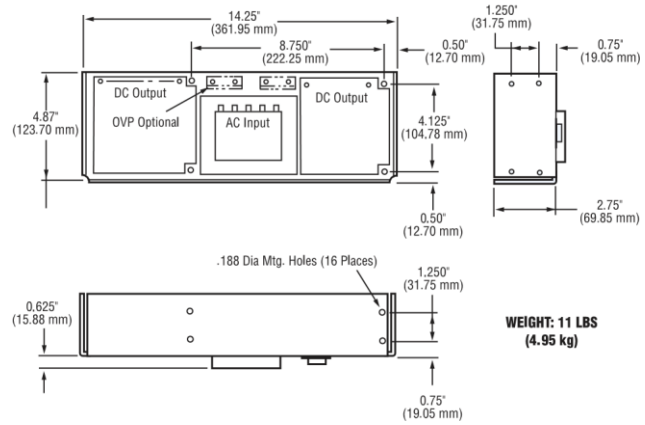
**OVERALL SIZE**
**14.00" x 4.87" x 3.53"**
**(355.60 mm) x (123.70 mm) x (89.66 mm)**




**WEIGHT: 10 LBS**
**(4.50 kg)**

## DBB CASE

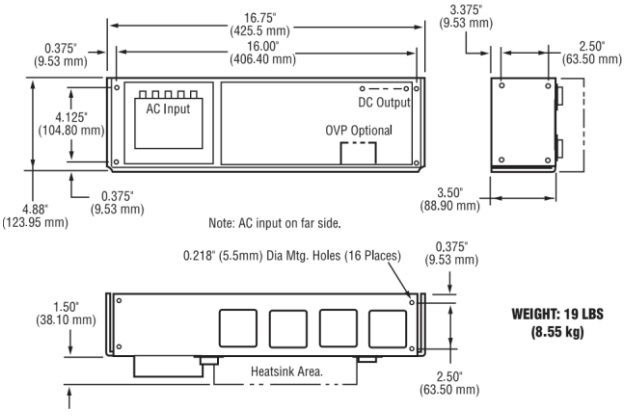
**OVERALL SIZE**
**14.25" x 4.87" x 3.38"**
**(361.95 mm) x (123.70 mm) x (85.85 mm)**




**WEIGHT: 11 LBS**
**(4.95 kg)**

## F CASE

**OVERALL SIZE**
**16.75" x 4.88" x 5.00"**
**(425.5 mm) x (123.95 mm) x (127.00 mm)**




**WEIGHT: 19 LBS**
**(8.55 kg)**

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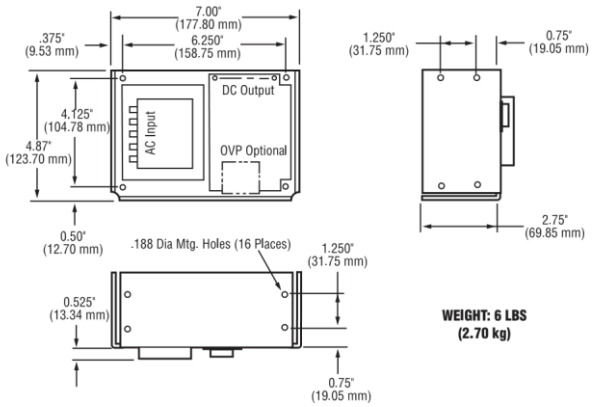
**N CASE**

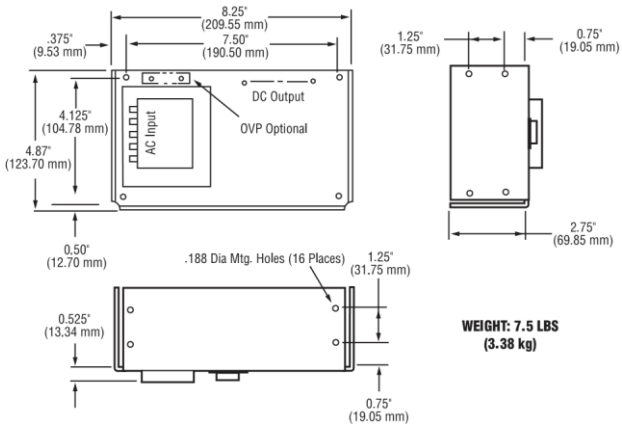
**OVERALL SIZE**
**7.00" x 4.87" x 3.28"**
**(177.80 mm) x (123.70 mm) x (83.31 mm)**




**WEIGHT: 6 LBS**
**(2.70 kg)**

**CP510-A CASE**

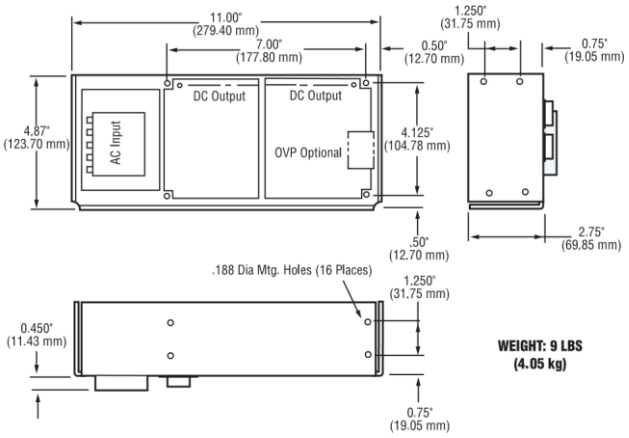
**OVERALL SIZE**
**8.25" x 4.87" x 3.28"**
**(209.55 mm) x (123.70 mm) x (83.31 mm)**




**WEIGHT: 7.5 LBS**
**(3.38 kg)**

**CP131 CASE**

**OVERALL SIZE**
**11.00" x 4.87" x 3.28"**
**(279.40 mm) x (123.70 mm) x (83.31 mm)**




**WEIGHT: 9 LBS**
**(4.05 kg)**

*Mechanical Dimensions of Case Types*

**For more information on these products consult: tech.support@psbel.com**

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GongMing
ShenZhen, China
http://www.belpowersolutions.com

# Characterization Test Report

Product:
## HC24-2.4-AG

Unit No. 000461510109

***Tester:*** Yman Chen
***Date:*** 9/6/2021

***Signature:*** Yman chen

***Approved by:*** Unifive Song
***Date:*** 9/7/2021

***Signature:*** Unifive Song

Bel Power Solutions
China DVT Lab
GongMing
ShenZhen, China
http://www.belpowersolutions.com

# Characterization Test Report

Product:

## HC24-2.4-AG

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# 1. Summary

| *Test Items* | *Result* |
|---|---|
| **Static Measurements** | |
| Line Regulation | **PASS** |
| Load Regulation | **PASS** |
| Efficiency with Load Reuglation | **PASS** |
| Current Limitation | **PASS** |
| **Dynamic Measurements** | |
| Turn_on Delay Test | **Reference** |
| Turn_Off Delay Test | **Reference** |
| Vo1 Dynamic Load Test | **PASS** |
| Noise And Ripple Test | **PASS** |
| Output Short Circuit | **Reference** |
| **OVERALL DESIGN VERIFICATION TEST** | **PASS** |

**Comment:**

# 2. Specifications

***Input Specifications***

| | min. | typ. | max. | unit | condition |
|---|---|---|---|---|---|
| Input Voltage Range | 100 | | 240 | Vac | |
| Frequency | 47 | 50/60 | 63 | Hz | |

***Output Specifications***

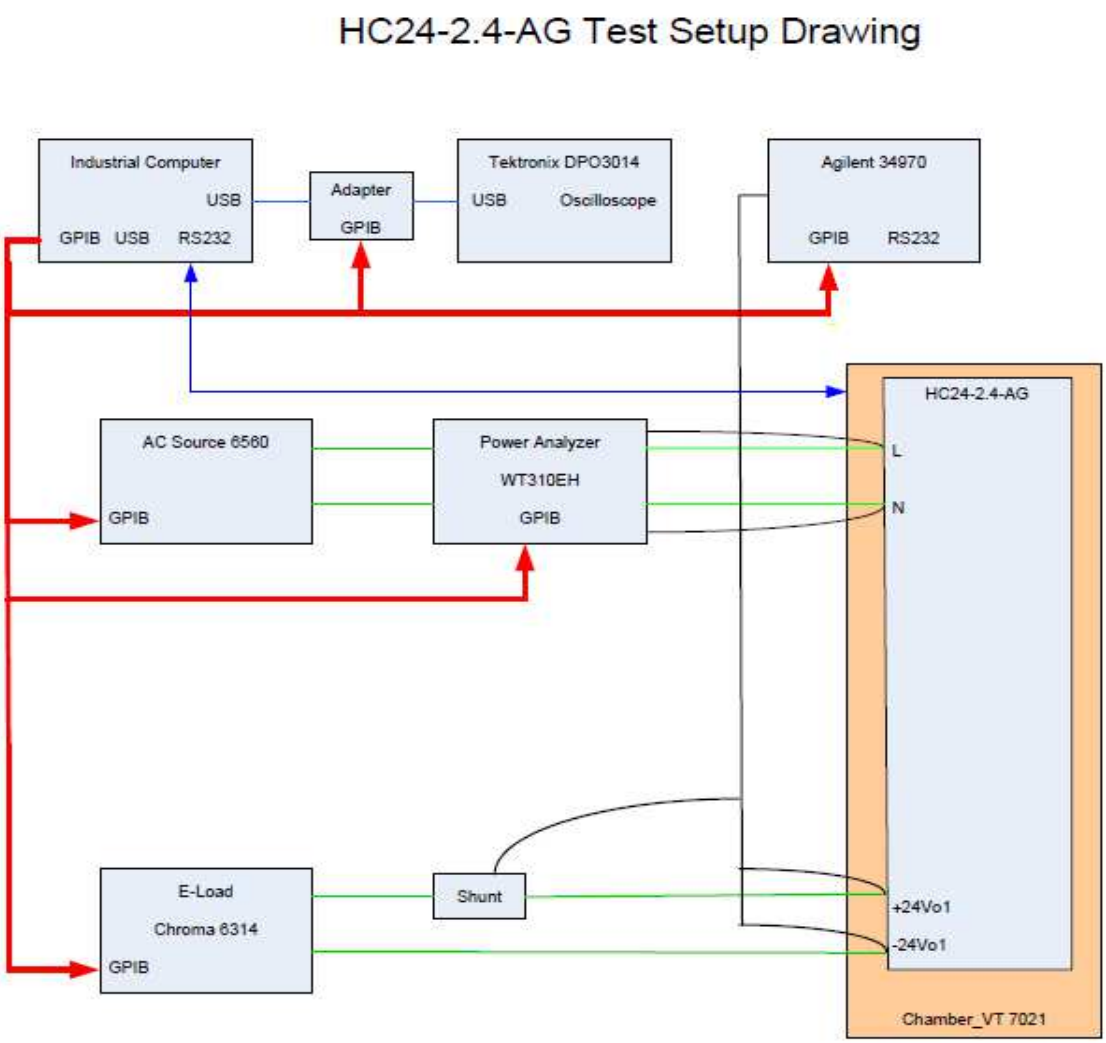
| *V1 Main (+24V)* | min. | typ. | max. | unit | condition |
|---|---|---|---|---|---|
| Nominal Output Voltage | 23.98 | 24.00 | 12.00 | Vdc | @Vimin…Vimax, Iomin…Iomax, Tamin…Tamax |
| Output Power | | 57.6 | | W | |
| Output Current | 0.00 | | 2.40 | A | |
| Ripple & Noise | | | 7.8 | mVpp | @ 20 MHz BW |

***Environmental Test Conditions***

| | min. | typ. | max. | unit | condition |
|---|---|---|---|---|---|
| Operation Temperature | 0.00 | 25.00 | 50.00 | °C | |
| | | | | | |
| | | | | | |

***Comments***

## 3. Test Setup


HC24-2.4-AG Test Setup Drawing
Industrial Computer
USB
GPIB USB RS232
Adapter
GPIB
Tektronix DPO3014
USB Oscilloscope
Agilent 34970
GPIB RS232
HC24-2.4-AG
AC Source 6560
GPIB
Power Analyzer
WT310EH
GPIB
L
N
E-Load
Chroma 6314
GPIB
Shunt
+24Vo1
-24Vo1
Chamber_VT 7021

## 4.1 Line Regulation

Test Reslut: **PASS**

***Measured:***

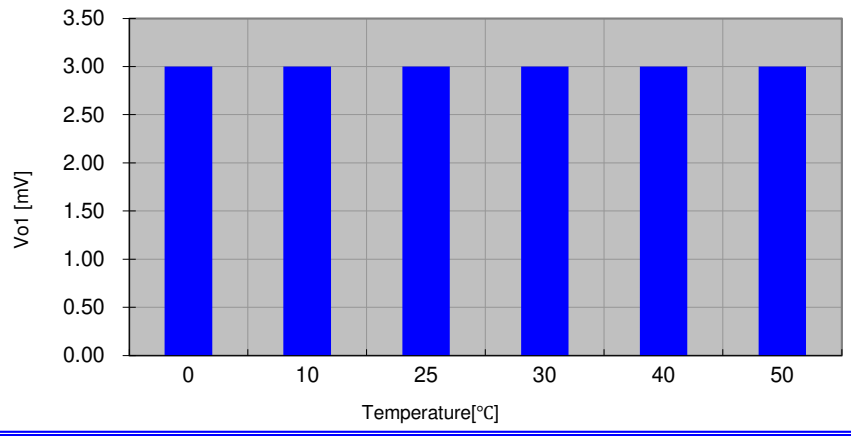
***Test conditions:***

| | |
|---|---|
| Input Voltage: | Vi =87...264 Vac |
| Output Current: | Io1 =0 A |
| Temperature: | Ta = 0 ... 50 °C |

***Test Result: Output Voltage***

| | Meas. | Limit | |
|---|---|---|---|
| | | | |
| V1 Max [mV] | 3.000 | 12.00 | PASS |

***Comment:***




**Io1 =0 A , Vi =87...264 Vac , Ta = 0 ... 50 °C**

***Measured:***

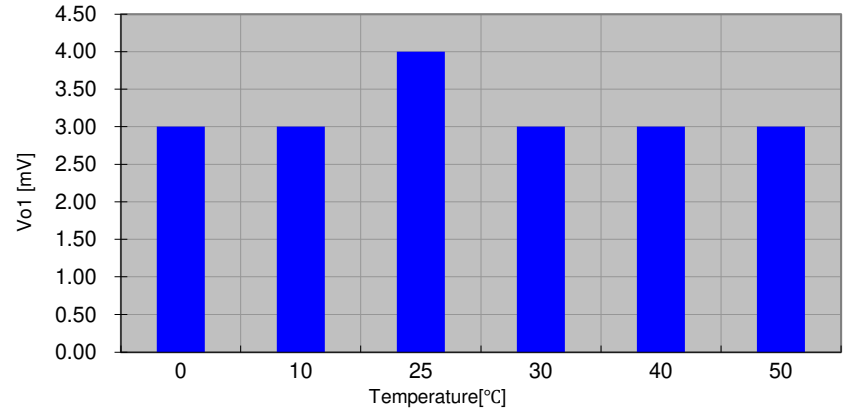
***Test conditions:***

| | |
|---|---|
| Input Voltage: | Vi =87...264 Vac |
| Output Current: | Io1 =1.2 A |
| Temperature: | Ta = 0 ... 50 °C |

***Test Result: Output Voltage***

| | Meas. | Limit | |
|---|---|---|---|
| | | | |
| V1 Max [mV] | 4.000 | 12.00 | PASS |

***Comment:***




**Io1 =1.2 A , Vi =87...264 Vac , Ta = 0 ... 50 °C**

***Measured:***

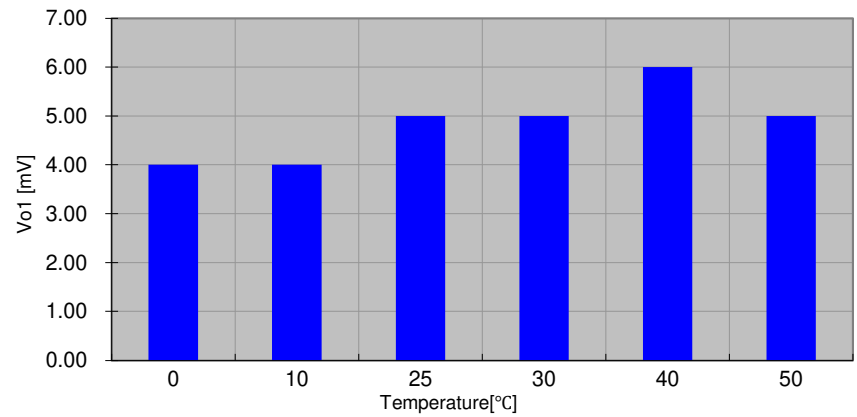
***Test conditions:***

| | |
|---|---|
| Input Voltage: | Vi =87...264 Vac |
| Output Current: | Io1 =2.4 A |
| Temperature: | Ta = 0 ... 50 °C |

***Test Result: Output Voltage***

| | Meas. | Limit | |
|---|---|---|---|
| | | | |
| V1 Max [mV] | 6.000 | 12.00 | PASS |

***Comment:***




**Io1 =2.4 A ,Vi =87...264 Vac , Ta = 0 ... 50 °C**

## 4.2 Load Regulation

Test Reslut: **PASS**

***Measured:***

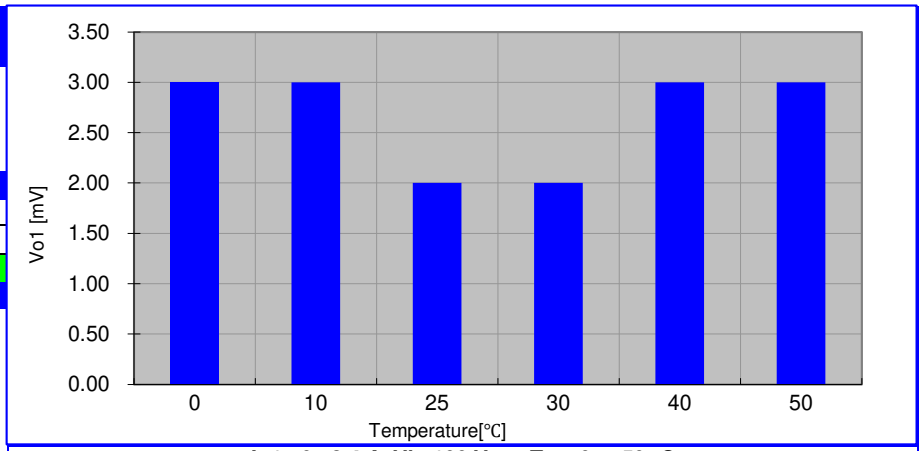
***Test conditions:***

| | |
|---|---|
| Input Voltage: | Vi =100 Vac |
| Output Current: | Io1 =0...2.4 A |
| Temperature: | Ta = 0 ... 50 °C |

***Test Result: Output Voltage***

| | Meas. | Limit | |
|---|---|---|---|
| | | | |
| V1 Max [mV] | 3.000 | 12.00 | PASS |

***Comment:***




**Io1 =0...2.4 A ,Vi =100 Vac , Ta = 0 ... 50 °C**

***Measured:***

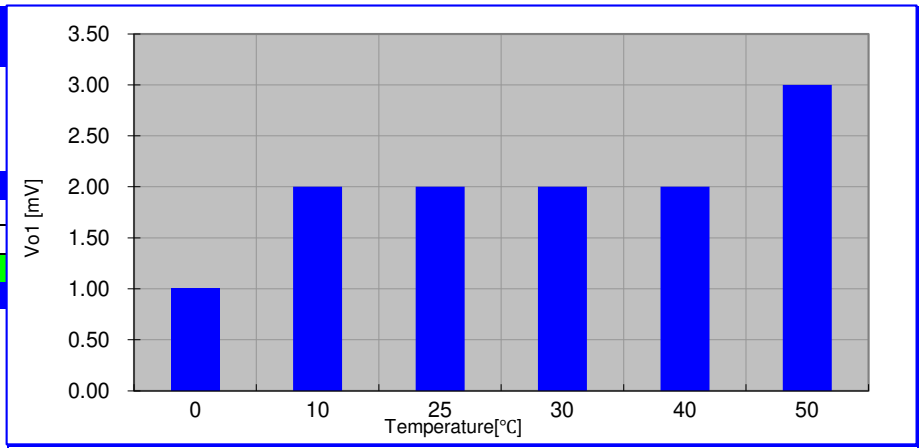
***Test conditions:***

| | |
|---|---|
| Input Voltage: | Vi =240 Vac |
| Output Current: | Io1 =0...2.4 A |
| Temperature: | Ta = 0 ... 50 °C |

***Test Result: Output Voltage***

| | Meas. | Limit | |
|---|---|---|---|
| | | | |
| V1 Max [mV] | 3.000 | 12.00 | PASS |

***Comment:***

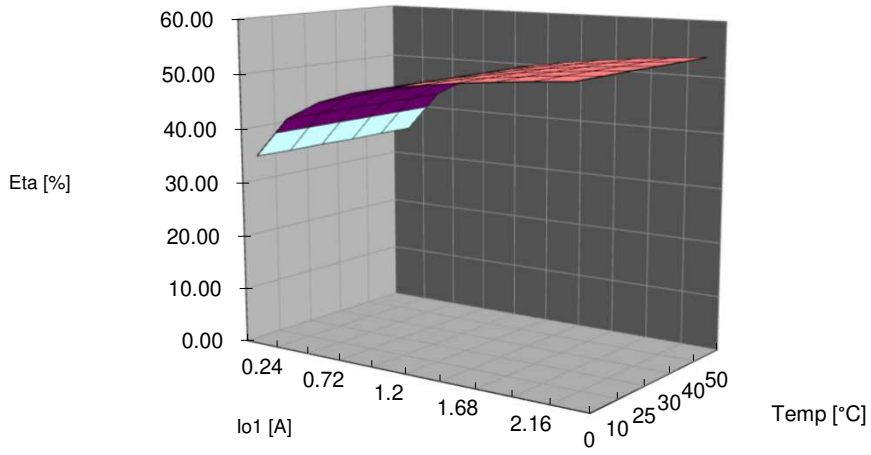



**Io1 =0...2.4 A , Vi =240 Vac , Ta = 0 ... 50 °C**

## 4.3 Efficiency with Load Reuglation

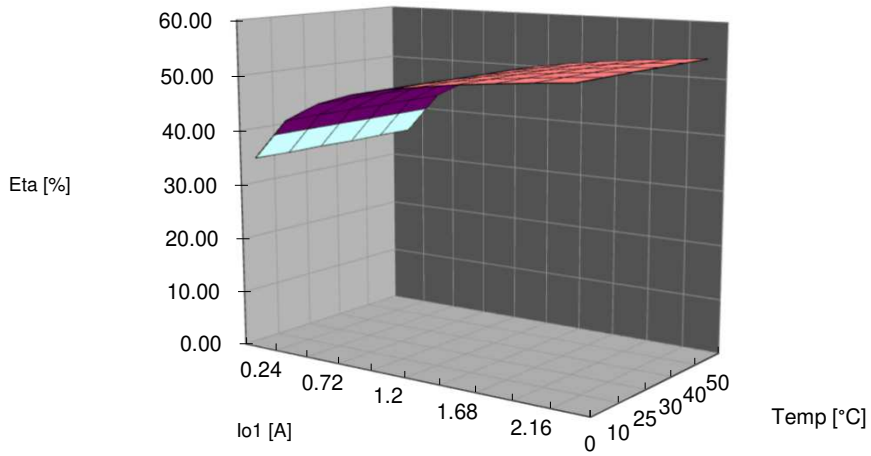
Test Reslut: **PASS**

| ***Measured:*** | ***Efficiency*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi =100 Vac/50 Hz | | |
| Output Current: | Io1 =0.24...2.4 A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | ***Eta @ Ta = 25°C*** | |
| | Meas. | Limit | |
| 1) Eta [%] | 35.34 | | |
| 2) Eta [%] | 42.88 | | |
| 3) Eta [%] | 49.75 | | |
| 4) Eta [%] | 53.38 | | |
| ***Comment:*** | | | |
| 1) Eta @ 10% Load | | | |
| 2) Eta @ 20% Load | | | |
| 3) Eta @ 50% Load | | | |
| 4) Eta @ 100% Load | | | |




**Vi =100 Vac/50 Hz**

| ***Measured:*** | ***Efficiency*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi =240 Vac/50 Hz | | |
| Output Current: | Io1 =0.24...2.4 A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | ***Eta @ Ta = 25°C*** | |
| | Meas. | Limit | |
| 1) Eta [%] | 35.34 | | |
| 2) Eta [%] | 42.88 | | |
| 3) Eta [%] | 49.75 | | |
| 4) Eta [%] | 53.38 | | |
| ***Comment:*** | | | |
| 1) Eta @ 10% Load | | | |
| 2) Eta @ 20% Load | | | |
| 3) Eta @ 50% Load | | | |
| 4) Eta @ 100% Load | | | |

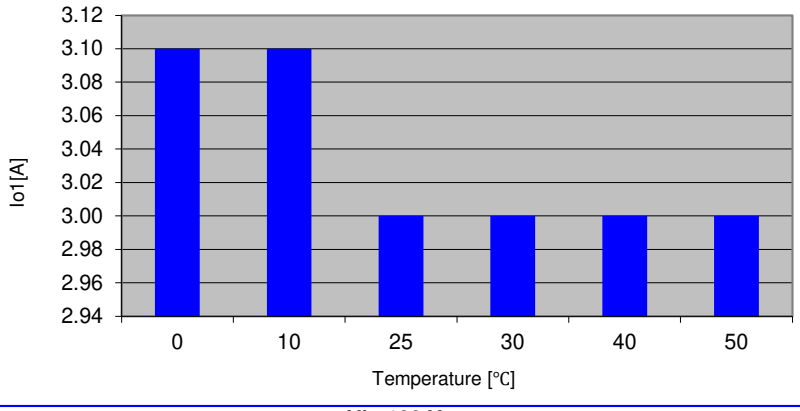



**Vi =240 Vac/50 Hz**

## 4.4 Current Limitation

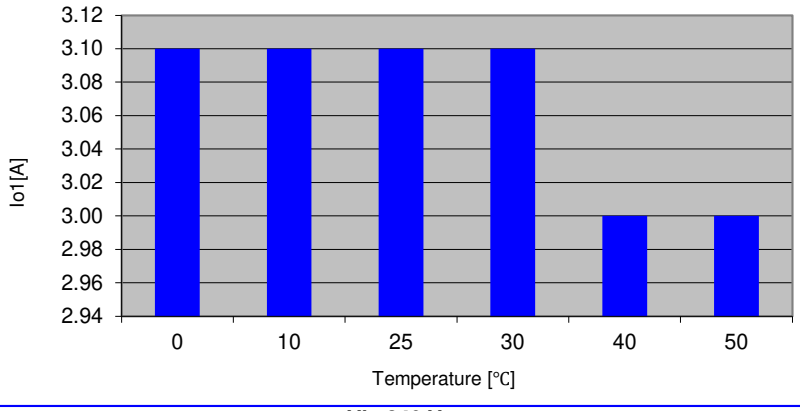
Test Reslut: **PASS**

| ***Measured:*** | ***Vo1 OCP*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi =100 Vac | | |
| Output Current | Io1 =2.4 A | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Io1 Min [A] | 3.000 | 2.76 | PASS |
| Io1 Max [A] | 3.100 | 3.36 | PASS |
| ***Comment:*** | | | |




**Vi =100 Vac**

| ***Measured:*** | ***Vo1 OCP*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi =240 Vac | | |
| Output Current | Io1 =2.4 A | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Io1 Min [A] | 3.000 | 2.76 | PASS |
| Io1 Max [A] | 3.100 | 3.36 | PASS |
| ***Comment:*** | | | |

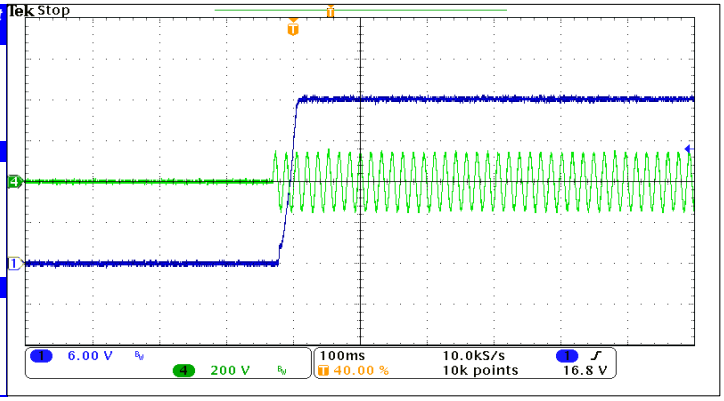



**Vi =240 Vac**

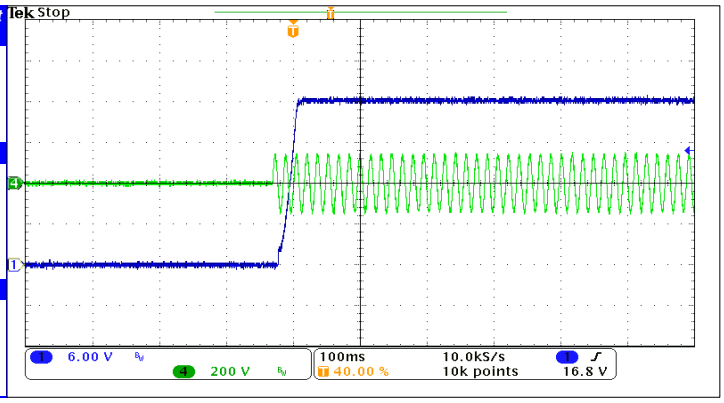
## 5.1 Turn_on Delay Test

Test Reslut: **Ref. Only**

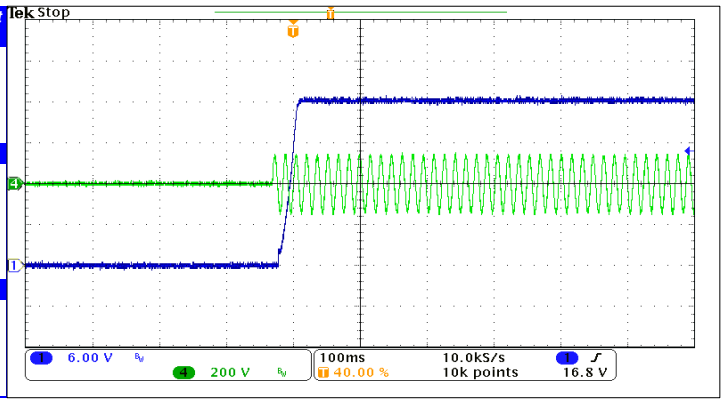
| ***Measured:*** | | ***Turn_on Delay Test*** |
|---|---|---|
| ***Test conditions:*** | | |
| Input Voltage: | Vi = 100 Vac | |
| Output Current: | Io1 = 0 A | |
| Temperature: | Ta = 0 ℃ | |
| ***Test Result:*** | ***Meas.*** | ***Result*** |
| Vo1 Delay[ms] | 34.600 | **Reference** |
| ***Comments:*** | | |
| CH1 = Vo1 | | |
| CH2 = not used | | |
| CH3 = not used | | |
| CH4 = Vi | | |




| ***Measured:*** | | ***Turn_on Delay Test*** |
|---|---|---|
| ***Test conditions:*** | | |
| Input Voltage: | Vi = 100 Vac | |
| Output Current: | Io1 = 0 A | |
| Temperature: | Ta = 25 ℃ | |
| ***Test Result:*** | ***Meas.*** | ***Result*** |
| Vo1 Delay[ms] | 35.300 | **Reference** |
| ***Comments:*** | | |
| CH1 = Vo1 | | |
| CH2 = not used | | |
| CH3 = not used | | |
| CH4 = Vi | | |



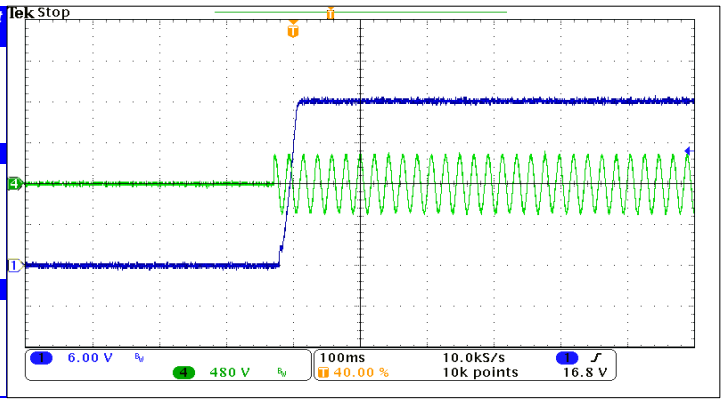

| ***Measured:*** | | ***Turn_on Delay Test*** |
|---|---|---|
| ***Test conditions:*** | | |
| Input Voltage: | Vi = 100 Vac | |
| Output Current: | Io1 = 0 A | |
| Temperature: | Ta = 50 ℃ | |
| ***Test Result:*** | ***Meas.*** | ***Result*** |
| Vo1 Delay[ms] | 35.700 | **Reference** |
| ***Comments:*** | | |
| CH1 = Vo1 | | |
| CH2 = not used | | |
| CH3 = not used | | |
| CH4 = Vi | | |



## Turn_on Delay Test (Continued)

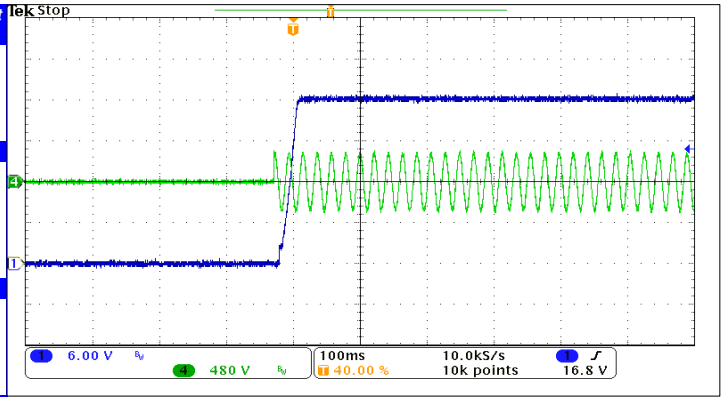
| ***Measured:*** | | ***Turn_on Delay Test*** |
|---|---|---|
| ***Test conditions:*** | | |
| Input Voltage: | Vi = 240 Vac | |
| Output Current: | Io1 = 0 A | |
| Temperature: | Ta = 0 ℃ | |
| ***Test Result:*** | ***Meas.*** | ***Result*** |
| Vo1 Delay[ms] | 34.100 | **Reference** |

***Comments:***
CH1 = Vo1
CH2 = not used
CH3 = not used
CH4 = Vi



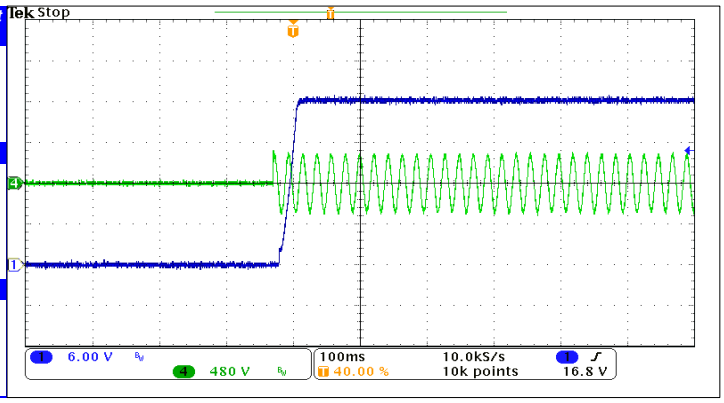

| ***Measured:*** | | ***Turn_on Delay Test*** |
|---|---|---|
| ***Test conditions:*** | | |
| Input Voltage: | Vi = 240 Vac | |
| Output Current: | Io1 = 0 A | |
| Temperature: | Ta = 25 ℃ | |
| ***Test Result:*** | ***Meas.*** | ***Result*** |
| Vo1 Delay[ms] | 34.600 | **Reference** |

***Comments:***
CH1 = Vo1
CH2 = not used
CH3 = not used
CH4 = Vi




| ***Measured:*** | | ***Turn_on Delay Test*** |
|---|---|---|
| ***Test conditions:*** | | |
| Input Voltage: | Vi = 240 Vac | |
| Output Current: | Io1 = 0 A | |
| Temperature: | Ta = 50 ℃ | |
| ***Test Result:*** | ***Meas.*** | ***Result*** |
| Vo1 Delay[ms] | 34.700 | **Reference** |

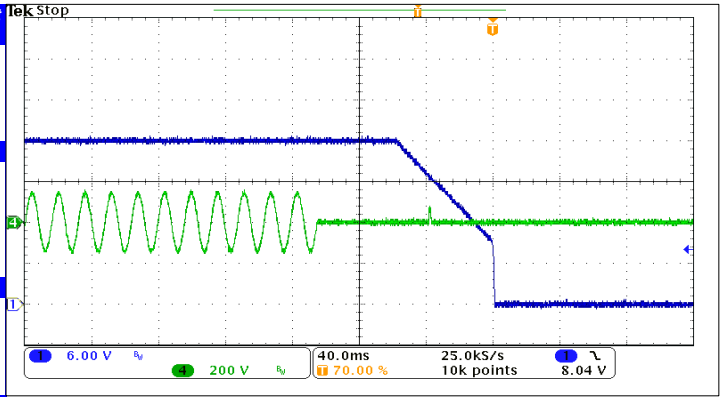
***Comments:***
CH1 = Vo1
CH2 = not used
CH3 = not used
CH4 = Vi



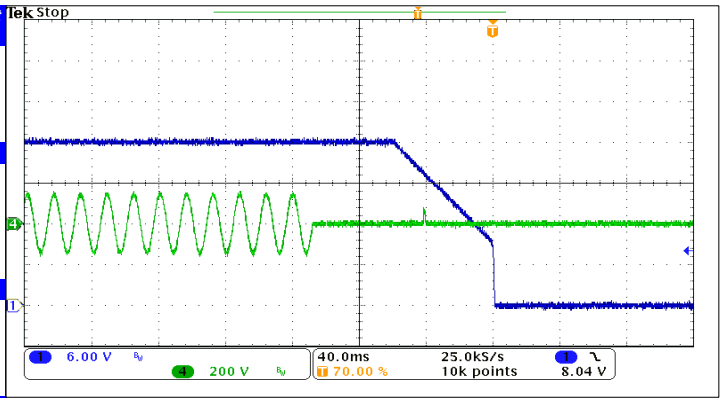
## 5.2 Turn_Off Delay Test

Test Reslut: **Ref. Only**

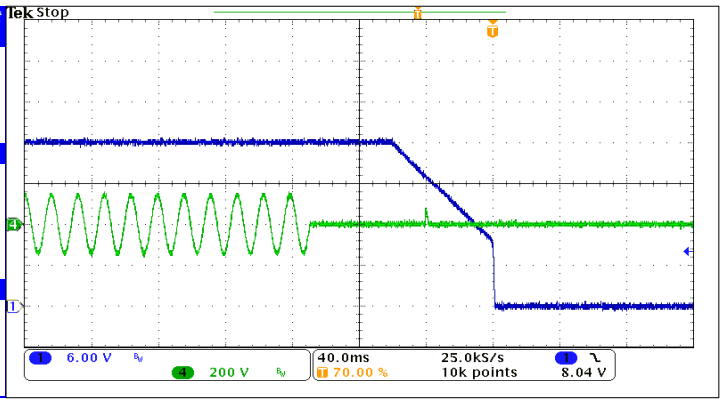
| ***Measured:*** | | ***Turn_off Delay Test*** |
|---|---|---|
| ***Test conditions:*** | | |
| Input Voltage: | Vi = 100 Vac | |
| Output Current: | Io1 = 1.2 A | |
| Temperature: | Ta = 0 ℃ | |
| ***Test Result:*** | ***Meas.*** | ***Result*** |
| Vo1 HoldUp[ms] | 157.200 | **Reference** |
| ***Comments:*** | | |
| CH1 = Vo1 | | |
| CH2 = not used | | |
| CH3 = not used | | |
| CH4 = Vi | | |




| ***Measured:*** | | ***Turn_off Delay Test*** |
|---|---|---|
| ***Test conditions:*** | | |
| Input Voltage: | Vi = 100 Vac | |
| Output Current: | Io1 = 1.2 A | |
| Temperature: | Ta = 25 ℃ | |
| ***Test Result:*** | ***Meas.*** | ***Result*** |
| Vo1 HoldUp[ms] | 160.760 | **Reference** |
| ***Comments:*** | | |
| CH1 = Vo1 | | |
| CH2 = not used | | |
| CH3 = not used | | |
| CH4 = Vi | | |



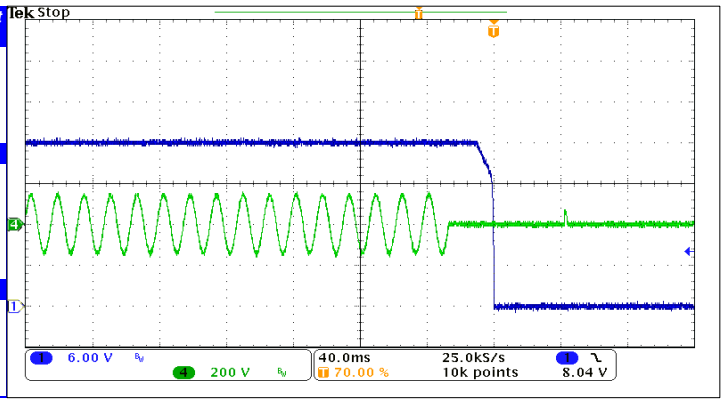

| ***Measured:*** | | ***Turn_off Delay Test*** |
|---|---|---|
| ***Test conditions:*** | | |
| Input Voltage: | Vi = 100 Vac | |
| Output Current: | Io1 = 1.2 A | |
| Temperature: | Ta = 50 ℃ | |
| ***Test Result:*** | ***Meas.*** | ***Result*** |
| Vo1 HoldUp[ms] | 159.560 | **Reference** |
| ***Comments:*** | | |
| CH1 = Vo1 | | |
| CH2 = not used | | |
| CH3 = not used | | |
| CH4 = Vi | | |



## Turn_Off Delay Test (Continued)

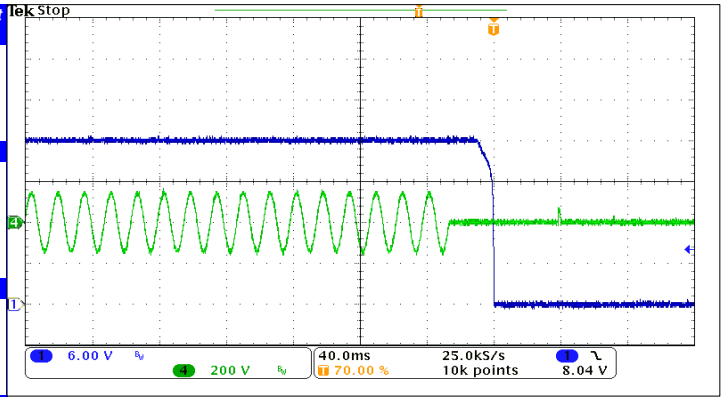
| ***Measured:*** | | ***Turn_off Delay Test*** |
|---|---|---|
| ***Test conditions:*** | | |
| Input Voltage: | Vi = 100 Vac | |
| Output Current: | Io1 = 2.4 A | |
| Temperature: | Ta = 0 ℃ | |
| ***Test Result:*** | ***Meas.*** | ***Result*** |
| Vo1 HoldUp[ms] | 77.200 | Reference |

***Comments:***
CH1 = Vo1
CH2 = not used
CH3 = not used
CH4 = Vi



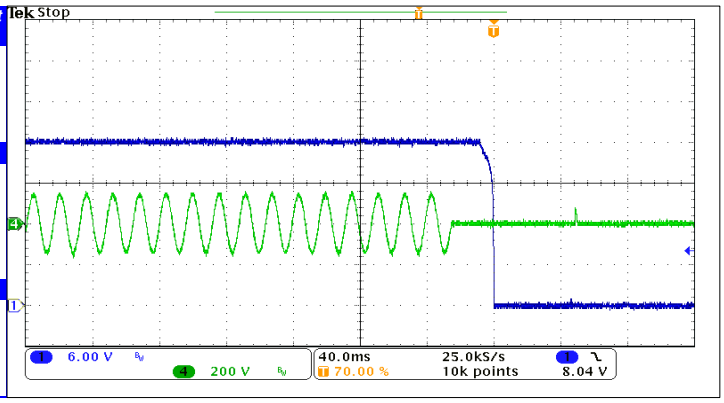

| ***Measured:*** | | ***Turn_off Delay Test*** |
|---|---|---|
| ***Test conditions:*** | | |
| Input Voltage: | Vi = 100 Vac | |
| Output Current: | Io1 = 2.4 A | |
| Temperature: | Ta = 25 ℃ | |
| ***Test Result:*** | ***Meas.*** | ***Result*** |
| Vo1 HoldUp[ms] | 80.680 | Reference |

***Comments:***
CH1 = Vo1
CH2 = not used
CH3 = not used
CH4 = Vi




| ***Measured:*** | | ***Turn_off Delay Test*** |
|---|---|---|
| ***Test conditions:*** | | |
| Input Voltage: | Vi = 100 Vac | |
| Output Current: | Io1 = 2.4 A | |
| Temperature: | Ta = 50 ℃ | |
| ***Test Result:*** | ***Meas.*** | ***Result*** |
| Vo1 HoldUp[ms] | 70.800 | Reference |

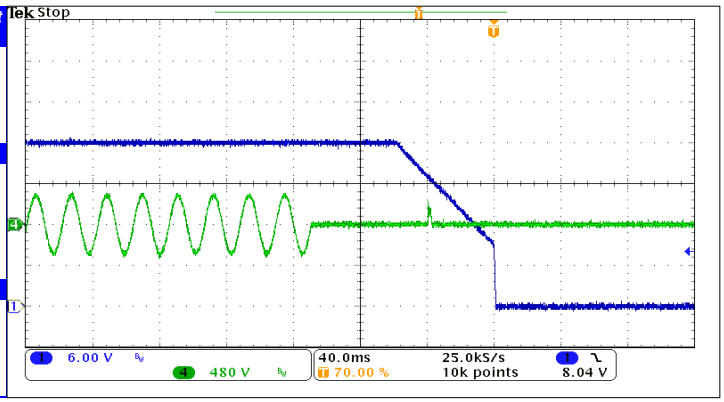
***Comments:***
CH1 = Vo1
CH2 = not used
CH3 = not used
CH4 = Vi



## Turn_Off Delay Test (Continued)

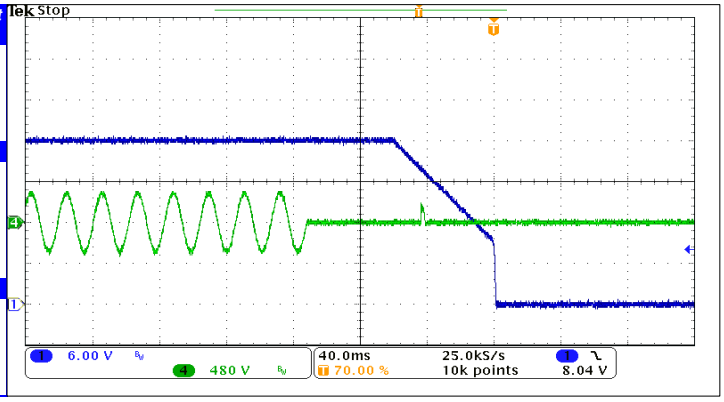
| ***Measured:*** | | ***Turn_off Delay Test*** |
|---|---|---|
| ***Test conditions:*** | | |
| Input Voltage: | Vi = 240 Vac | |
| Output Current: | Io1 = 1.2 A | |
| Temperature: | Ta = 0 ℃ | |
| ***Test Result:*** | ***Meas.*** | ***Result*** |
| Vo1 HoldUp[ms] | 157.880 | Reference |

***Comments:***
CH1 = Vo1
CH2 = not used
CH3 = not used
CH4 = Vi



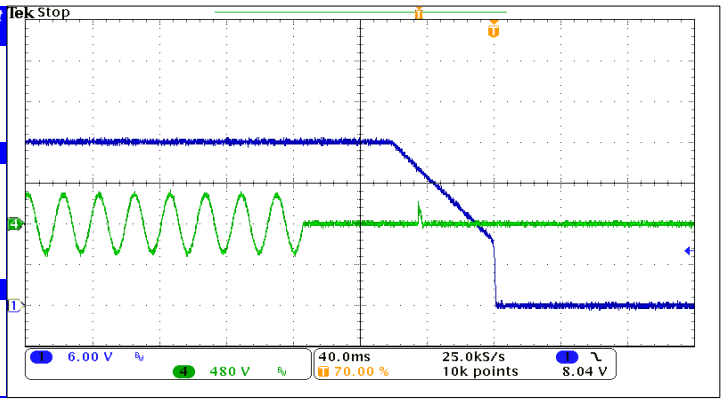

| ***Measured:*** | | ***Turn_off Delay Test*** |
|---|---|---|
| ***Test conditions:*** | | |
| Input Voltage: | Vi = 240 Vac | |
| Output Current: | Io1 = 1.2 A | |
| Temperature: | Ta = 25 ℃ | |
| ***Test Result:*** | ***Meas.*** | ***Result*** |
| Vo1 HoldUp[ms] | 161.960 | Reference |

***Comments:***
CH1 = Vo1
CH2 = not used
CH3 = not used
CH4 = Vi




| ***Measured:*** | | ***Turn_off Delay Test*** |
|---|---|---|
| ***Test conditions:*** | | |
| Input Voltage: | Vi = 240 Vac | |
| Output Current: | Io1 = 1.2 A | |
| Temperature: | Ta = 50 ℃ | |
| ***Test Result:*** | ***Meas.*** | ***Result*** |
| Vo1 HoldUp[ms] | 163.960 | Reference |

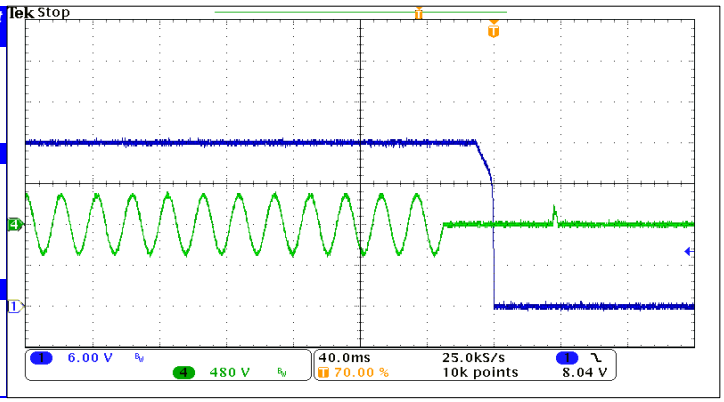
***Comments:***
CH1 = Vo1
CH2 = not used
CH3 = not used
CH4 = Vi



## Turn_Off Delay Test (Continued)

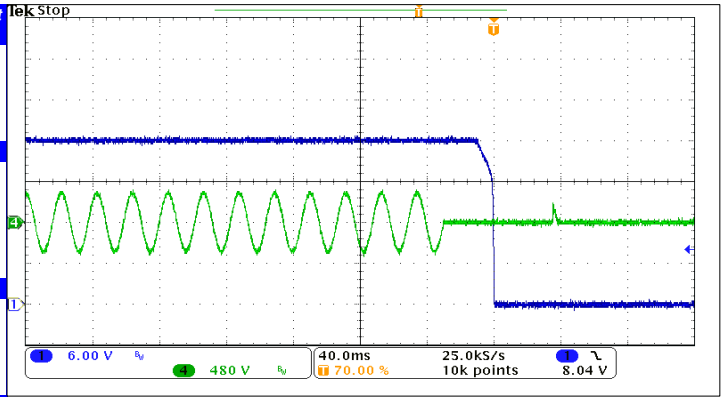
| ***Measured:*** | | ***Turn_off Delay Test*** |
|---|---|---|
| ***Test conditions:*** | | |
| Input Voltage: | Vi = 240 Vac | |
| Output Current: | Io1 = 2.4 A | |
| Temperature: | Ta = 0 ℃ | |
| ***Test Result:*** | ***Meas.*** | ***Result*** |
| Vo1 HoldUp[ms] | 83.360 | Reference |

***Comments:***
CH1 = Vo1
CH2 = not used
CH3 = not used
CH4 = Vi



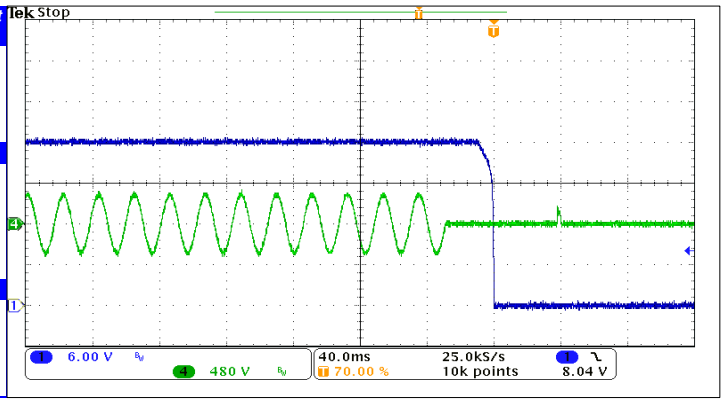

| ***Measured:*** | | ***Turn_off Delay Test*** |
|---|---|---|
| ***Test conditions:*** | | |
| Input Voltage: | Vi = 240 Vac | |
| Output Current: | Io1 = 2.4 A | |
| Temperature: | Ta = 25 ℃ | |
| ***Test Result:*** | ***Meas.*** | ***Result*** |
| Vo1 HoldUp[ms] | 83.800 | Reference |

***Comments:***
CH1 = Vo1
CH2 = not used
CH3 = not used
CH4 = Vi




| ***Measured:*** | | ***Turn_off Delay Test*** |
|---|---|---|
| ***Test conditions:*** | | |
| Input Voltage: | Vi = 240 Vac | |
| Output Current: | Io1 = 2.4 A | |
| Temperature: | Ta = 50 ℃ | |
| ***Test Result:*** | ***Meas.*** | ***Result*** |
| Vo1 HoldUp[ms] | 81.240 | Reference |

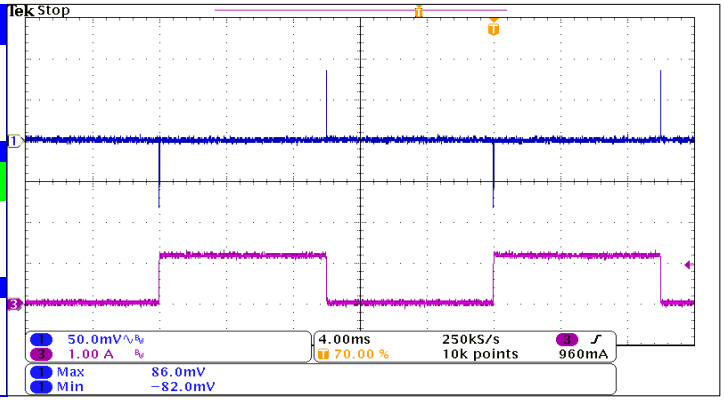
***Comments:***
CH1 = Vo1
CH2 = not used
CH3 = not used
CH4 = Vi



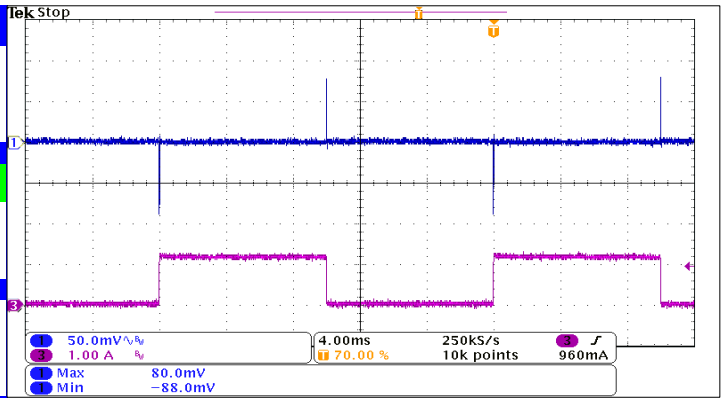
## 5.3 Vo1 Dynamic Load Test

Test Reslut: **PASS**

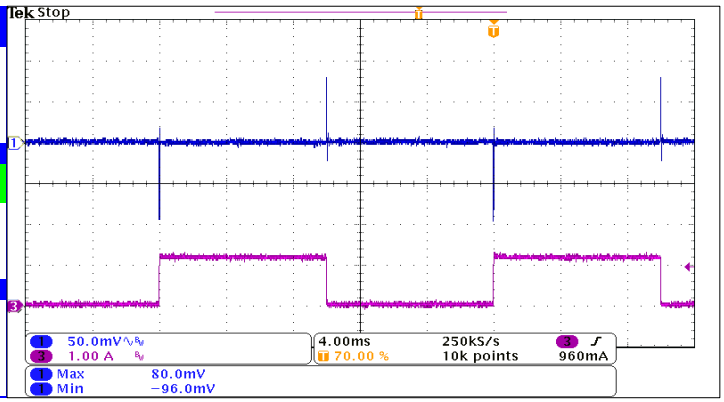
| ***Measured:*** | | | | ***Vo1 DynamicLoad*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 100 Vac | | | |
| Output Current: | Io1 = 0 to 1.2A | | | |
| Temperature: | Ta = 0 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1min[mV] | -82.000 | -480.00 | | PASS |
| Vo1max[mV] | 86.000 | | 480.00 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = Io1 | | | | |
| CH4 = not used | | | | |




| ***Measured:*** | | | | ***Vo1 DynamicLoad*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 100 Vac | | | |
| Output Current: | Io1 = 0 to 1.2A | | | |
| Temperature: | Ta = 25 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1min[mV] | -88.000 | -480.00 | | PASS |
| Vo1max[mV] | 80.000 | | 480.00 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = Io1 | | | | |
| CH4 = not used | | | | |

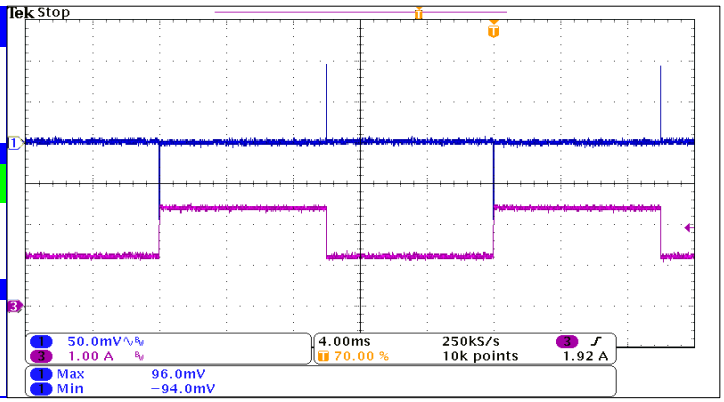



| ***Measured:*** | | | | ***Vo1 DynamicLoad*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 100 Vac | | | |
| Output Current: | Io1 = 0 to 1.2A | | | |
| Temperature: | Ta = 50 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1min[mV] | -96.000 | -480.00 | | PASS |
| Vo1max[mV] | 80.000 | | 480.00 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = Io1 | | | | |
| CH4 = not used | | | | |

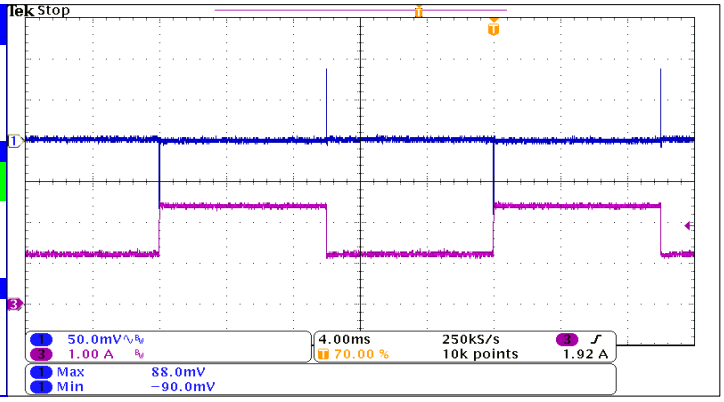


## Vo1 Dynamic Load Test (Continued)

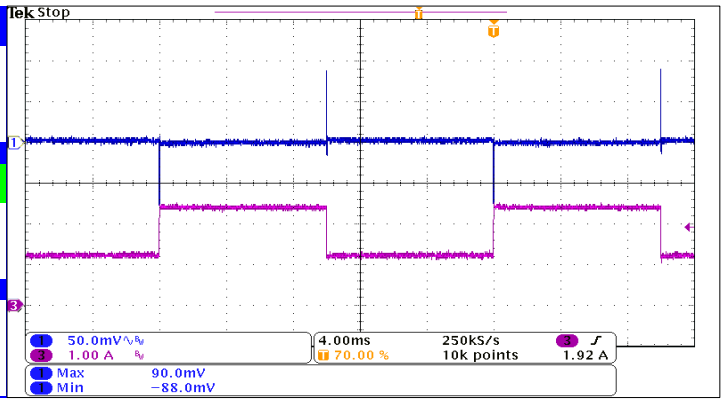
| ***Measured:*** | | | | ***Vo1 DynamicLoad*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 100 Vac | | | |
| Output Current: | Io1 = 1.2 to 2.4A | | | |
| Temperature: | Ta = 0 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1min[mV] | -94.000 | -480.00 | | PASS |
| Vo1max[mV] | 96.000 | | 480.00 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = Io1 | | | | |
| CH4 = not used | | | | |




| ***Measured:*** | | | | ***Vo1 DynamicLoad*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 100 Vac | | | |
| Output Current: | Io1 = 1.2 to 2.4A | | | |
| Temperature: | Ta = 25 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1min[mV] | -90.000 | -480.00 | | PASS |
| Vo1max[mV] | 88.000 | | 480.00 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = Io1 | | | | |
| CH4 = not used | | | | |

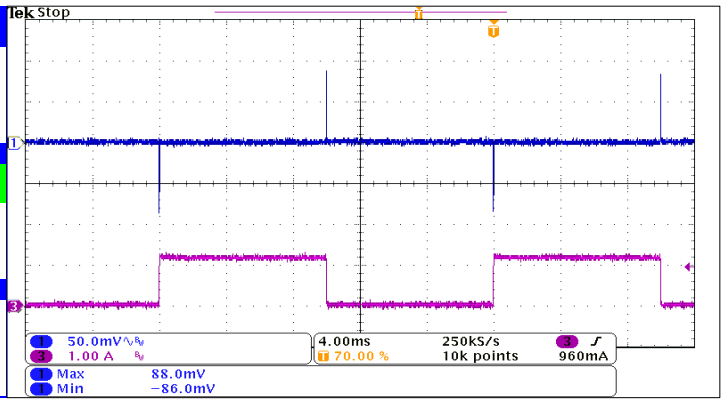



| ***Measured:*** | | | | ***Vo1 DynamicLoad*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 100 Vac | | | |
| Output Current: | Io1 = 1.2 to 2.4A | | | |
| Temperature: | Ta = 50 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1min[mV] | -88.000 | -480.00 | | PASS |
| Vo1max[mV] | 90.000 | | 480.00 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = Io1 | | | | |
| CH4 = not used | | | | |

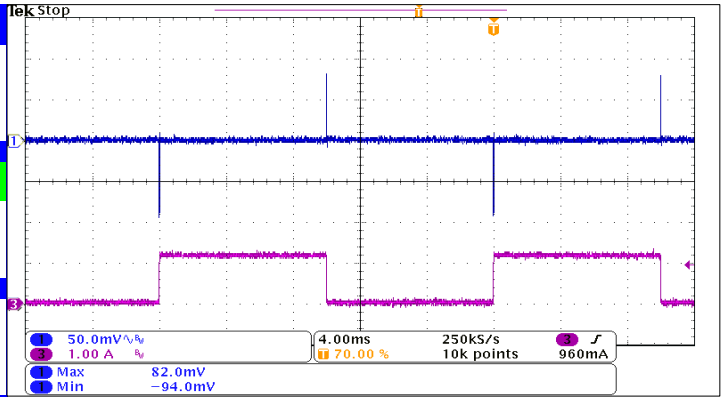


## Vo1 Dynamic Load Test (Continued)

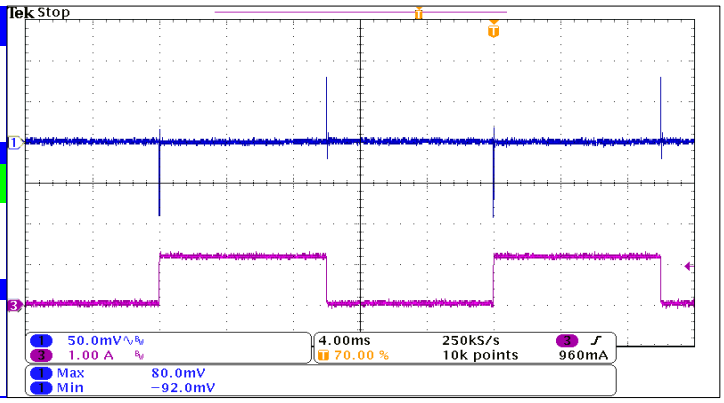
| ***Measured:*** | | | | ***Vo1 DynamicLoad*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 240 Vac | | | |
| Output Current: | Io1 = 0 to 1.2A | | | |
| Temperature: | Ta = 0 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1min[mV] | -86.000 | -480.00 | | PASS |
| Vo1max[mV] | 88.000 | | 480.00 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = Io1 | | | | |
| CH4 = not used | | | | |




| ***Measured:*** | | | | ***Vo1 DynamicLoad*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 240 Vac | | | |
| Output Current: | Io1 = 0 to 1.2A | | | |
| Temperature: | Ta = 25 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1min[mV] | -94.000 | -480.00 | | PASS |
| Vo1max[mV] | 82.000 | | 480.00 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = Io1 | | | | |
| CH4 = not used | | | | |

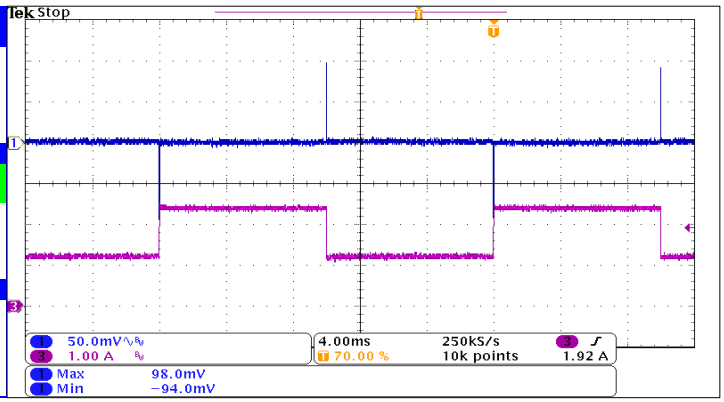



| ***Measured:*** | | | | ***Vo1 DynamicLoad*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 240 Vac | | | |
| Output Current: | Io1 = 0 to 1.2A | | | |
| Temperature: | Ta = 50 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1min[mV] | -92.000 | -480.00 | | PASS |
| Vo1max[mV] | 80.000 | | 480.00 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = Io1 | | | | |
| CH4 = not used | | | | |

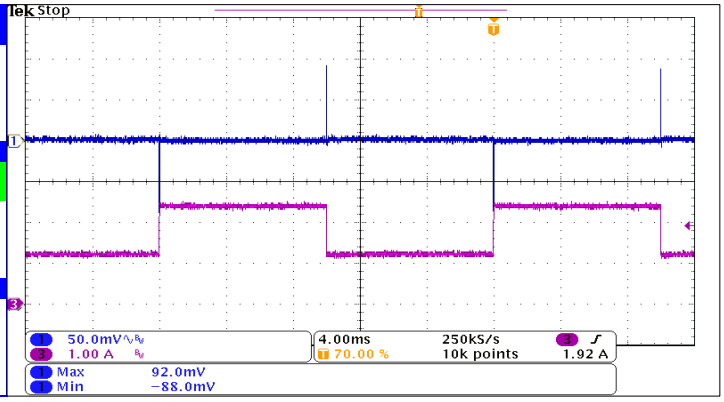


## Vo1 Dynamic Load Test (Continued)

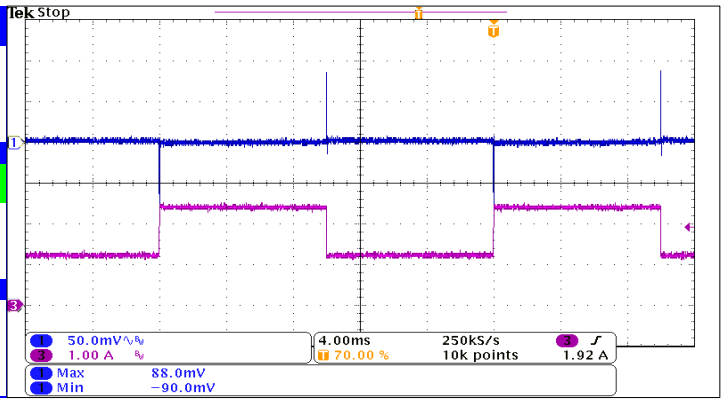
| ***Measured:*** | | | | ***Vo1 DynamicLoad*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 240 Vac | | | |
| Output Current: | Io1 = 1.2 to 2.4A | | | |
| Temperature: | Ta = 0 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1min[mV] | -94.000 | -480.00 | | PASS |
| Vo1max[mV] | 98.000 | | 480.00 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = Io1 | | | | |
| CH4 = not used | | | | |




| ***Measured:*** | | | | ***Vo1 DynamicLoad*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 240 Vac | | | |
| Output Current: | Io1 = 1.2 to 2.4A | | | |
| Temperature: | Ta = 25 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1min[mV] | -88.000 | -480.00 | | PASS |
| Vo1max[mV] | 92.000 | | 480.00 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = Io1 | | | | |
| CH4 = not used | | | | |




| ***Measured:*** | | | | ***Vo1 DynamicLoad*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 240 Vac | | | |
| Output Current: | Io1 = 1.2 to 2.4A | | | |
| Temperature: | Ta = 50 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1min[mV] | -90.000 | -480.00 | | PASS |
| Vo1max[mV] | 88.000 | | 480.00 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = Io1 | | | | |
| CH4 = not used | | | | |

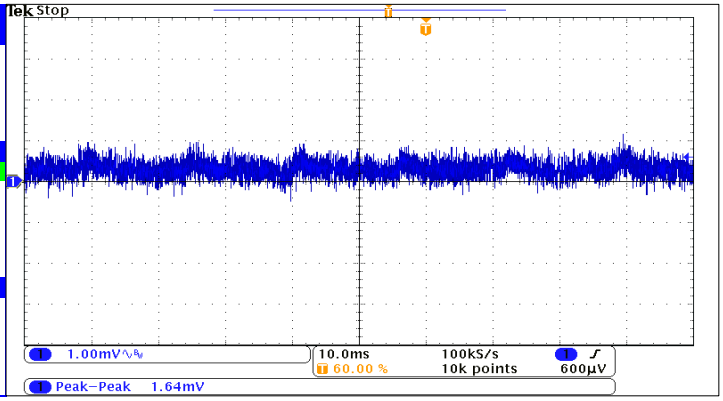


## 5.4 Noise And Ripple Test

Test Reslut: **PASS**

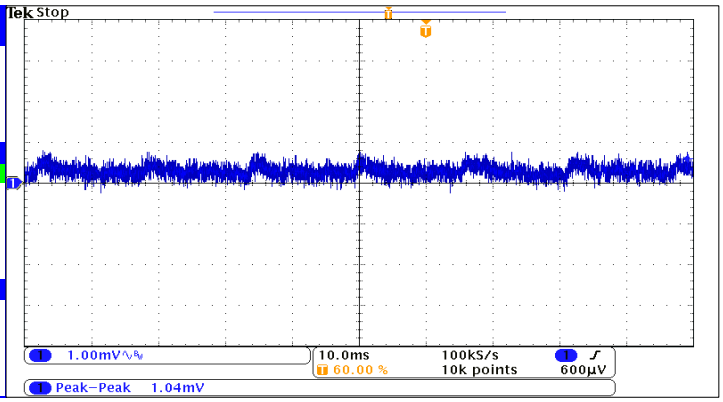
| ***Measured:*** | | | | ***Noise&Ripple*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 100 Vac | | | |
| Output Current: | Io1 = 0 A | | | |
| Temperature: | Ta = 0 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1_Vpp[mV] | 1.640 | | 7.80 | PASS |

***Comments:***
CH1 = Vo1
CH2 = not used
CH3 = not used
CH4 = not used



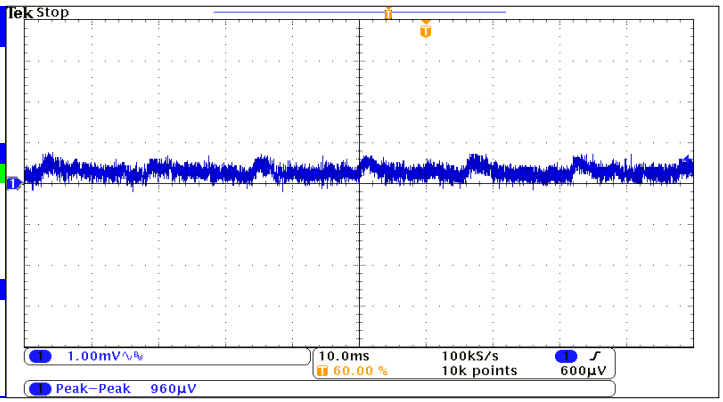

| ***Measured:*** | | | | ***Noise&Ripple*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 100 Vac | | | |
| Output Current: | Io1 = 0 A | | | |
| Temperature: | Ta = 25 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1_Vpp[mV] | 1.040 | | 7.80 | PASS |

***Comments:***
CH1 = Vo1
CH2 = not used
CH3 = not used
CH4 = not used



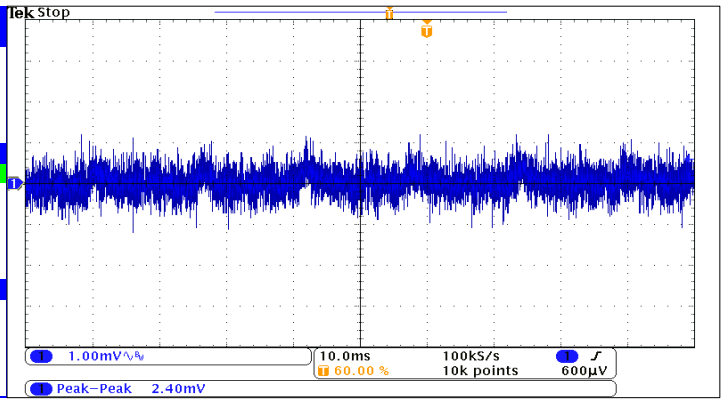

| ***Measured:*** | | | | ***Noise&Ripple*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 100 Vac | | | |
| Output Current: | Io1 = 0 A | | | |
| Temperature: | Ta = 50 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1_Vpp[mV] | 0.960 | | 7.80 | PASS |

***Comments:***
CH1 = Vo1
CH2 = not used
CH3 = not used
CH4 = not used

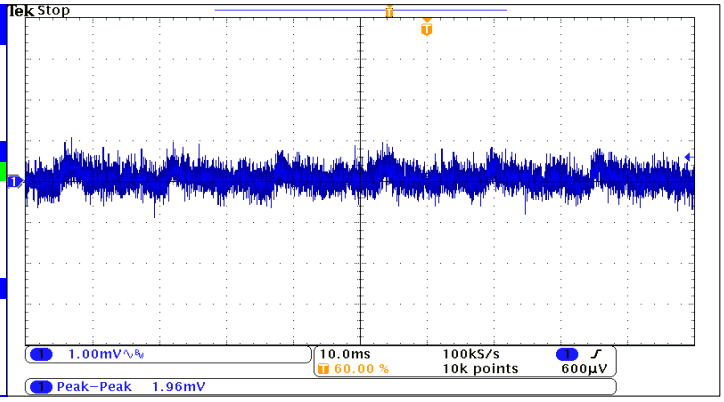


## Noise And Ripple Test (Continued)

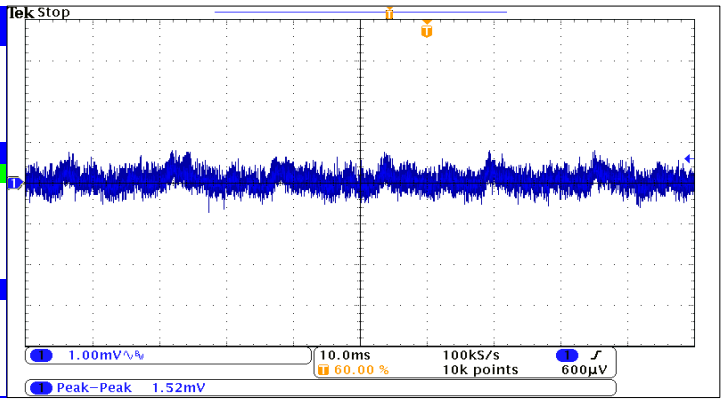
| ***Measured:*** | | | | ***Noise&Ripple*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 100 Vac | | | |
| Output Current: | Io1 = 2.4 A | | | |
| Temperature: | Ta = 0 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1_Vpp[mV] | 2.400 | | 7.80 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = not used | | | | |
| CH4 = not used | | | | |




| ***Measured:*** | | | | ***Noise&Ripple*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 100 Vac | | | |
| Output Current: | Io1 = 2.4 A | | | |
| Temperature: | Ta = 25 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1_Vpp[mV] | 1.960 | | 7.80 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = not used | | | | |
| CH4 = not used | | | | |

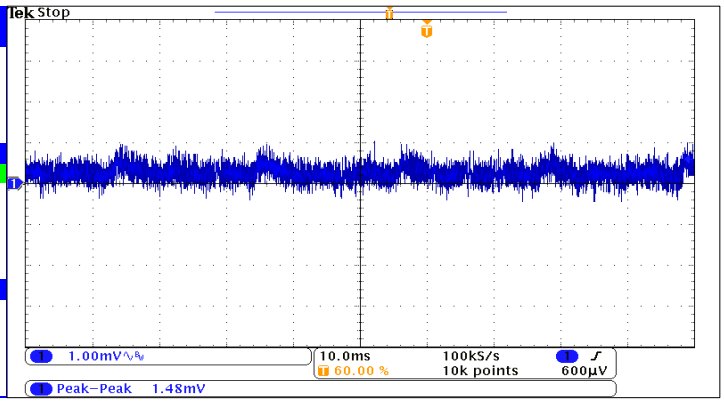



| ***Measured:*** | | | | ***Noise&Ripple*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 100 Vac | | | |
| Output Current: | Io1 = 2.4 A | | | |
| Temperature: | Ta = 50 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1_Vpp[mV] | 1.520 | | 7.80 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = not used | | | | |
| CH4 = not used | | | | |

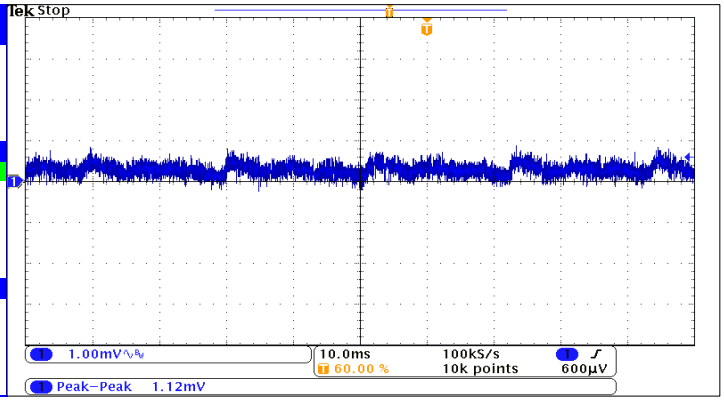


## Noise And Ripple Test (Continued)

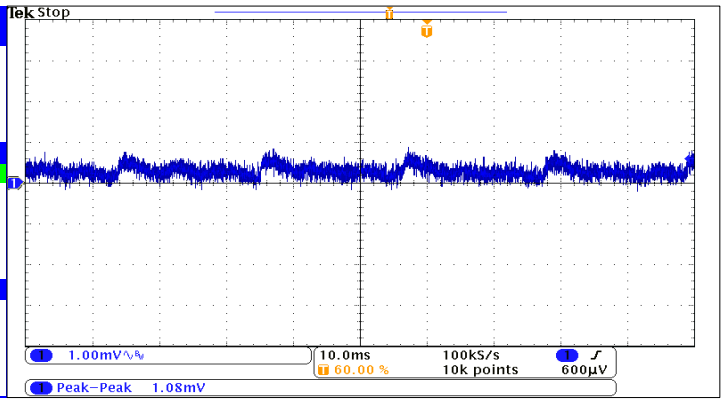
| ***Measured:*** | | | | ***Noise&Ripple*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 240 Vac | | | |
| Output Current: | Io1 = 0 A | | | |
| Temperature: | Ta = 0 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1_Vpp[mV] | 1.480 | | 7.80 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = not used | | | | |
| CH4 = not used | | | | |




| ***Measured:*** | | | | ***Noise&Ripple*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 240 Vac | | | |
| Output Current: | Io1 = 0 A | | | |
| Temperature: | Ta = 25 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1_Vpp[mV] | 1.120 | | 7.80 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = not used | | | | |
| CH4 = not used | | | | |

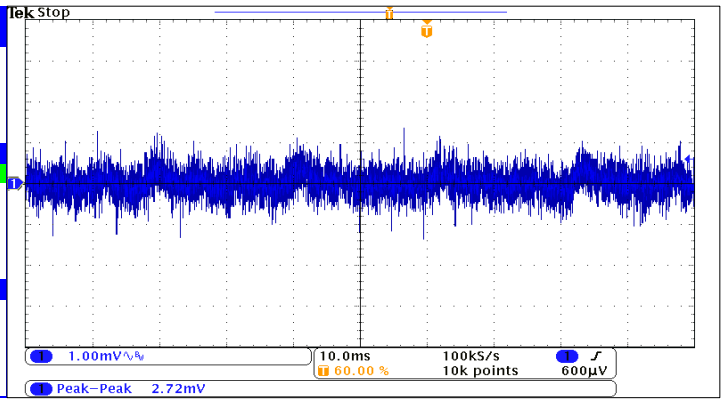



| ***Measured:*** | | | | ***Noise&Ripple*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 240 Vac | | | |
| Output Current: | Io1 = 0 A | | | |
| Temperature: | Ta = 50 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1_Vpp[mV] | 1.080 | | 7.80 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = not used | | | | |
| CH4 = not used | | | | |

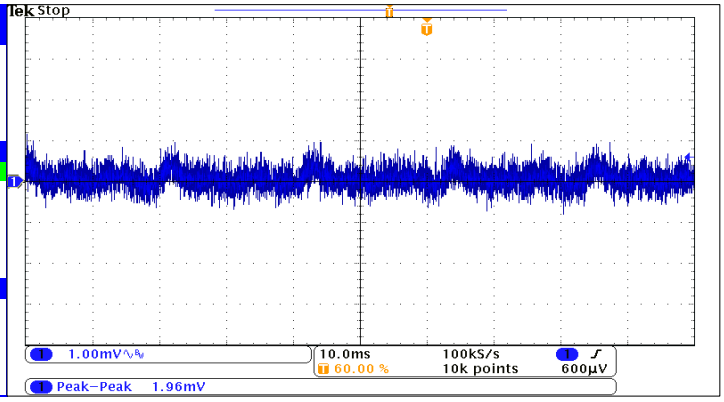


## Noise And Ripple Test (Continued)

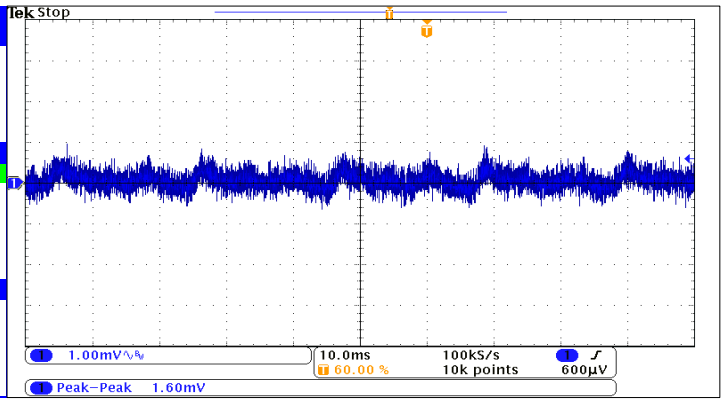
| ***Measured:*** | | | | ***Noise&Ripple*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 240 Vac | | | |
| Output Current: | Io1 = 2.4 A | | | |
| Temperature: | Ta = 0 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1_Vpp[mV] | 2.720 | | 7.80 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = not used | | | | |
| CH4 = not used | | | | |




| ***Measured:*** | | | | ***Noise&Ripple*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 240 Vac | | | |
| Output Current: | Io1 = 2.4 A | | | |
| Temperature: | Ta = 25 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1_Vpp[mV] | 1.960 | | 7.80 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = not used | | | | |
| CH4 = not used | | | | |




| ***Measured:*** | | | | ***Noise&Ripple*** |
|---|---|---|---|---|
| ***Test conditions:*** | | | | |
| Input Voltage: | Vi = 240 Vac | | | |
| Output Current: | Io1 = 2.4 A | | | |
| Temperature: | Ta = 50 ℃ | | | |
| ***Test Result:*** | ***Meas.*** | ***Limit Min*** | ***Limit Max*** | ***Result*** |
| Vo1_Vpp[mV] | 1.600 | | 7.80 | PASS |
| ***Comments:*** | | | | |
| CH1 = Vo1 | | | | |
| CH2 = not used | | | | |
| CH3 = not used | | | | |
| CH4 = not used | | | | |



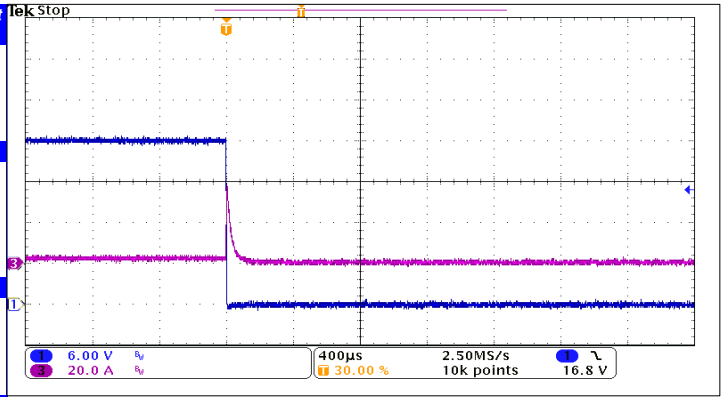
## 5.5 Output Short Circuit

Test Reslut: **Ref. Only**

| ***Measured:*** | ***Vo1 ShortCircuit*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 100 Vac |
| Output Current: | Io1 = 2.4 A |
| Temperature: | Ta = 0 ℃ |

| ***Test Result:*** | ***Meas.*** | ***Result*** |
|---|---|---|
| | | |

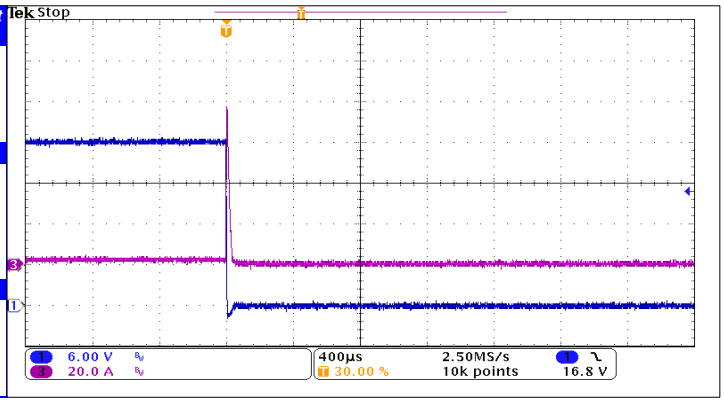
***Comments:***
CH1 = Vo1
CH2 = not used
CH3 = Io1
CH4 = not used




| ***Measured:*** | ***Vo1 ShortCircuit*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 100 Vac |
| Output Current: | Io1 = 2.4 A |
| Temperature: | Ta = 25 ℃ |

| ***Test Result:*** | ***Meas.*** | ***Result*** |
|---|---|---|
| | | |

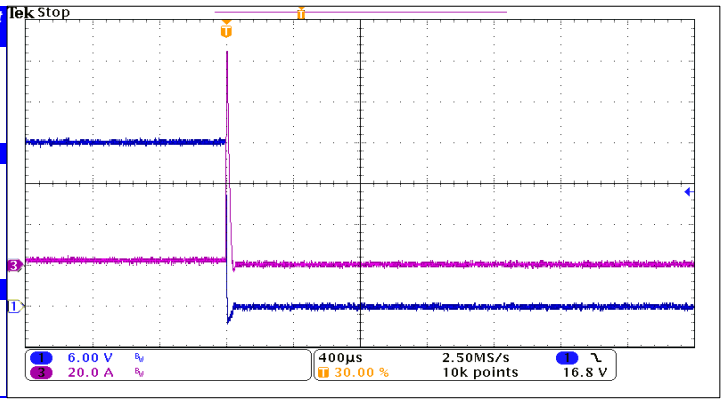
***Comments:***
CH1 = Vo1
CH2 = not used
CH3 = Io1
CH4 = not used




| ***Measured:*** | ***Vo1 ShortCircuit*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 100 Vac |
| Output Current: | Io1 = 2.4 A |
| Temperature: | Ta = 50 ℃ |

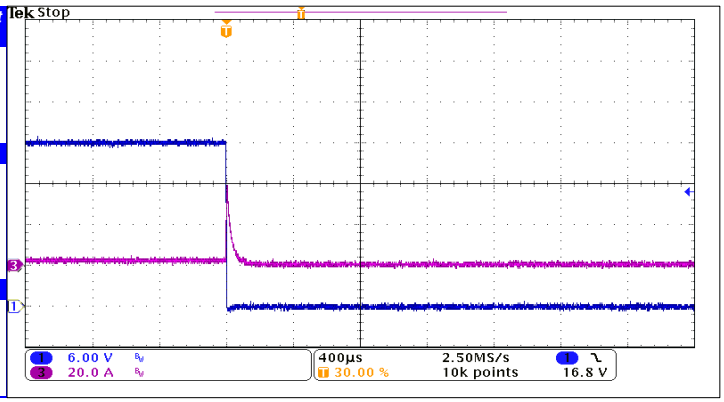
| ***Test Result:*** | ***Meas.*** | ***Result*** |
|---|---|---|
| | | |

***Comments:***
CH1 = Vo1
CH2 = not used
CH3 = Io1
CH4 = not used

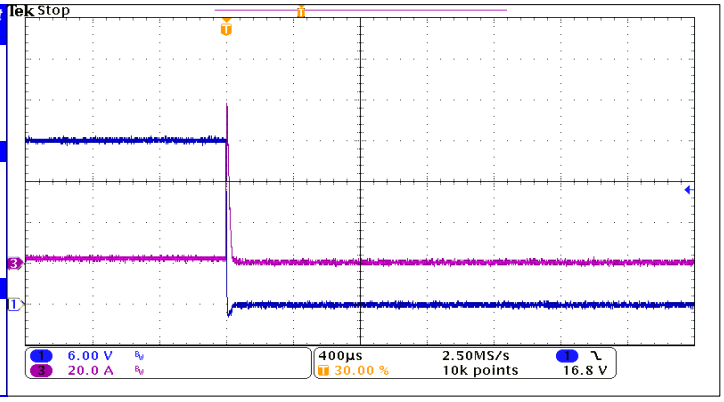


## Output Short Circuit (Continued)

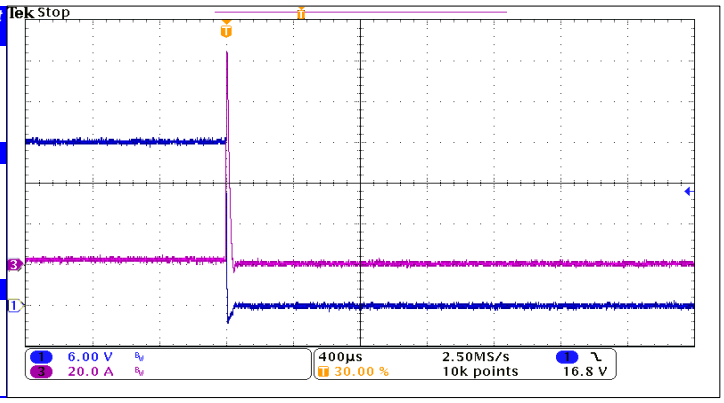
| ***Measured:*** | ***Vo1 ShortCircuit*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 240 Vac |
| Output Current: | Io1 = 2.4 A |
| Temperature: | Ta = 0 ℃ |
| ***Test Result:*** | ***Meas.*** ***Result*** |
| ***Comments:*** | |
| CH1 = Vo1 | |
| CH2 = not used | |
| CH3 = Io1 | |
| CH4 = not used | |




| ***Measured:*** | ***Vo1 ShortCircuit*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 240 Vac |
| Output Current: | Io1 = 2.4 A |
| Temperature: | Ta = 25 ℃ |
| ***Test Result:*** | ***Meas.*** ***Result*** |
| ***Comments:*** | |
| CH1 = Vo1 | |
| CH2 = not used | |
| CH3 = Io1 | |
| CH4 = not used | |




| ***Measured:*** | ***Vo1 ShortCircuit*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 240 Vac |
| Output Current: | Io1 = 2.4 A |
| Temperature: | Ta = 50 ℃ |
| ***Test Result:*** | ***Meas.*** ***Result*** |
| ***Comments:*** | |
| CH1 = Vo1 | |
| CH2 = not used | |
| CH3 = Io1 | |
| CH4 = not used | |



## 6. Measurement Equipment

| Type | Manufacturer | Serial-Number |
|---|---|---|
| ***DC Power Source:*** | | |
| 6560 | Chroma | 656038001595 |
| ***Electronic Load:*** | | |
| 6314A | Chroma | 6314A0001725 |
| ***Digital Multi Meter:*** | | |
| 34970 | Agilent | MY44064590 |
| ***Oscilloscope:*** | | |
| DPO3014 | Tektronix | C013157 |
| TCP0150 (probe) | Tektronix,USA | N/A |
| ***Computer:*** | | |
| Industry Computer | EVOC,China | FAC09873 |
| ***Chamber:*** | | |
| VT7021 | Votsch, Germany | FAC09873 |

Bel Power Solutions
China Embedded DVT
GongMing
ShenZhen, China

# Characterization Test Report

Product

## HCC15-3-AG

**S/N:** Sample 1#

***Tester:*** Peter Liu
***Date:*** 8/30/2021

***Signature:*** Peter Liu

***Approved by:*** Unifive Song
***Date:*** 8/31/2021

***Signature:*** Unifive Song

Bel Power Solutions
China Embedded DVT
GongMing
ShenZhen, China

# Characterization Test Report

Product

## HCC15-3-AG

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# 1. Summary

| *Test* | *Result* |
|---|---|
| ***Static Measurements*** | |
| Output Voltage vs. Input Voltage | PASS |
| Line Regulation Summary | PASS |
| Output Voltage vs. Load Current | PASS |
| Load Regulation Summary | PASS |
| Efficiency vs. Input Voltage | PASS |
| Power Factor vs. Input Voltage | PASS |
| Efficiency vs. Output Power | |
| Current Limitation | PASS |
| ***Dynamic Measurements*** | |
| Inrush Current | PASS |
| Turn-On Behaviour | PASS |
| Turn-Off Behaviour | PASS |
| Output Voltage Ripple | PASS |
| Dynamic load | PASS |
| Short test | PASS |
| **OVERALL DESIGN VERIFICATION TEST** | **PASS** |

***Comment:***

1. Ripple voltage is not accurate because of long measurement cable applied.

## 2. Specifications

***Input Specifications***

| | min. | typ. | max. | unit | condition |
|---|---|---|---|---|---|
| Input Voltage | 87 | 100 | 110 | Vac | |
| Efficiency | | 55 | | % | @ Vi=100Vac,100% Full load |
| | | | | | |
| | | | | | |
| | | | | | |

***Output Specifications***

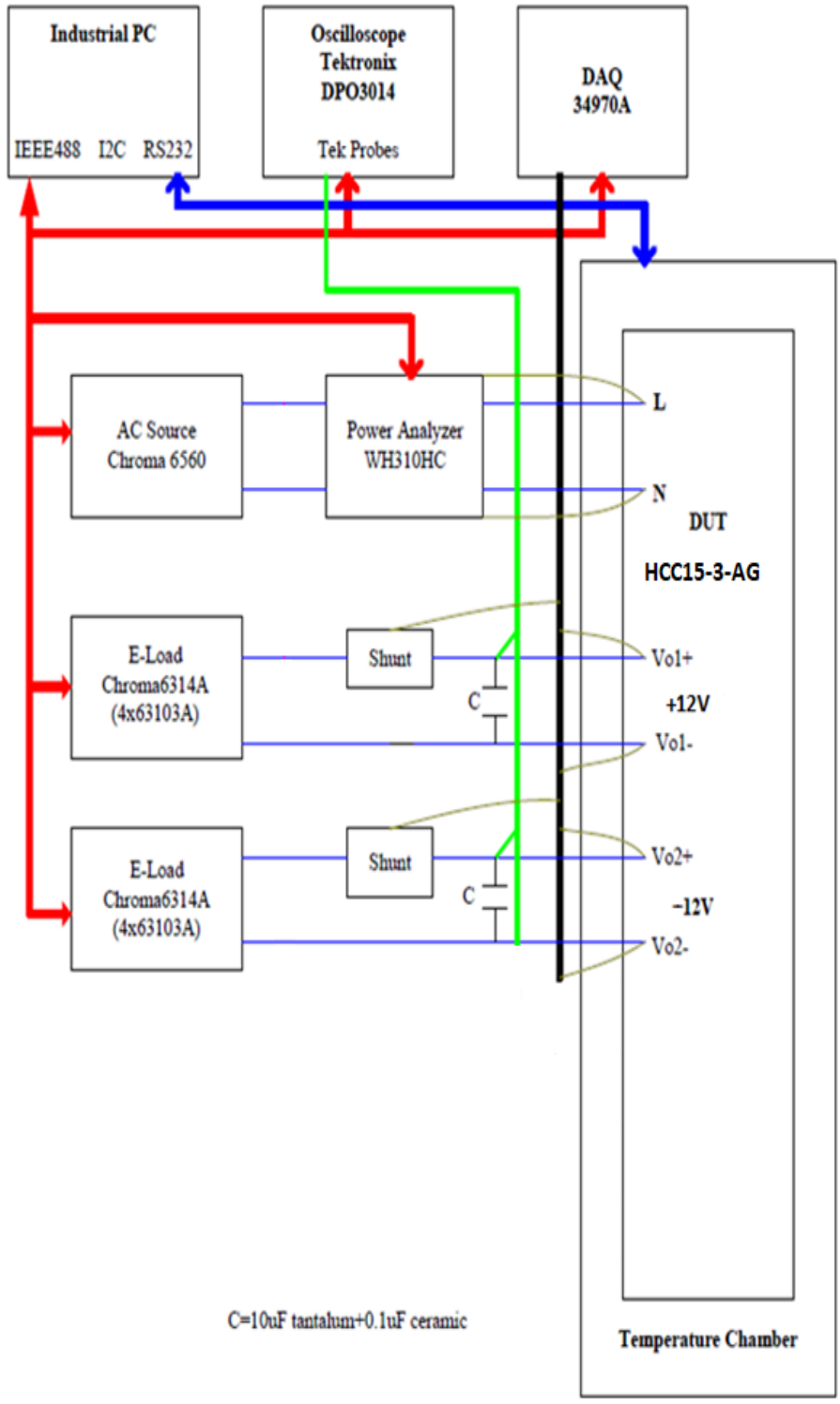
| *Vo1 (+12.0V Rail)* | min. | typ. | max. | unit | condition |
|---|---|---|---|---|---|
| Output Voltage Accuracy | 11.880 | 12.00 | 12.120 | Vdc | @ Vimin…Vimax, Iomin...Iomax, Tamin…Tamax |
| Ripple & Noise | | | 5 | mVpp | @ 20 MHz BW |
| Minimal Output Current | | 0 | | A | |
| Nominal Output Current | | 3.4 | | A | |
| Line Regulation/Load Regulation | | | 120 | mV | |
| Dynamic Load | | | 240 | mV | |

| *Vo2 (-12.0V Rail)* | min. | typ. | max. | unit | condition |
|---|---|---|---|---|---|
| Output Voltage Accuracy | -11.88 | -12 | -12.12 | Vdc | @ Vimin…Vimax, Iomin...Iomax, Tamin…Tamax |
| Ripple & Noise | | | 5 | mVpp | @ 20 MHz BW |
| Minimal Output Current | | 0 | | A | |
| Nominal Output Current | | 3.4 | | A | |
| Line Regulation/Load Regulation | | | 120 | mV | |
| Dynamic Load | | | 240 | mV | |

***Environmental Test Conditions***

| | min. | typ. | max. | unit | condition |
|---|---|---|---|---|---|
| Temperature Range | 0 | 25 | 50 | °C | |
| | | | | | |
| | | | | | |
| | | | | | |

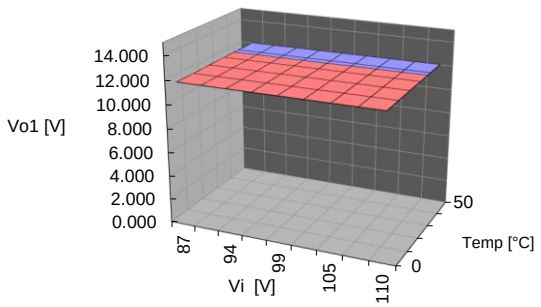
## 3. Test Setup


Industrial PC
IEEE488 I2C RS232
Oscilloscope
Tektronix
DPO3014
Tek Probes
DAQ
34970A
AC Source
Chroma 6560
Power Analyzer
WH310HC
L
N
DUT
HCC15-3-AG
E-Load
Chroma6314A
(4x63103A)
Shunt
C
Vo1+
+12V
Vo1-
E-Load
Chroma6314A
(4x63103A)
Shunt
C
Vo2+
-12V
Vo2-
C=10uF tantalum+0.1uF ceramic
Temperature Chamber

## 4.1 Output Voltage vs. Input Voltage

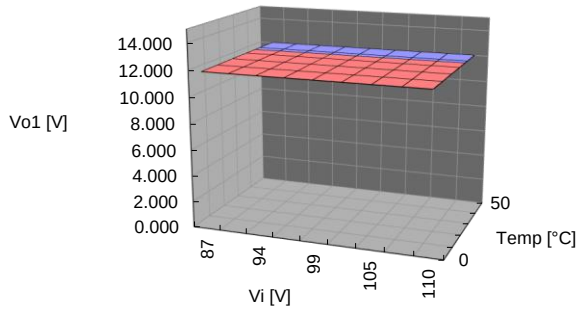
Test **PASS**

| ***Measured:*** | ***Vo1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 ... 110 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo1 Min [V] | 11.97 | 11.88 | **PASS** |
| Vo1 Max [V] | 12.01 | 12.12 | **PASS** |
| ***Comment:*** | | | |



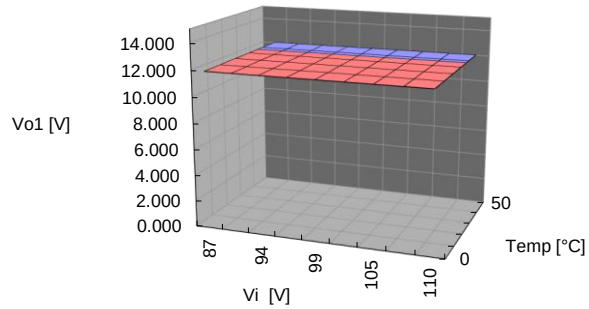

**Min Load**

| ***Measured:*** | ***Vo1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 ... 110 V | | |
| Output Current: | 20% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo1 Min [V] | 11.97 | 11.88 | **PASS** |
| Vo1 Max [V] | 12.01 | 12.12 | **PASS** |
| ***Comment:*** | | | |



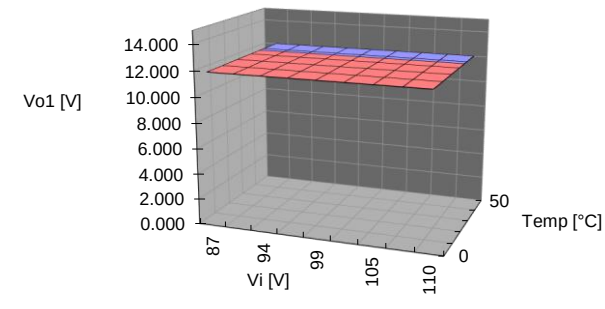

**20% Full Load**

| ***Measured:*** | ***Vo1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 ... 110 V | | |
| Output Current: | 50% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo1 Min [V] | 11.97 | 11.88 | **PASS** |
| Vo1 Max [V] | 12.01 | 12.12 | **PASS** |
| ***Comment:*** | | | |




**50% Full Load**

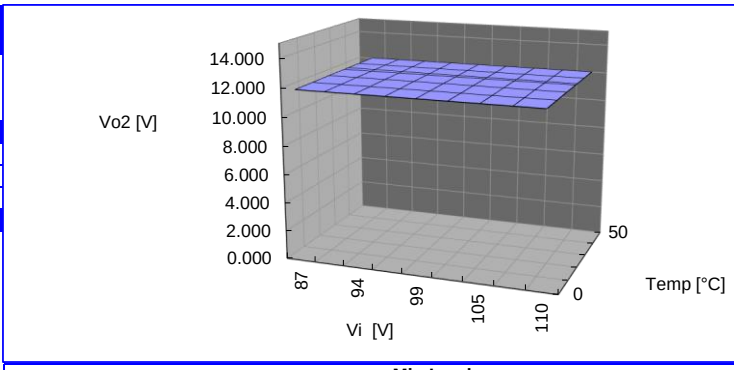
| ***Measured:*** | ***Vo1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 ... 110 V | | |
| Output Current: | 100% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo1 Min [V] | 11.97 | 11.88 | **PASS** |
| Vo1 Max [V] | 12.01 | 12.12 | **PASS** |
| ***Comment:*** | | | |




**100% Full Load**

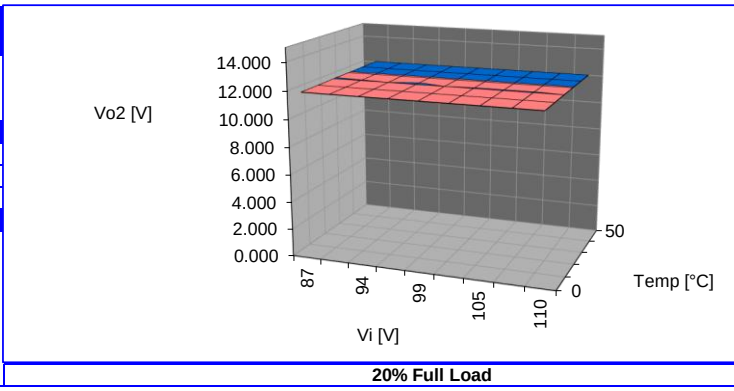
## Output Voltage vs. Input Voltage (continued)

| ***Measured:*** | ***Vo2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 ... 110 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo2 Min [V] | 11.976 | 11.88 | **PASS** |
| Vo2 Max [V] | 12.006 | 12.12 | **PASS** |
| ***Comment:*** | | | |
| Vo2=Abs(Vo2) | | | |



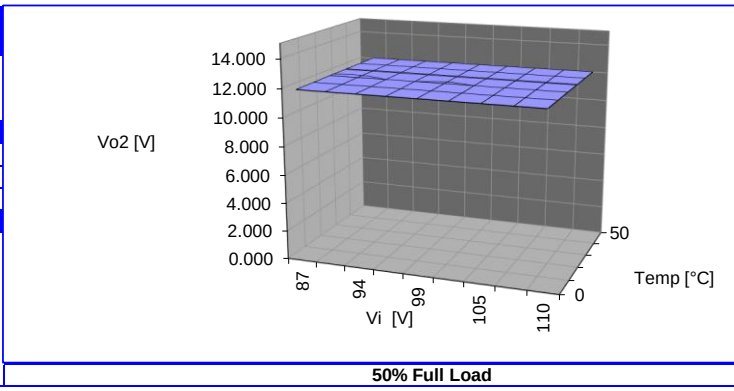

**Min Load**

| ***Measured:*** | ***Vo2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 ... 110 V | | |
| Output Current: | 20% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo2 Min [V] | 11.978 | 11.88 | **PASS** |
| Vo2 Max [V] | 12.006 | 12.12 | **PASS** |
| ***Comment:*** | | | |
| Vo2=Abs(Vo2) | | | |



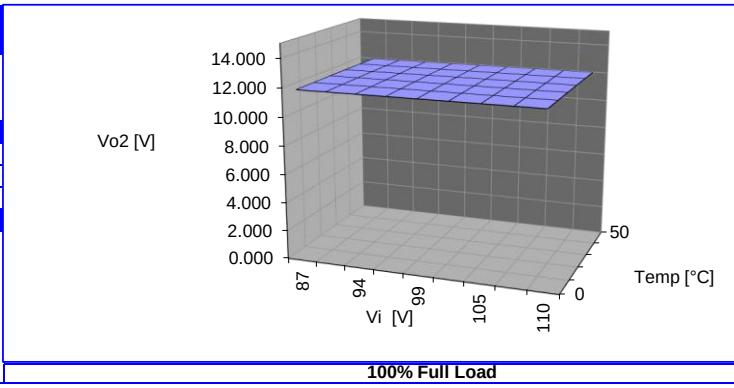

**20% Full Load**

| ***Measured:*** | ***Vo2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 ... 110 V | | |
| Output Current: | 50% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo2 Min [V] | 11.978 | 11.88 | **PASS** |
| Vo2 Max [V] | 12.007 | 12.12 | **PASS** |
| ***Comment:*** | | | |
| Vo2=Abs(Vo2) | | | |




**50% Full Load**

| ***Measured:*** | ***Vo2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 ... 110 V | | |
| Output Current: | 100% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo2 Min [V] | 11.948 | 11.88 | **PASS** |
| Vo2 Max [V] | 11.985 | 12.12 | **PASS** |
| ***Comment:*** | | | |
| Vo2=Abs(Vo2) | | | |

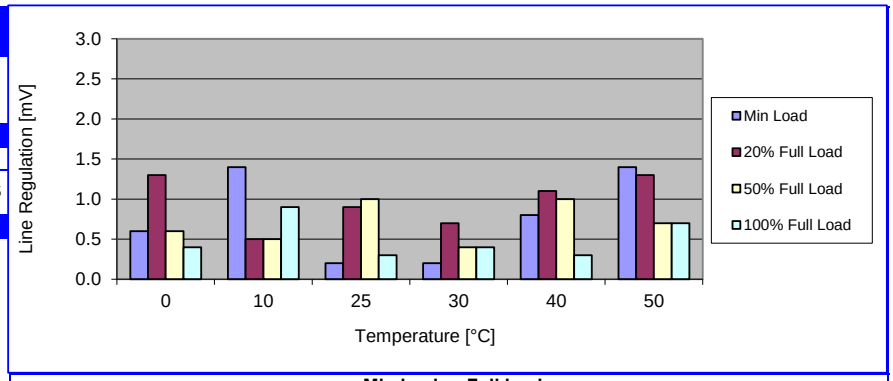



**100% Full Load**

## 4.2 Line Regulation Summary

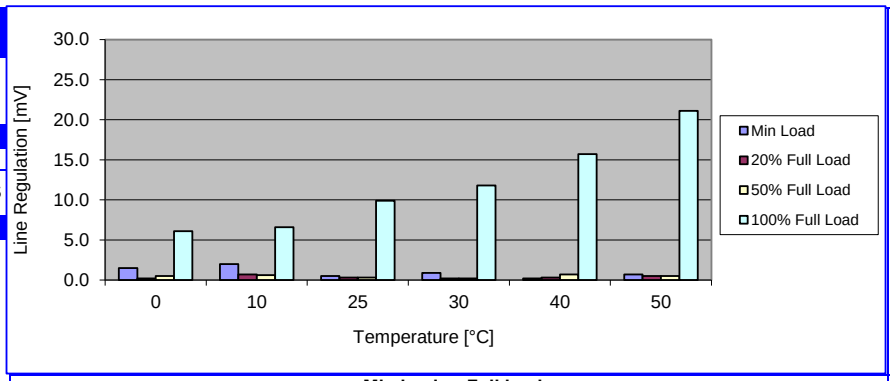
Test **PASS**

| ***Measured:*** | ***Vo1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 ... 110 V | | |
| Output Current: | Min load … Full load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Line Regulation*** | | | |
| | Meas. | Limit | |
| Line Reg. Max [mV] | 1.4 | 120 | **PASS** |
| ***Comment:*** | | | |




**Min load … Full load**

| ***Measured:*** | ***Vo2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 ... 110 V | | |
| Output Current: | Min load … Full load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Line Regulation*** | | | |
| | Meas. | Limit | |
| Line Reg. Max [mV] | 21.1 | 120 | **PASS** |
| ***Comment:*** | | | |

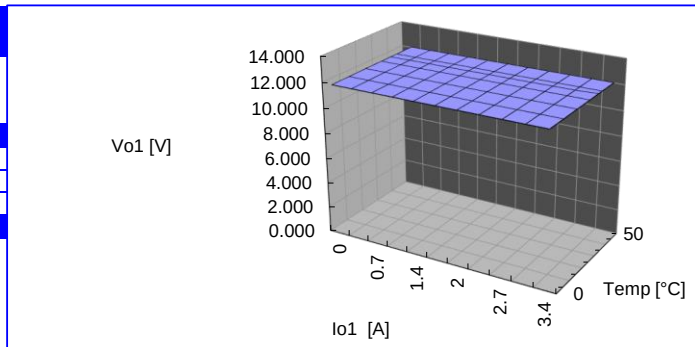



**Min load … Full load**

## 4.3 Output Voltage vs. Load Current

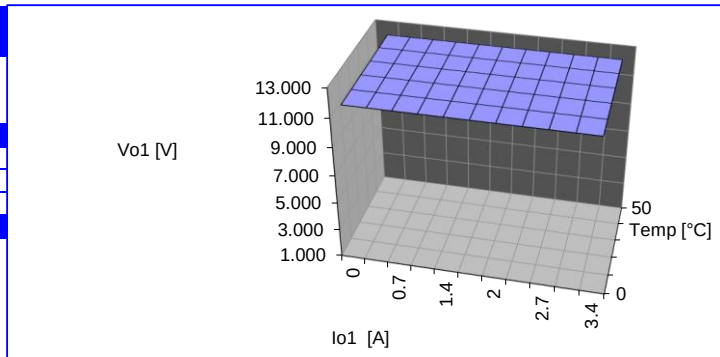
Test **PASS**

| ***Measured:*** | ***Vo1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Io1 = 0 ... 3.4 A | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo1 Min [V] | 11.971 | 11.880 | **PASS** |
| Vo1 Max [V] | 12.009 | 12.120 | **PASS** |
| ***Comment:*** | | | |
| Io2 = 3.4 A | | | |



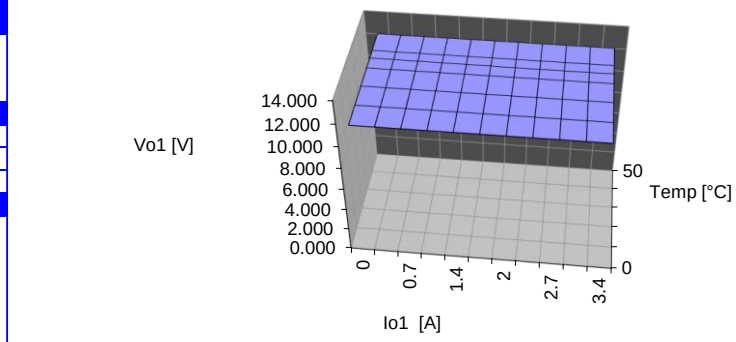

**Vi = 87 V**

| ***Measured:*** | ***Vo1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Io1 = 0 ... 3.4 A | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo1 Min [V] | 11.972 | 11.880 | **PASS** |
| Vo1 Max [V] | 12.009 | 12.120 | **PASS** |
| ***Comment:*** | | | |
| Io2 = 3.4 A | | | |




**Vi = 100 V**

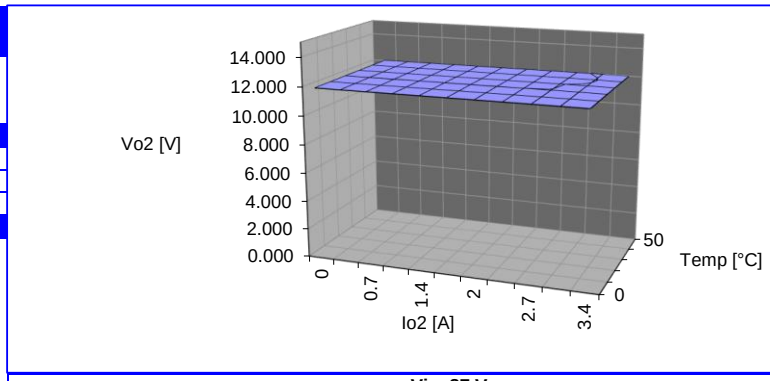
| ***Measured:*** | ***Vo1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Io1 = 0 ... 3.4 A | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo1 Min [V] | 11.973 | 11.880 | **PASS** |
| Vo1 Max [V] | 12.008 | 12.120 | **PASS** |
| ***Comment:*** | | | |
| Io2 = 3.4 A | | | |




**Vi = 110 V**

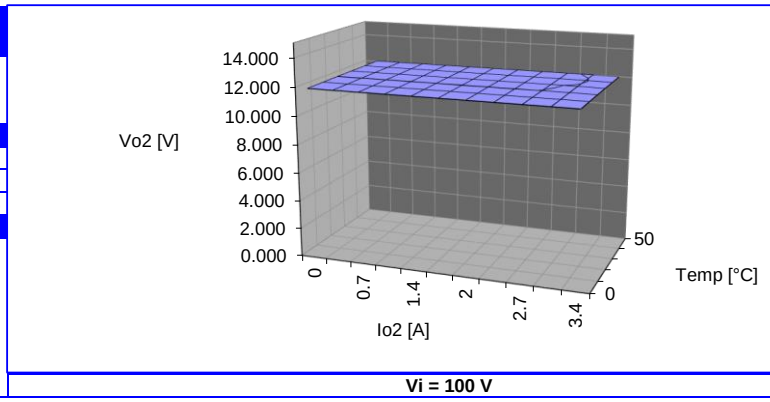
## Output Voltage vs. Load Current (continued)

| ***Measured:*** | ***Vo2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Io2 = 0 ... 3.4 A | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo2 Min [V] | 11.971 | 11.88 | **PASS** |
| Vo2 Max [V] | 12.007 | 12.12 | **PASS** |
| ***Comment:*** | | | |
| Io1 = 3.4 A<br>Vo2=Abs(Vo2) | | | |



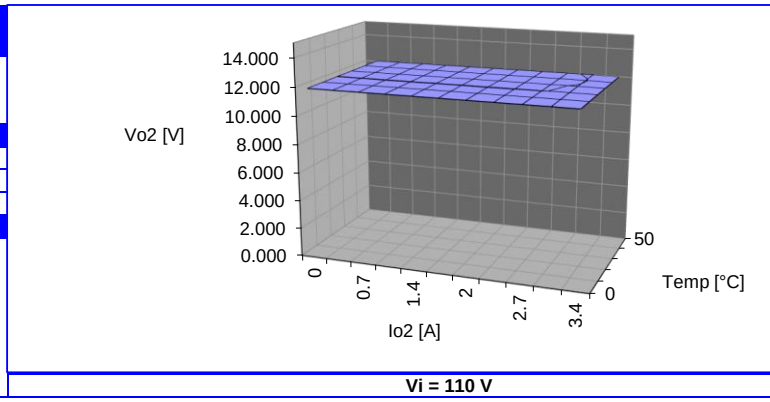

**Vi = 87 V**

| ***Measured:*** | ***Vo2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Io2 = 0 ... 3.4 A | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo2 Min [V] | 11.973 | 11.880 | **PASS** |
| Vo2 Max [V] | 12.007 | 12.120 | **PASS** |
| ***Comment:*** | | | |
| Io1 = 3.4 A<br>Vo2=Abs(Vo2) | | | |




**Vi = 100 V**

| ***Measured:*** | ***Vo2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Io2 = 0 ... 3.4 A | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo2 Min [V] | 11.972 | 11.880 | **PASS** |
| Vo2 Max [V] | 12.007 | 12.120 | **PASS** |
| ***Comment:*** | | | |
| Io1 = 3.4 A<br>Vo2=Abs(Vo2) | | | |

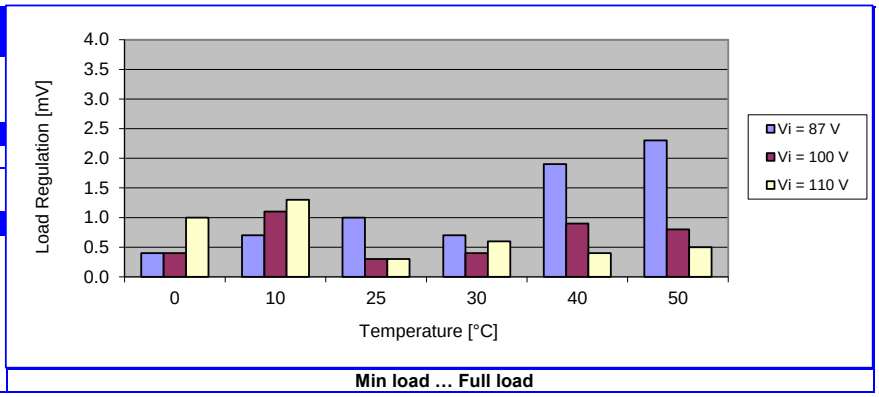



**Vi = 110 V**

## 4.4 Load Regulation Summary

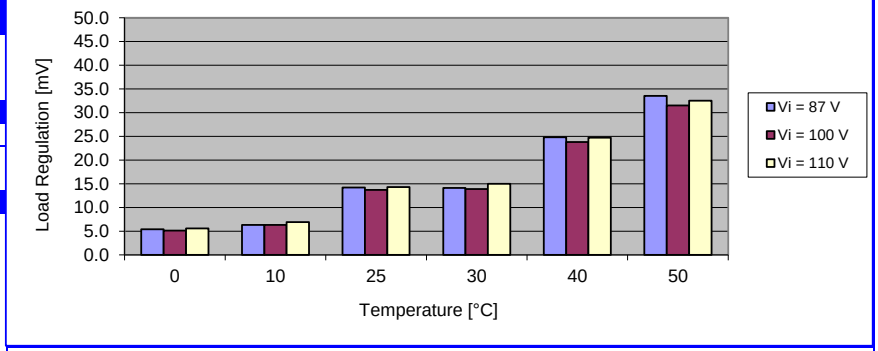
Test **PASS**

| ***Measured:*** | ***Vo1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 ... 110 V | | |
| Output Current: | Min load … Full load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Load Regulation*** | | | |
| | Meas. | Limit | |
| Load Reg. Max [mV] | 2.3 | 120 | **PASS** |
| ***Comment:*** | | | |




**Min load … Full load**

| ***Measured:*** | ***Vo2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 ... 110 V | | |
| Output Current: | Min load … Full load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Load Regulation*** | | | |
| | Meas. | Limit | |
| Load Reg. Max [mV] | 34 | 120 | **PASS** |
| ***Comment:*** | | | |




**Min load … Full load**

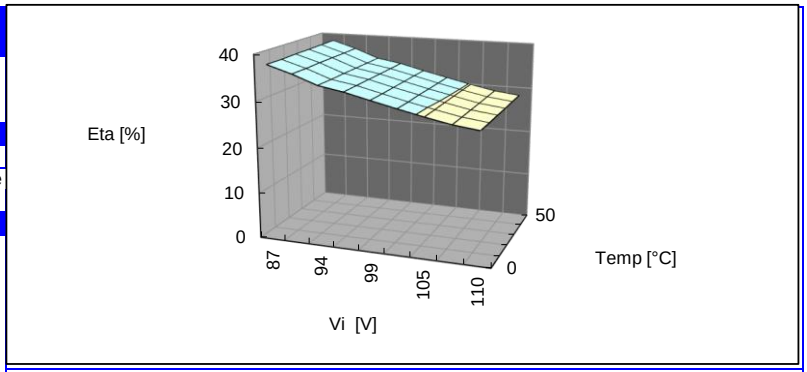
## 4.5 Efficiency vs. Input Voltage

Test **PASS**

| ***Measured:*** | ***Efficiency*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 87 ... 110 V |
| Output Current: | 10% Full Load |
| Temperature: | Ta = 0 ... 50 °C |
| ***Test Condition: 230Vac/25°C*** | |

| | Meas. | Limit |
|---|---|---|
| Eta min[87V] | 38.11 | **Reference** |

***Comment:***

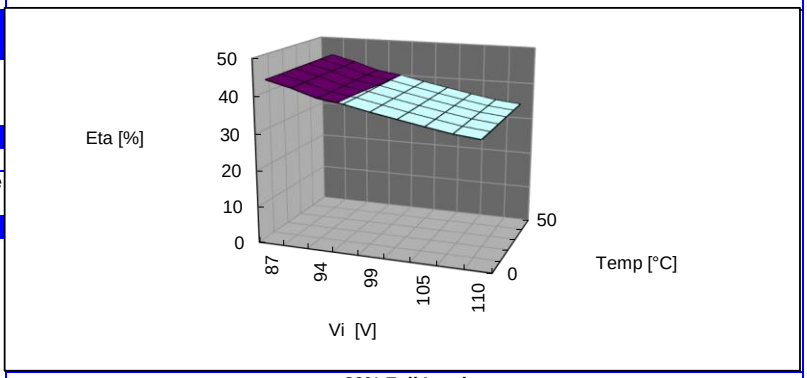



**10% Full Load**

| ***Measured:*** | ***Efficiency*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 87 ... 110 V |
| Output Current: | 20% Full Load |
| Temperature: | Ta = 0 ... 50 °C |
| ***Test Condition: 230Vac/25°C*** | |

| | Meas. | Limit |
|---|---|---|
| Eta min[87V] | 44.78 | **Reference** |

***Comment:***

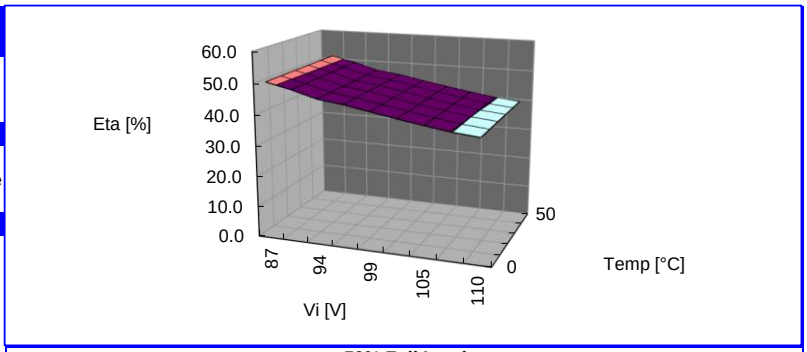



**20% Full Load**

| ***Measured:*** | ***Efficiency*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 87 ... 110 V |
| Output Current: | 50% Full Load |
| Temperature: | Ta = 0 ... 50 °C |
| ***Test Condition: 230Vac/25°C*** | |

| | Meas. | Limit |
|---|---|---|
| Eta min[87V] | 50.86 | **Reference** |

***Comment:***

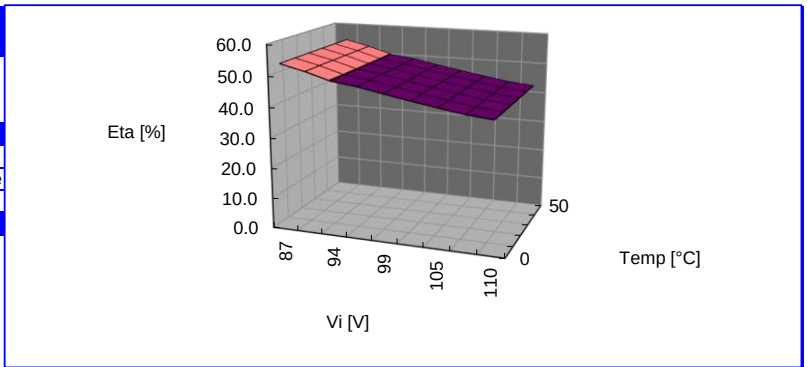



**50% Full Load**

| ***Measured:*** | ***Efficiency*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 87 ... 110 V |
| Output Current: | 100% Full Load |
| Temperature: | Ta = 0 ... 50 °C |
| ***Test Condition: 230Vac/25°C*** | |

| | Meas. | Limit |
|---|---|---|
| Eta min[87V] | 54.22 | **Reference** |

***Comment:***

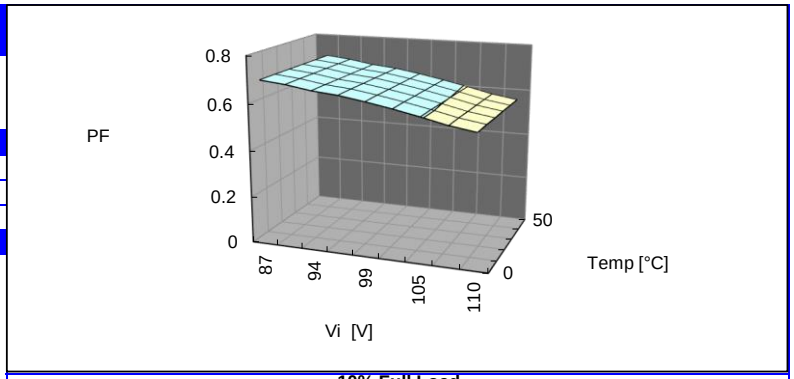



**100% Full Load**

## 4.6 Power Factor vs. Input Voltage

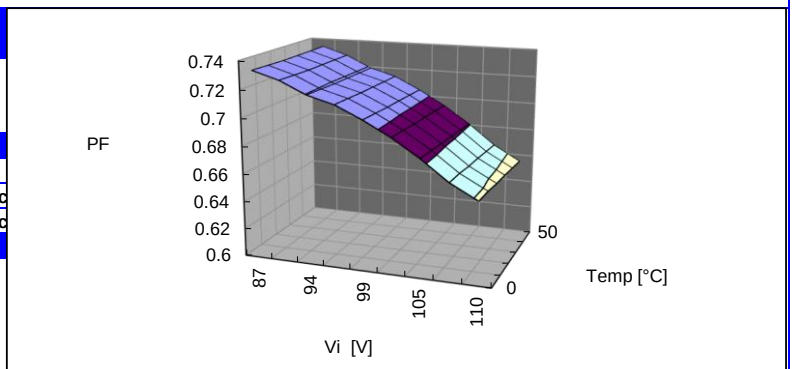
Test **PASS**

| ***Measured:*** | ***PF*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 ... 110 V | | |
| Output Current: | 10% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Condition:*** | | | |
| | Meas. | Limit | |
| PF min[87V] | 0.70 | **Reference** | |
| PF min[110V] | 0.55 | **Reference** | |
| ***Comment:*** | | | |



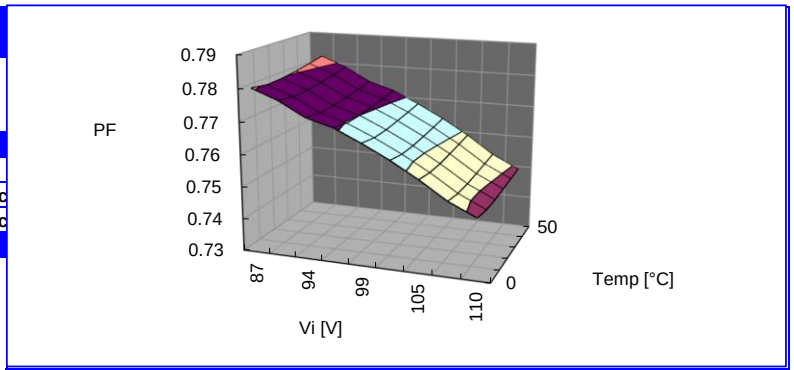

**10% Full Load**

| ***Measured:*** | ***PF*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 ... 110 V | | |
| Output Current: | 20% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Condition:*** | | | |
| | Meas. | Limit | |
| PF min[87V] | 0.73 | **Referenc** | |
| PF min[110V] | 0.65 | **Referenc** | |
| ***Comment:*** | | | |



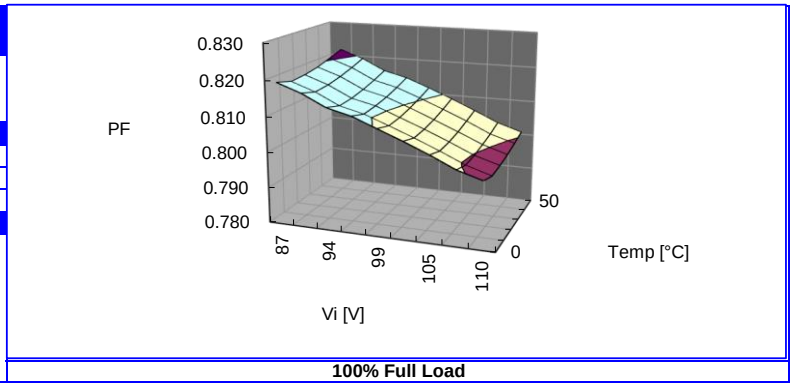

**20% Full Load**

| ***Measured:*** | ***PF*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 ... 110 V | | |
| Output Current: | 50% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Condition:*** | | | |
| | Meas. | Limit | |
| PF min[87V] | 0.7796 | **Referenc** | |
| PF min[110V] | 0.7478 | **Referenc** | |
| ***Comment:*** | | | |




**50% Full Load**

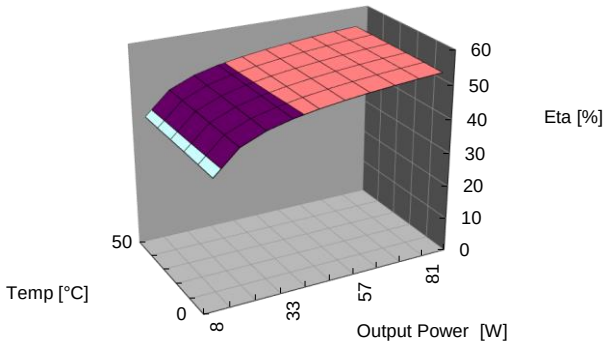
| ***Measured:*** | ***PF*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 ... 110 V | | |
| Output Current: | 100% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Condition:*** | | | |
| | Meas. | Limit | |
| PF min[87V] | 0.8182 | 0.65 | **PASS** |
| PF min[110V] | 0.7973 | 0.65 | **PASS** |
| ***Comment:*** | | | |




**100% Full Load**

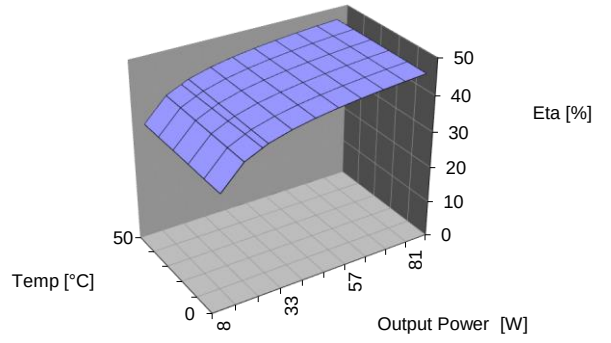
## 4.7 Efficiency vs. Output Power

| ***Measured:*** | ***Efficiency*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 87 V |
| Iout: | 10%Full load … Full load |
| Temperature: | Ta = 0 ... 50 °C |
| ***Test Result: Efficiency*** | |
| | **Reference** |
| ***Comment:*** | |



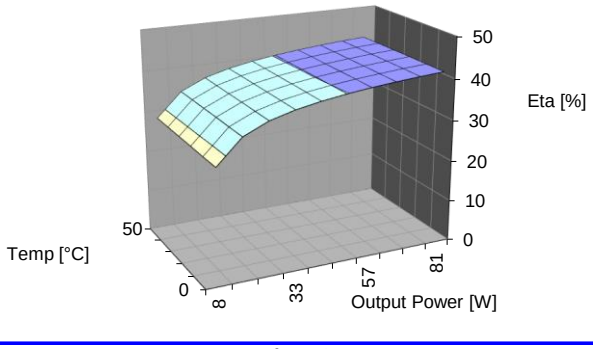

**Vi = 87 V**

| ***Measured:*** | ***Efficiency*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 100 V |
| Iout: | 10%Full load … Full load |
| Temperature: | Ta = 0 ... 50 °C |
| ***Test Result: Efficiency*** | |
| | **Reference** |
| ***Comment:*** | |




**Vi = 100 V**

| ***Measured:*** | ***Efficiency*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 110 V |
| Iout: | 10%Full load … Full load |
| Temperature: | Ta = 0 ... 50 °C |
| ***Test Result: Efficiency*** | |
| | **Reference** |
| ***Comment:*** | |

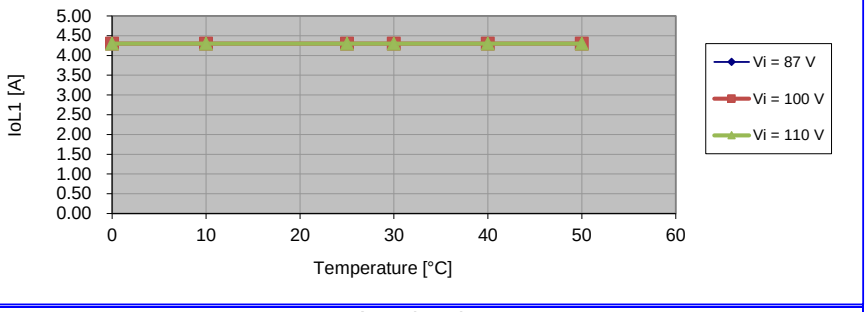



**Vi = 110 V**

## 4.8 Current Limitation

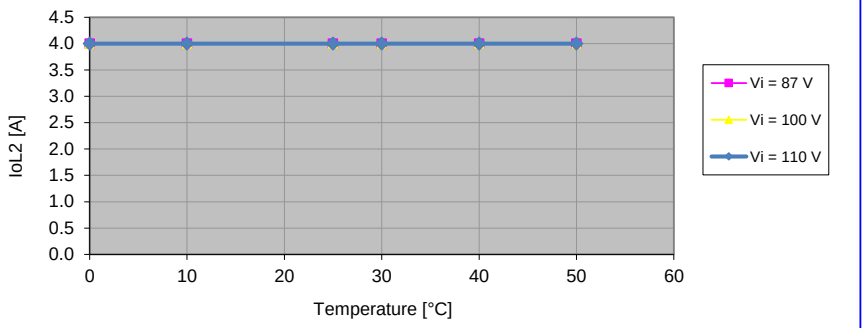
Test **PASS**

| ***Measured:*** | ***Io1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 / 100 /110 V | | |
| Output Current: | 100% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Output Current Limit*** | | | |
| Unit:(A) | Meas. | Limit | |
| IoL_lim Min | 4.3 | 3.91 | **PASS** |
| IoL_lim Max | 4.3 | 4.76 | **PASS** |
| ***Comment:*** | | | |




**Vi = 87 / 100 /110 V**

| ***Measured:*** | ***Io2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 / 100 /110 V | | |
| Output Current: | 100% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Output Current Limit*** | | | |
| | Meas. | Limit | |
| IoLim Min [A] | 4.0 | 3.91 | **PASS** |
| IoLim Max [A] | 4.0 | 4.76 | **PASS** |
| ***Comment:*** | | | |

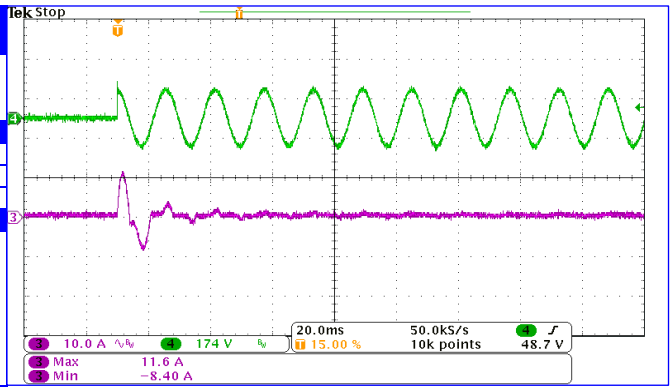



**Vi = 87 / 100 /110 V**

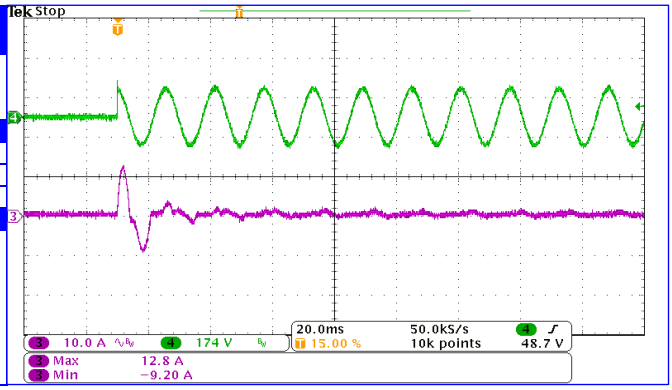
## 5.1 Inrush Current

Test pass

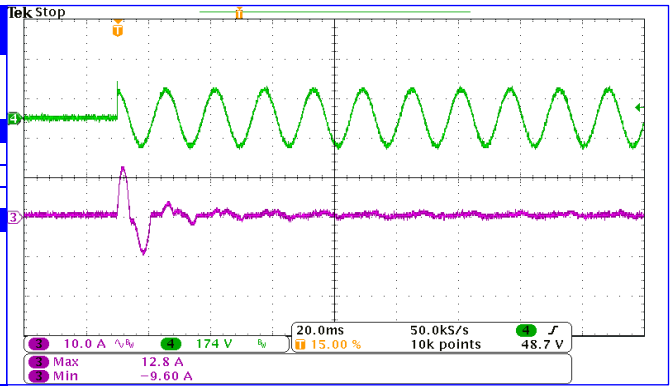
| ***Measured:*** | | ***Inrush Current*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 87 V | |
| Output Current: | | Full load | |
| Temperature: | | Ta = 0 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Ii [A pp] | 11.6 | 30 | pass |
| | | | |
| ***Comment:*** | | | |
| CH1=no use | | | |
| CH2=no use | | | |
| CH3=Ii | | | |
| CH4=Vi | | | |




| ***Measured:*** | | ***Inrush Current*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 87 V | |
| Output Current: | | Full load | |
| Temperature: | | Ta = 25 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Ii [A pp] | 12.8 | 30 | pass |
| | | | |
| ***Comment:*** | | | |
| CH1=no use | | | |
| CH2=no use | | | |
| CH3=Ii | | | |
| CH4=Vi | | | |

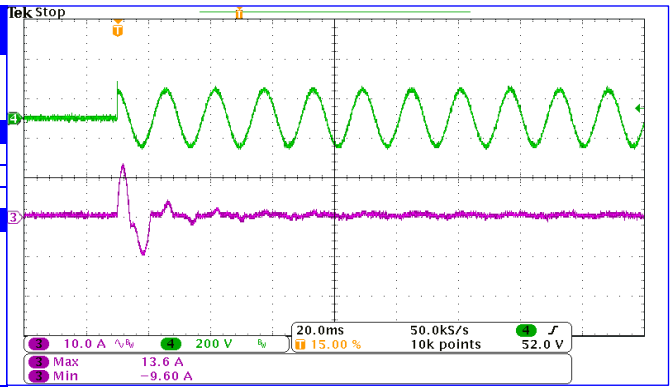



| ***Measured:*** | | ***Inrush Current*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 87 V | |
| Output Current: | | Full load | |
| Temperature: | | Ta = 50 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Ii [A pp] | 12.8 | 30 | pass |
| | | | |
| ***Comment:*** | | | |
| CH1=no use | | | |
| CH2=no use | | | |
| CH3=Ii | | | |
| CH4=Vi | | | |

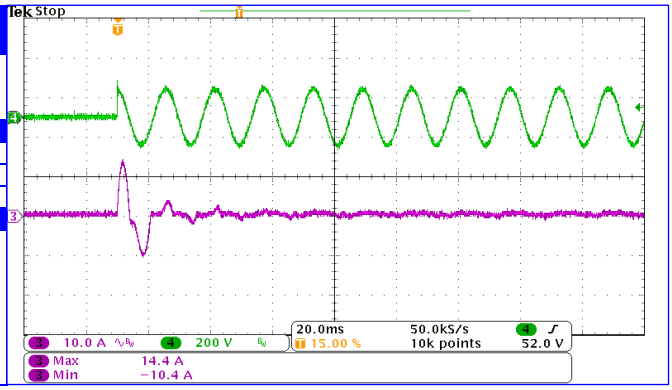


## Inrush Current (continued)

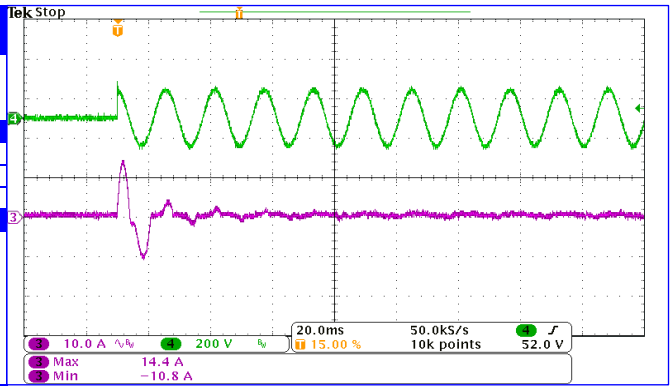
| ***Measured:*** | ***Inrush Current*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Full load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Vo1*** | | | |
| | Meas. | Limit | |
| Ii [A pp] | 13.6 | 30 | pass |
| | | | |
| ***Comment:*** | | | |
| CH1=no use | | | |
| CH2=no use | | | |
| CH3=Ii | | | |
| CH4=Vi | | | |




| ***Measured:*** | ***Inrush Current*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Full load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Vo1*** | | | |
| | Meas. | Limit | |
| Ii [A pp] | 14.4 | 30 | pass |
| | | | |
| ***Comment:*** | | | |
| CH1=no use | | | |
| CH2=no use | | | |
| CH3=Ii | | | |
| CH4=Vi | | | |

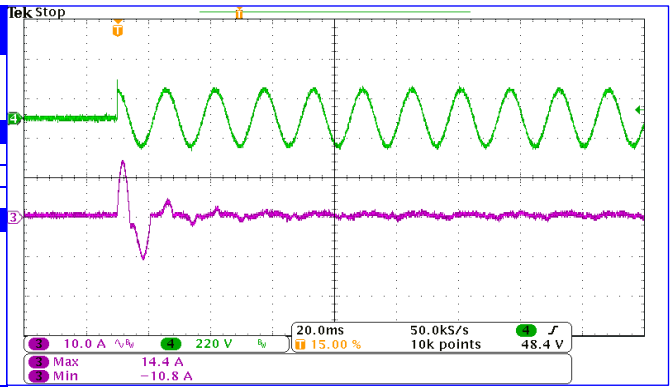



| ***Measured:*** | ***Inrush Current*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Full load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Vo1*** | | | |
| | Meas. | Limit | |
| Ii [A pp] | 14.4 | 30 | pass |
| | | | |
| ***Comment:*** | | | |
| CH1=no use | | | |
| CH2=no use | | | |
| CH3=Ii | | | |
| CH4=Vi | | | |

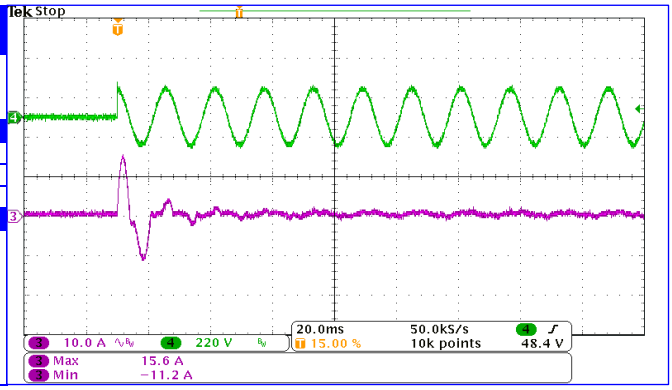


## Inrush Current (continued)

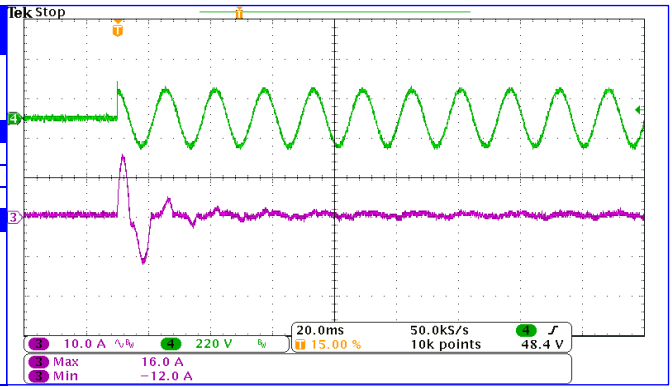
| ***Measured:*** | | ***Inrush Current*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 110 V | |
| Output Current: | | Full load | |
| Temperature: | | Ta = 0 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Ii [A pp] | 14.4 | 30 | pass |
| | | | |
| ***Comment:*** | | | |
| CH1=no use | | | |
| CH2=no use | | | |
| CH3=Ii | | | |
| CH4=Vi | | | |




| ***Measured:*** | | ***Inrush Current*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 110 V | |
| Output Current: | | Full load | |
| Temperature: | | Ta = 25 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Ii [A pp] | 15.6 | 30 | pass |
| | | | |
| ***Comment:*** | | | |
| CH1=no use | | | |
| CH2=no use | | | |
| CH3=Ii | | | |
| CH4=Vi | | | |




| ***Measured:*** | | ***Inrush Current*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 110 V | |
| Output Current: | | Full load | |
| Temperature: | | Ta = 50 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Ii [A pp] | 16.0 | 30 | pass |
| | | | |
| ***Comment:*** | | | |
| CH1=no use | | | |
| CH2=no use | | | |
| CH3=Ii | | | |
| CH4=Vi | | | |

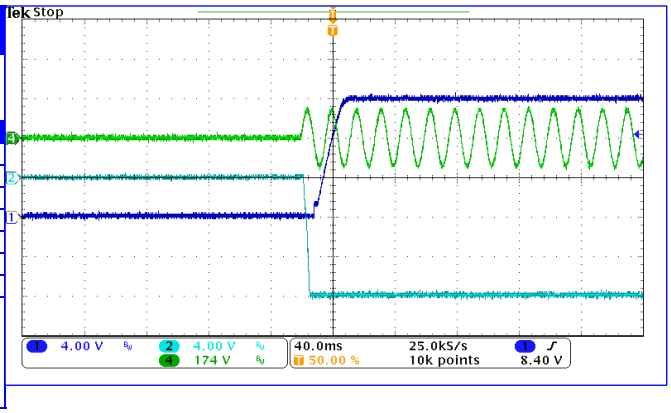


## 5.2 Turn-On Behaviour

Test pass

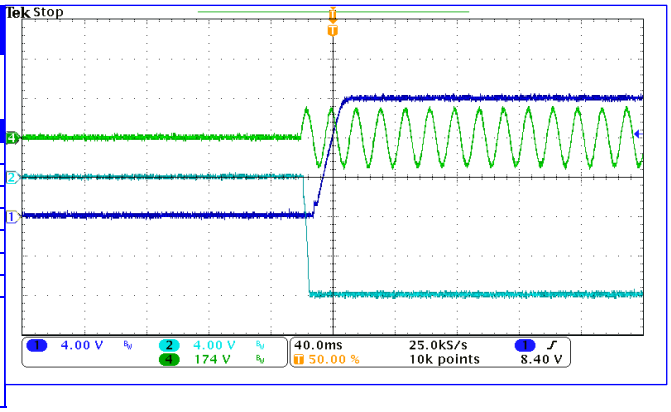
| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 25.5 | | |
| Vo2.[ms] | 4.9 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



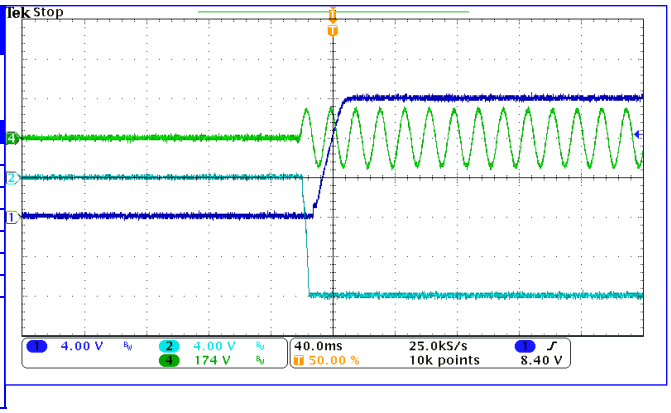

| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 25.8 | | |
| Vo2.[ms] | 5.0 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 26.3 | | |
| Vo2.[ms] | 5.0 | | |
| | | | |
| | | | |
| | | | |
| | | | |

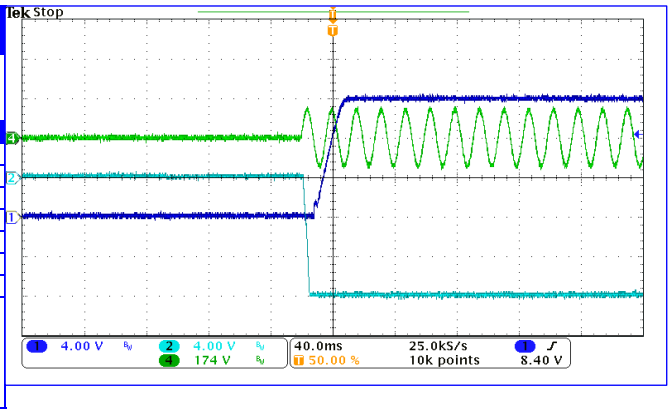
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-On Behaviour (continued)

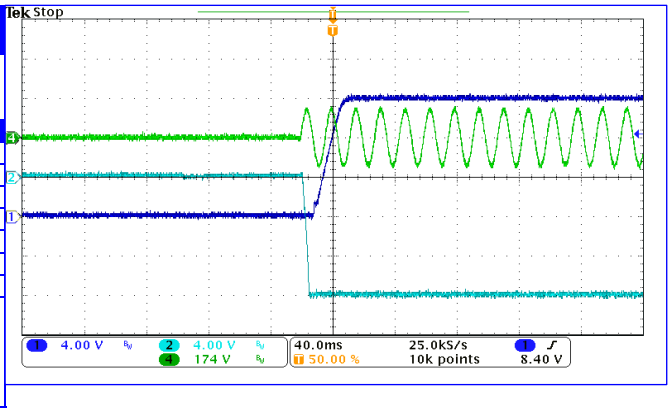
| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 25.2 | | |
| Vo2.[ms] | 4.5 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



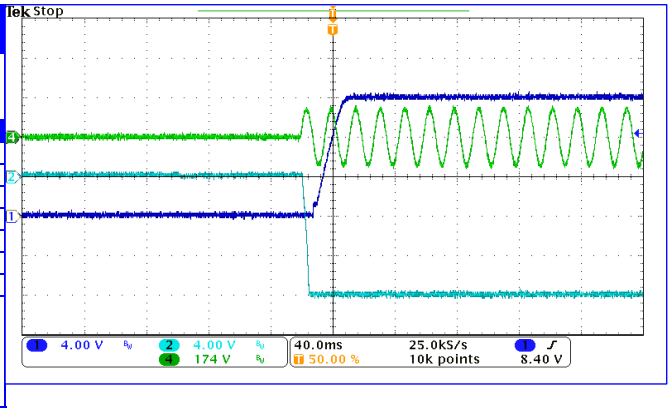

| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 25.6 | | |
| Vo2.[ms] | 4.7 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 26.2 | | |
| Vo2.[ms] | 4.8 | | |
| | | | |
| | | | |
| | | | |
| | | | |

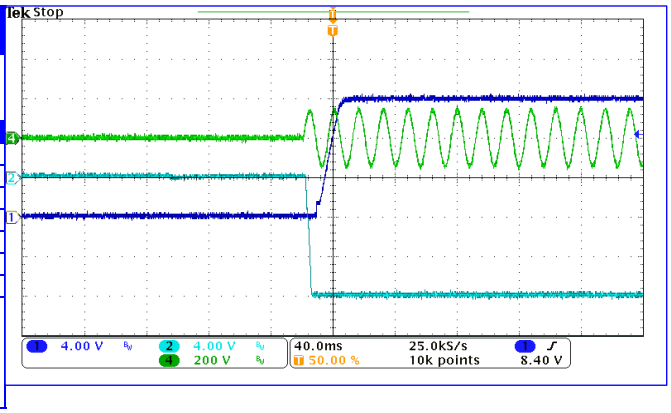
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-On Behaviour (continued)

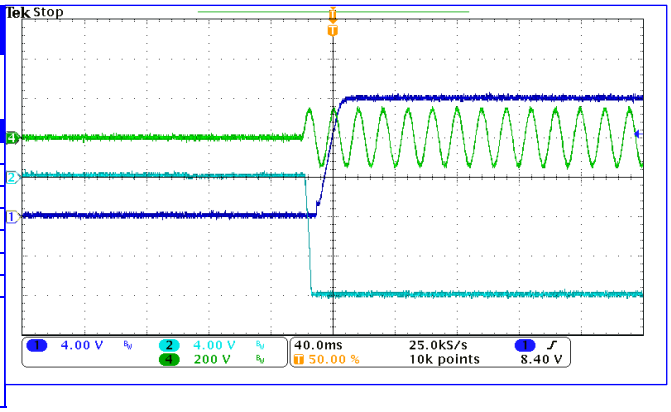
| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 22.8 | | |
| Vo2.[ms] | 4.3 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



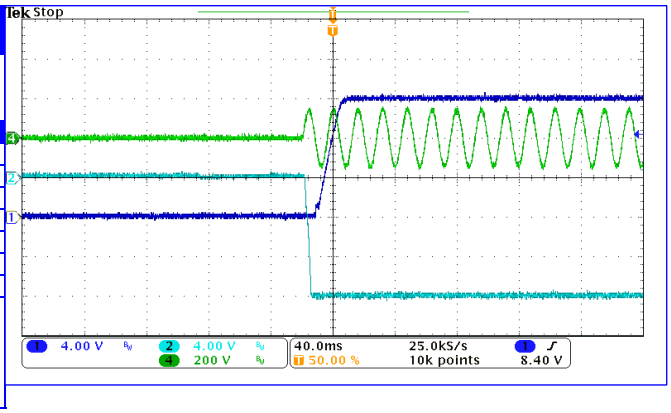

| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 23.0 | | |
| Vo2.[ms] | 4.5 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 23.6 | | |
| Vo2.[ms] | 4.6 | | |
| | | | |
| | | | |
| | | | |
| | | | |

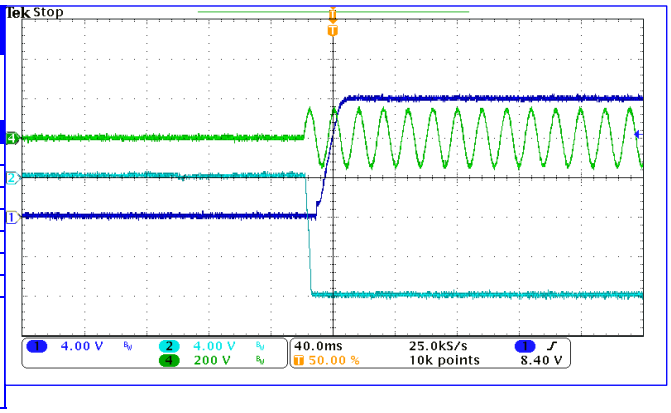
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-On Behaviour (continued)

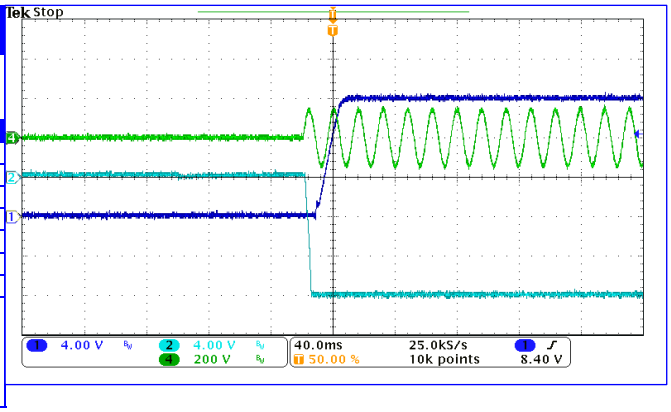
| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 22.6 | | |
| Vo2.[ms] | 4.2 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



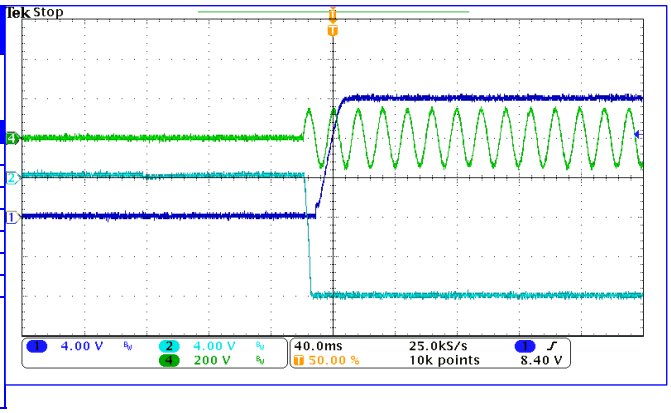

| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 22.7 | | |
| Vo2.[ms] | 4.4 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 23.6 | | |
| Vo2.[ms] | 4.4 | | |
| | | | |
| | | | |
| | | | |
| | | | |

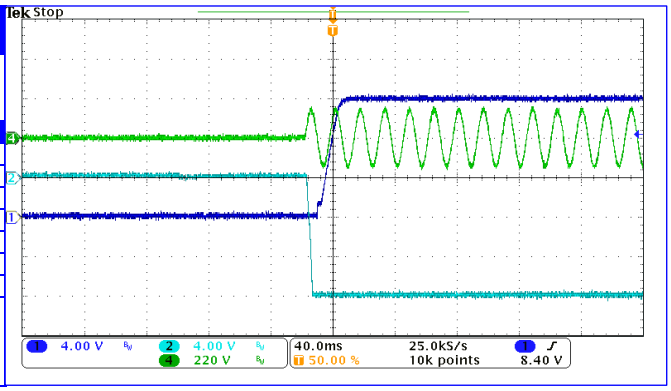
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-On Behaviour (continued)

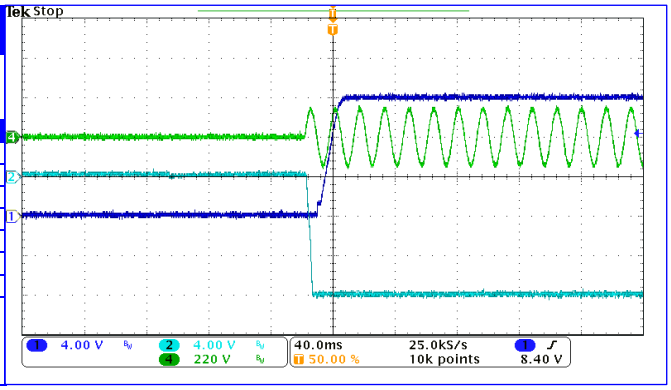
| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 21.6 | | |
| Vo2.[ms] | 4.1 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



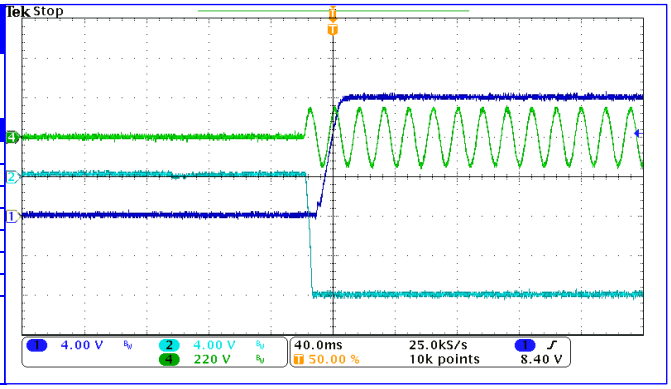

| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 21.4 | | |
| Vo2.[ms] | 4.2 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 21.8 | | |
| Vo2.[ms] | 4.4 | | |
| | | | |
| | | | |
| | | | |
| | | | |

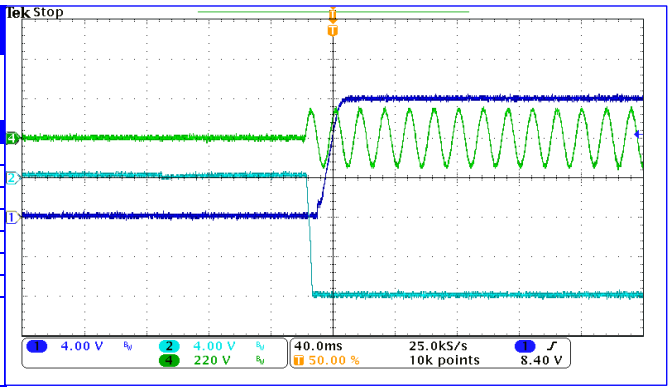
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-On Behaviour (continued)

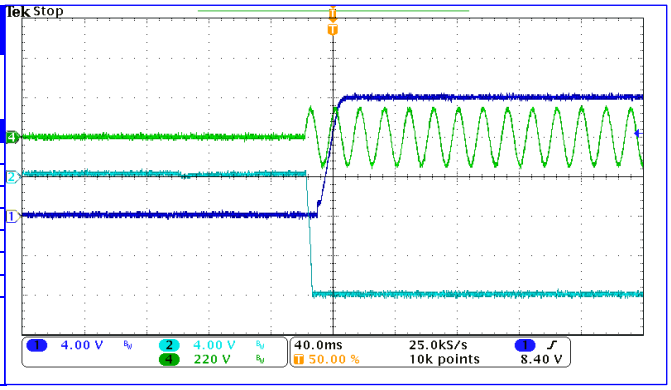
| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 21.6 | | |
| Vo2.[ms] | 4.0 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



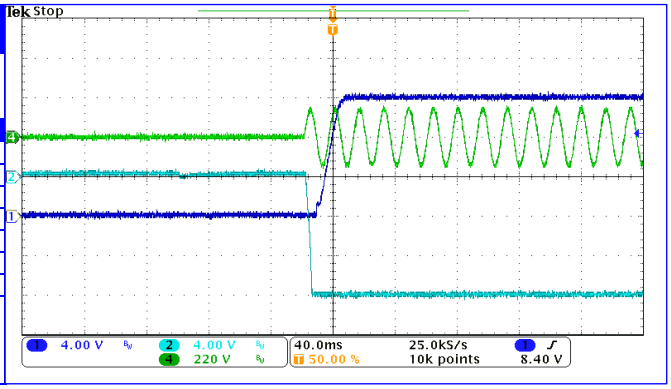

| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 21.6 | | |
| Vo2.[ms] | 4.2 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 22.2 | | |
| Vo2.[ms] | 4.4 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi

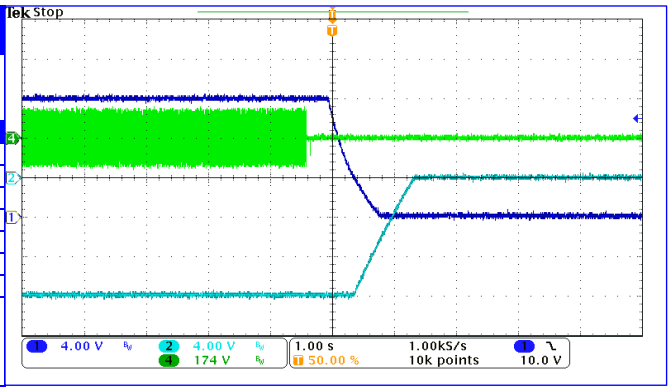


## 5.3 Turn-Off Behaviour

Test pass

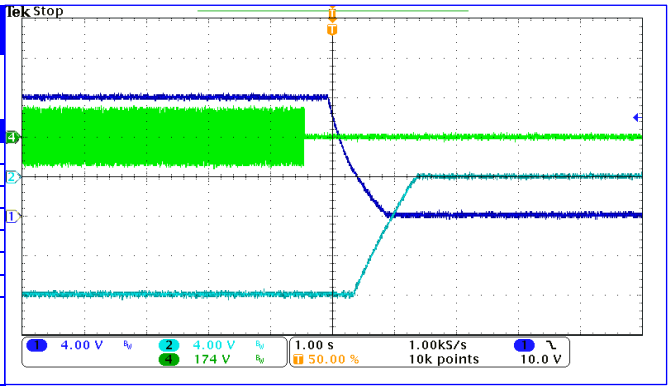
| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Hold Up Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 354.0 | | |
| | | | |
| Vo2.[ms] | 1487.0 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



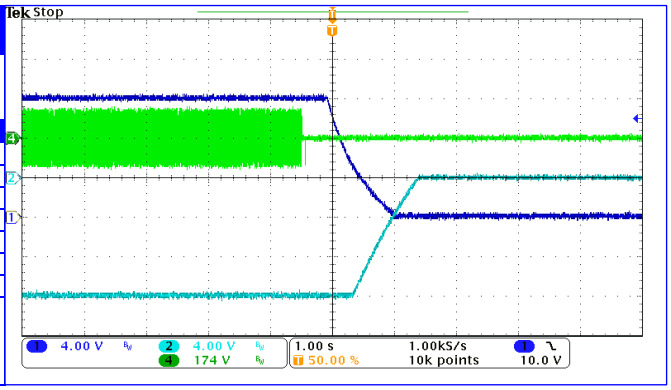

| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Hold Up Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 450.0 | | |
| | | | |
| Vo2.[ms] | 1608.0 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Hold Up Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 435.0 | | |
| | | | |
| Vo2.[ms] | 1613.0 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



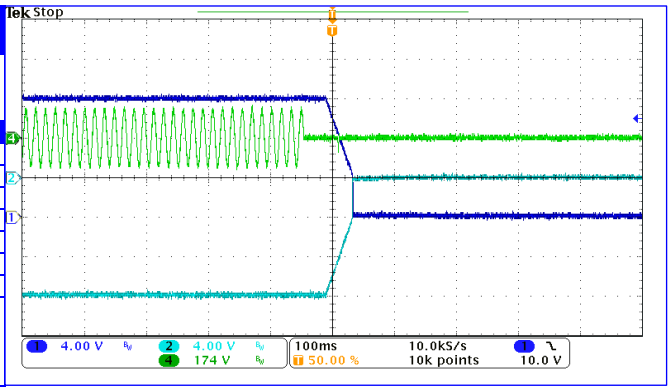
## Turn-Off Behaviour (continued)

| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 87 V |
| Output Current: | 50% Full Load |
| Temperature: | Ta = 0 °C |

***Test Result: Hold Up Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 11.6 | | |
| | | | |
| Vo2.[ms] | 22.5 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi

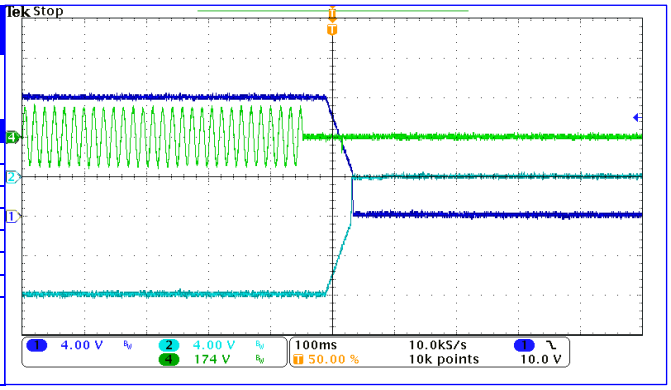



| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 87 V |
| Output Current: | 50% Full Load |
| Temperature: | Ta = 25 °C |

***Test Result: Hold Up Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 17.0 | | |
| | | | |
| Vo2.[ms] | 14.8 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi

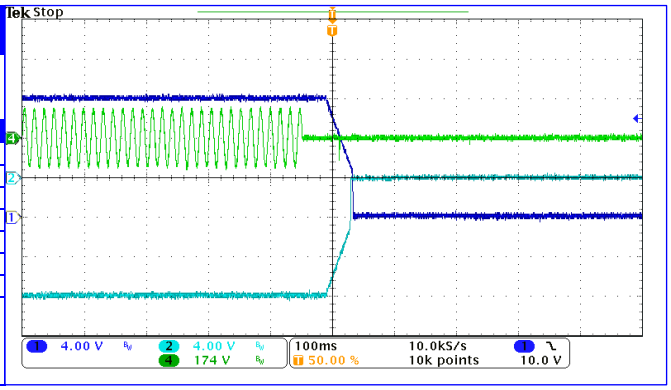



| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 87 V |
| Output Current: | 50% Full Load |
| Temperature: | Ta = 50 °C |

***Test Result: Hold Up Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 12.8 | | |
| | | | |
| Vo2.[ms] | 17.9 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



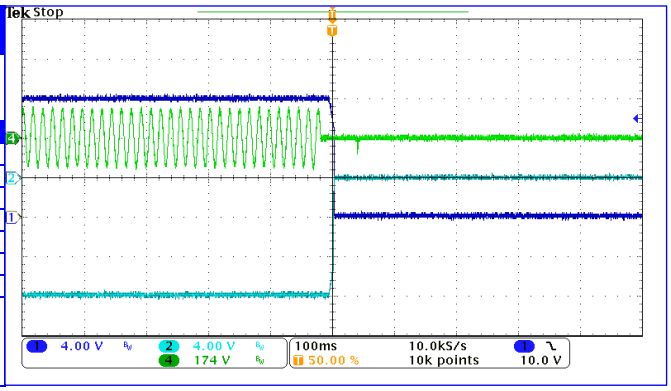
## Turn-Off Behaviour (continued)

| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 87 V |
| Output Current: | 100% Full Load |
| Temperature: | Ta = 0 °C |

***Test Result: Hold Up Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 42.2 | | |
| | | | |
| Vo2.[ms] | 39.1 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi

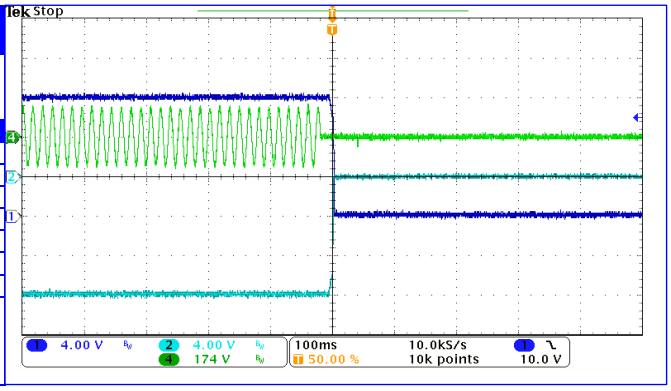



| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 87 V |
| Output Current: | 100% Full Load |
| Temperature: | Ta = 25 °C |

***Test Result: Hold Up Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 42.7 | | |
| | | | |
| Vo2.[ms] | 40.3 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi

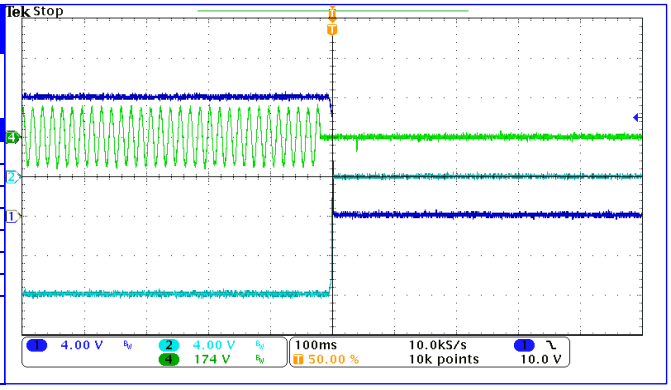



| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 87 V |
| Output Current: | 100% Full Load |
| Temperature: | Ta = 50 °C |

***Test Result: Hold Up Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 41.0 | | |
| | | | |
| Vo2.[ms] | 40.6 | | |
| | | | |
| | | | |
| | | | |

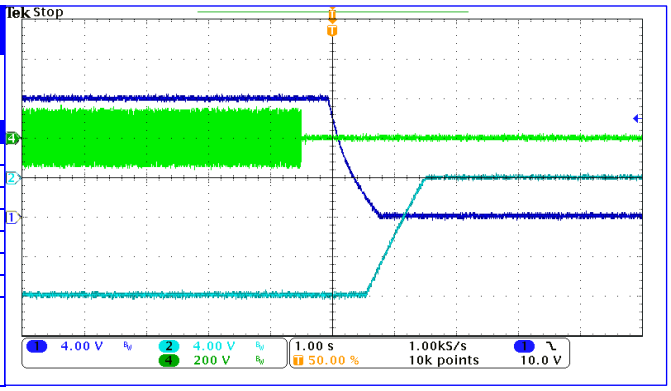
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-Off Behaviour (continued)

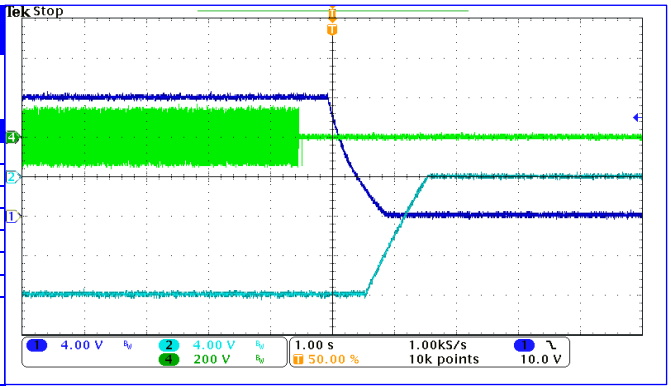
| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Hold Up Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 492.0 | | |
| | | | |
| Vo2.[ms] | 1818.0 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



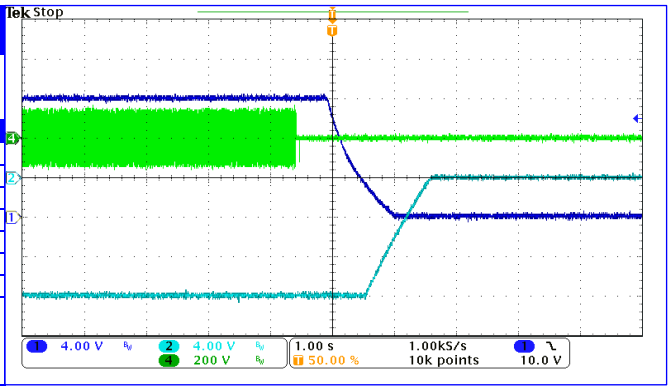

| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Hold Up Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 481.0 | | |
| | | | |
| Vo2.[ms] | 1825.0 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Hold Up Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 520.0 | | |
| | | | |
| Vo2.[ms] | 1908.0 | | |
| | | | |
| | | | |
| | | | |

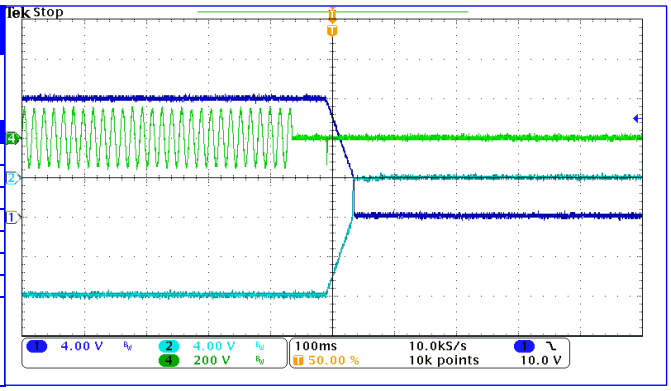
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-Off Behaviour (continued)

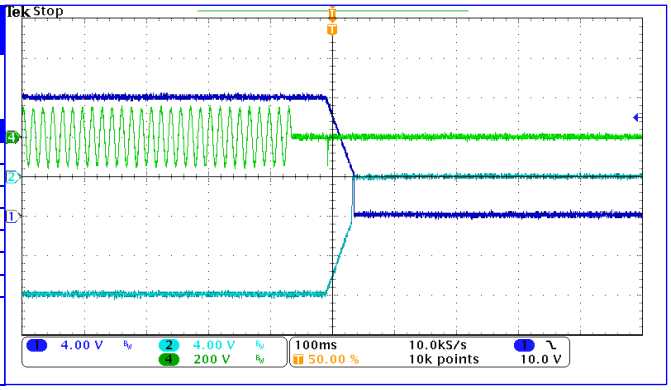
| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | 50% Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 7.1 | | |
| | | | |
| Vo2.[ms] | 40.8 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



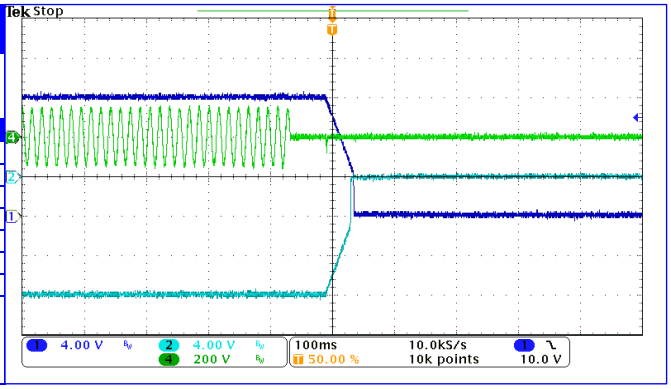

| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | 50% Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 6.2 | | |
| | | | |
| Vo2.[ms] | 38.8 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | 50% Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 8.6 | | |
| | | | |
| Vo2.[ms] | 38.7 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



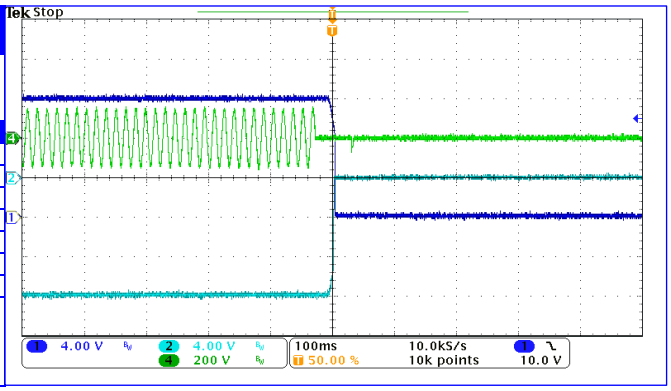
## Turn-Off Behaviour (continued)

| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 100 V |
| Output Current: | 100% Full Load |
| Temperature: | Ta = 0 °C |

***Test Result: Turn On Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 33.4 | | |
| | | | |
| Vo2.[ms] | 30.4 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi

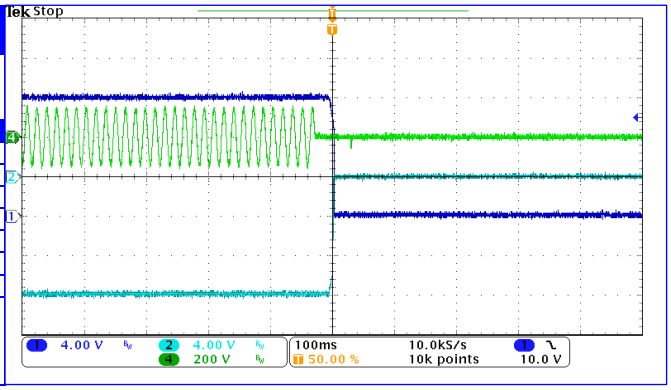



| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 100 V |
| Output Current: | 100% Full Load |
| Temperature: | Ta = 25 °C |

***Test Result: Turn On Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 31.5 | | |
| | | | |
| Vo2.[ms] | 29.6 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi

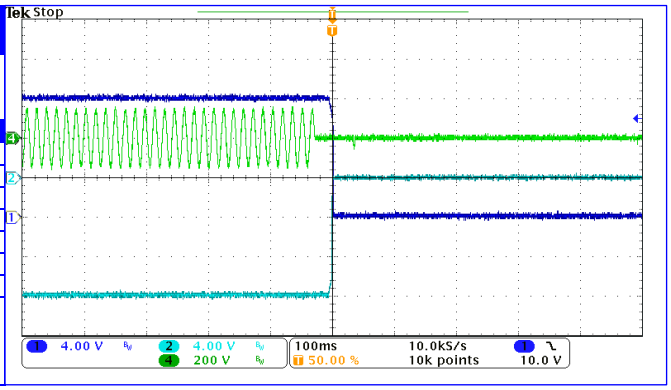



| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 100 V |
| Output Current: | 100% Full Load |
| Temperature: | Ta = 50 °C |

***Test Result: Turn On Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 36.1 | | |
| | | | |
| Vo2.[ms] | 35.8 | | |
| | | | |
| | | | |
| | | | |

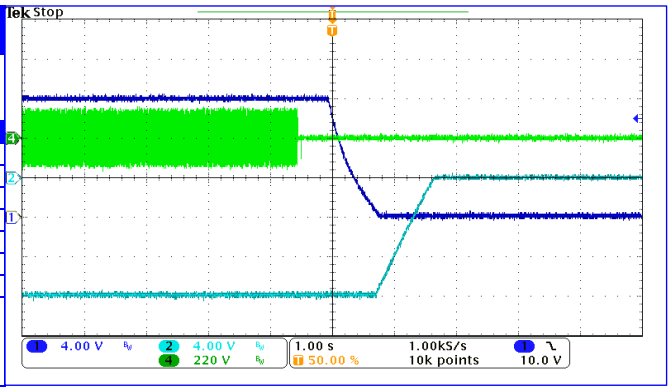
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-Off Behaviour (continued)

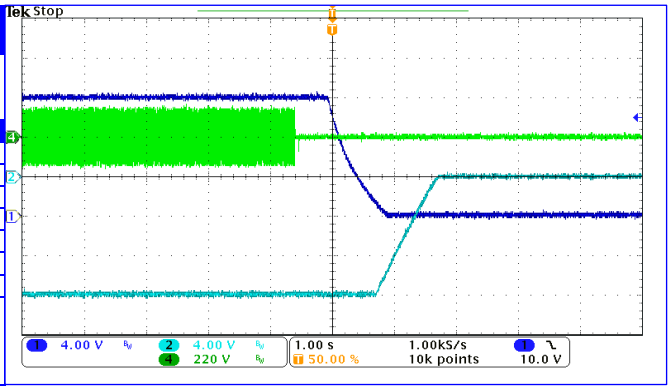
| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 498.0 | | |
| | | | |
| Vo2.[ms] | 1961.0 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



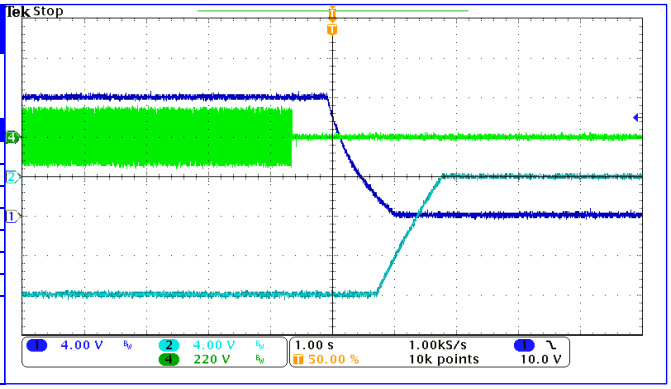

| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 543.0 | | |
| | | | |
| Vo2.[ms] | 2042.0 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 575.0 | | |
| | | | |
| Vo2.[ms] | 2130.0 | | |
| | | | |
| | | | |
| | | | |

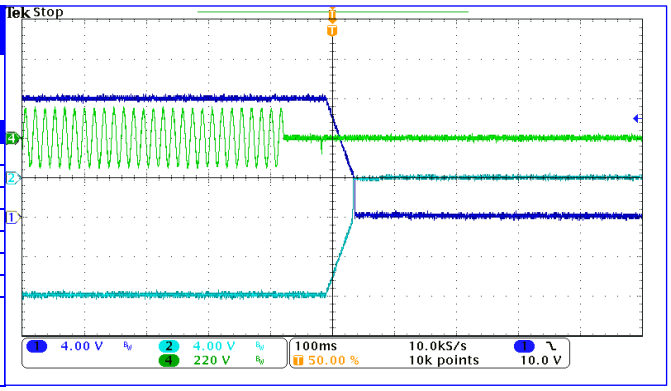
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-Off Behaviour (continued)

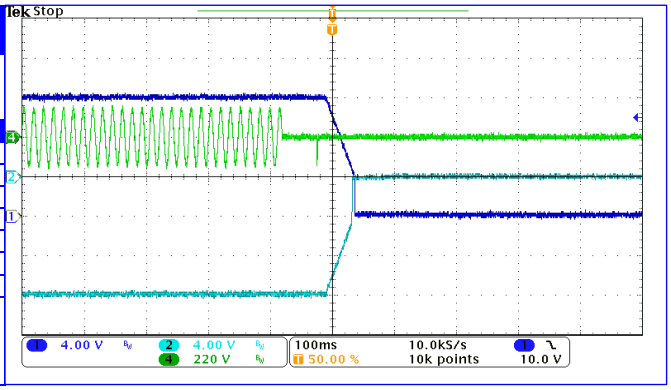
| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | 50% Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 15.9 | | |
| | | | |
| Vo2.[ms] | 50.2 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



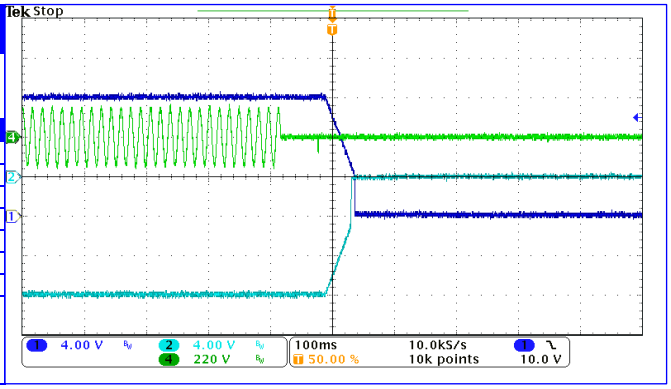

| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | 50% Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 22.5 | | |
| | | | |
| Vo2.[ms] | 55.5 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | 50% Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 22.1 | | |
| | | | |
| Vo2.[ms] | 53.0 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



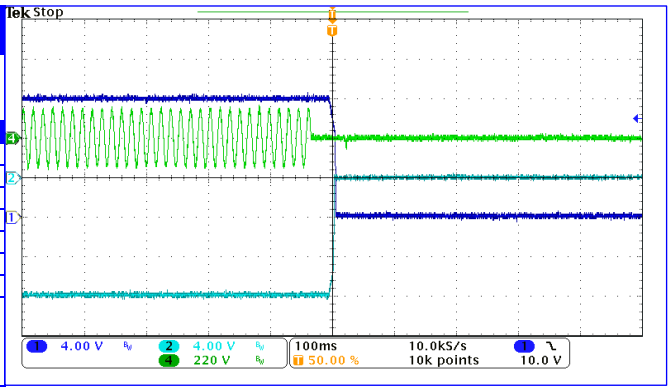
## Turn-Off Behaviour (continued)

| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 110 V |
| Output Current: | Min Load |
| Temperature: | Ta = 0 °C |

***Test Result: Turn On Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 23.9 | | |
| | | | |
| Vo2.[ms] | 20.3 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi

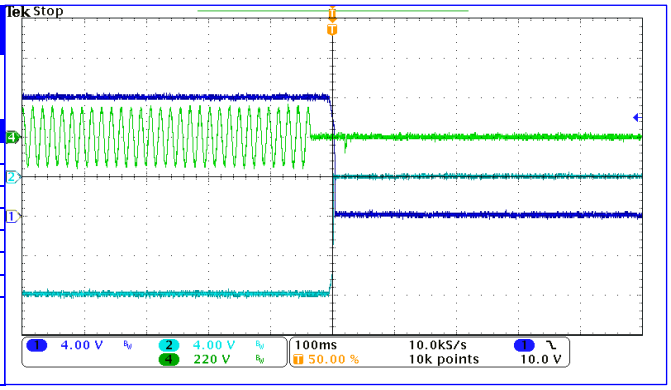



| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 110 V |
| Output Current: | Min Load |
| Temperature: | Ta = 25 °C |

***Test Result: Turn On Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 23.2 | | |
| | | | |
| Vo2.[ms] | 21.1 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi

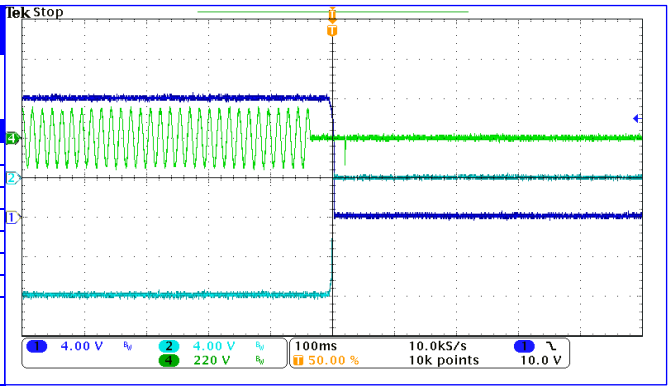



| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 110 V |
| Output Current: | Min Load |
| Temperature: | Ta = 50 °C |

***Test Result: Turn On Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 22.5 | | |
| | | | |
| Vo2.[ms] | 22.1 | | |
| | | | |
| | | | |
| | | | |

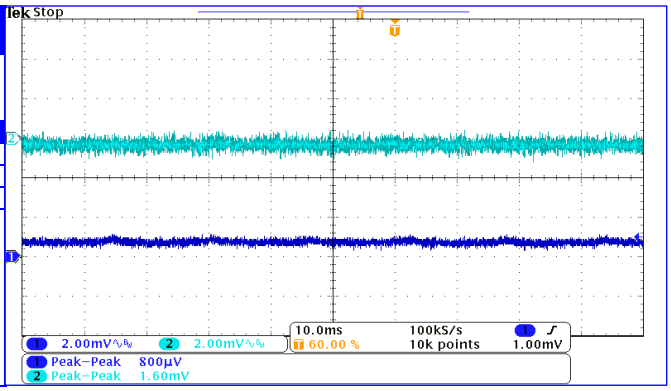
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



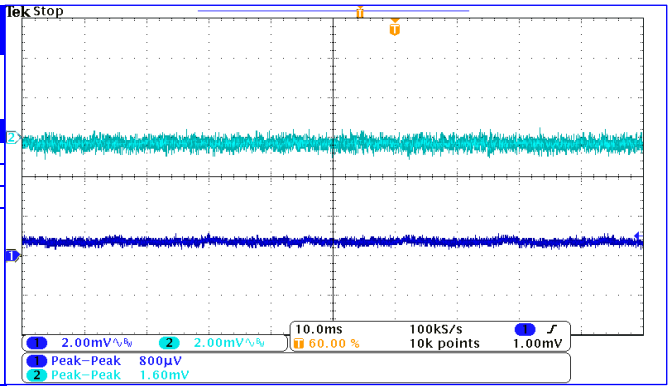
## 5.4 Output Voltage Ripple

Test pass

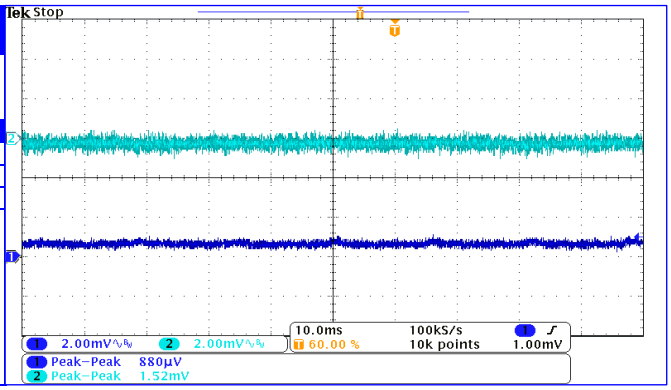
| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 0.8 | 5 | pass |
| Vo2.[mV] | 2.0 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |




| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 0.8 | 5 | pass |
| Vo2.[mV] | 1.8 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

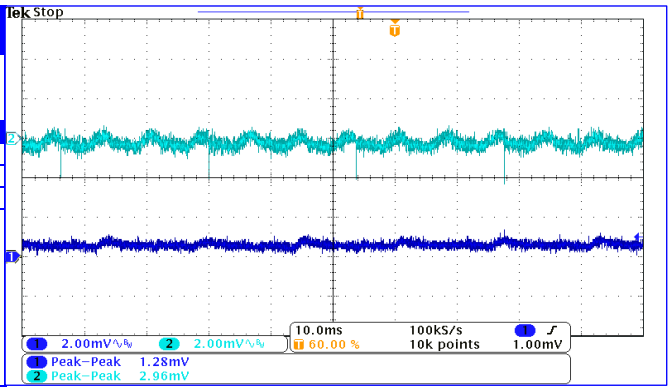



| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 0.9 | 5 | pass |
| Vo2.[mV] | 1.4 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

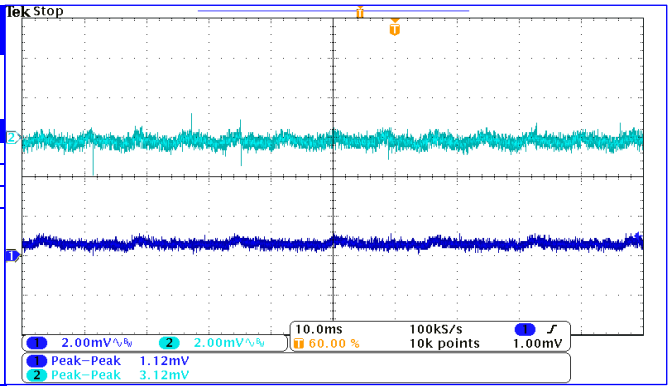


## Output Voltage Ripple (continued)

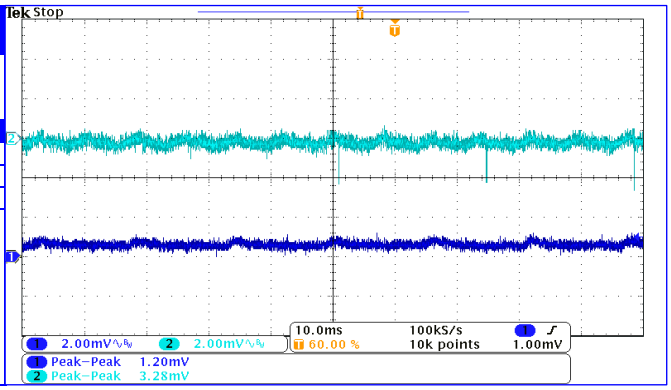
| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.3 | 5 | pass |
| Vo2.[mV] | 3.0 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |




| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.1 | 5 | pass |
| Vo2.[mV] | 3.1 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

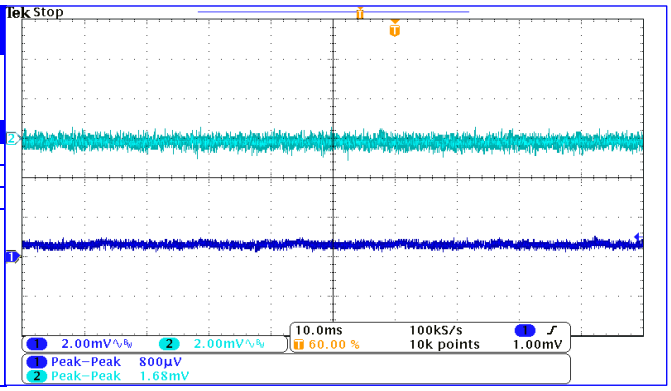



| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.2 | 5 | pass |
| Vo2.[mV] | 3.3 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

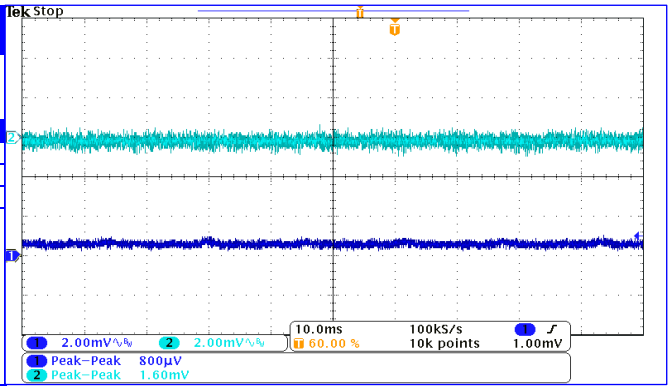


## Output Voltage Ripple (continued)

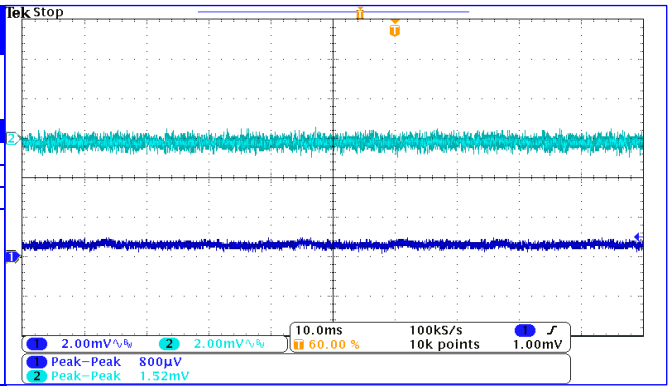
| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 0.8 | 5 | pass |
| Vo2.[mV] | 1.7 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |




| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 0.8 | 5 | pass |
| Vo2.[mV] | 1.6 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

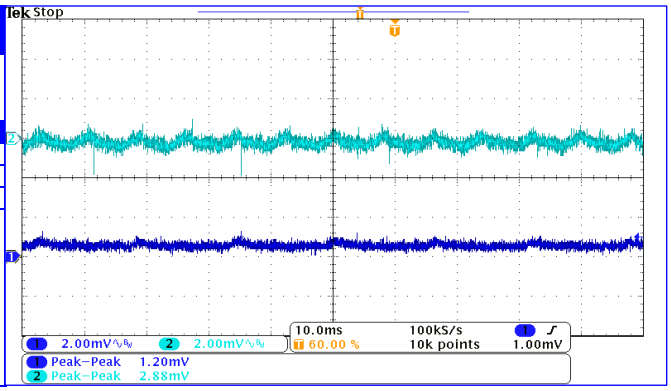



| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 0.8 | 5 | pass |
| Vo2.[mV] | 1.5 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

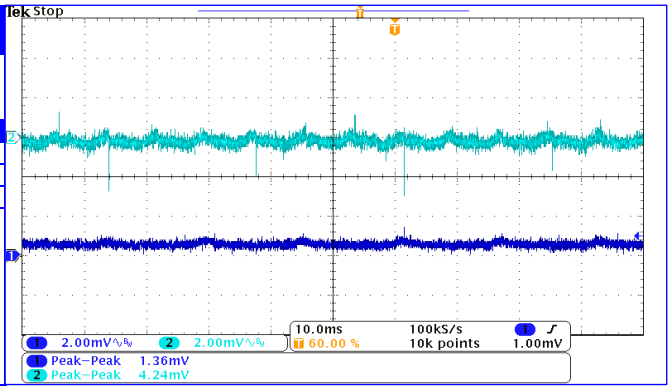


## Output Voltage Ripple (continued)

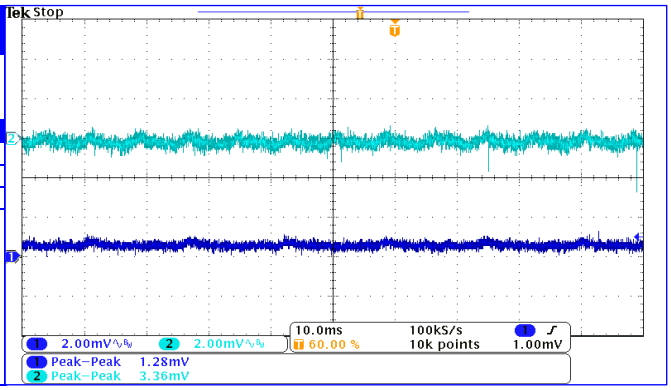
| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.2 | 5 | pass |
| Vo2.[mV] | 2.9 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |




| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.4 | 5 | pass |
| Vo2.[mV] | 4.2 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

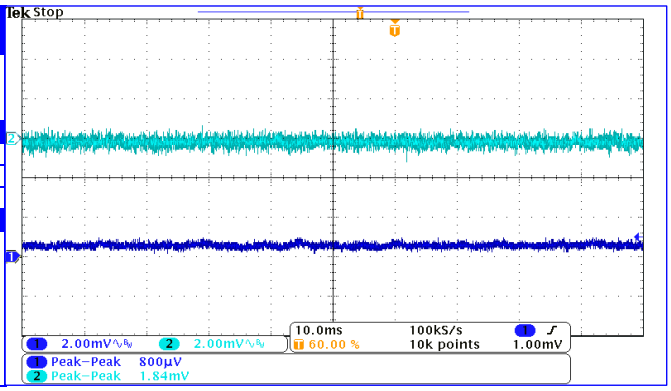



| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.3 | 5 | pass |
| Vo2.[mV] | 3.4 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

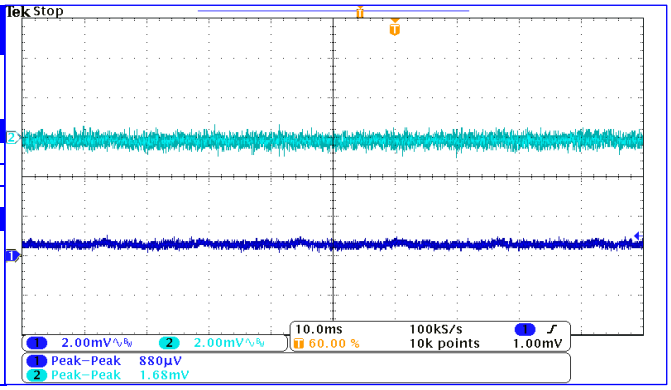


## Output Voltage Ripple (continued)

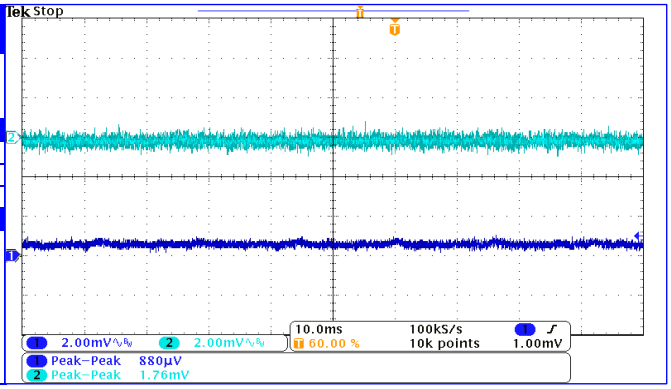
| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 0.8 | 5 | pass |
| Vo2.[mV] | 1.8 | 5 | pass |
| ***Comment:*** | | | |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |




| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 0.9 | 5 | pass |
| Vo2.[mV] | 1.7 | 5 | pass |
| ***Comment:*** | | | |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

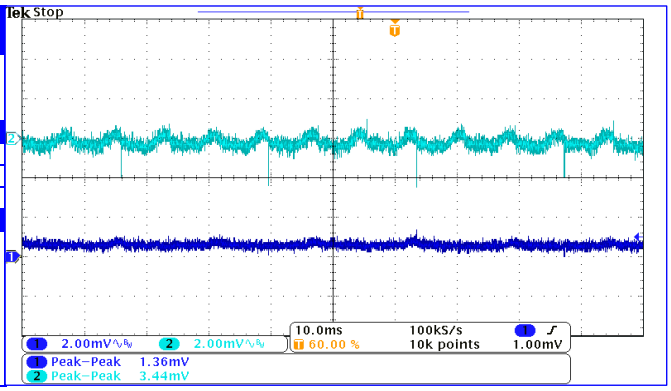



| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 0.9 | 5 | pass |
| Vo2.[mV] | 1.8 | 5 | pass |
| ***Comment:*** | | | |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

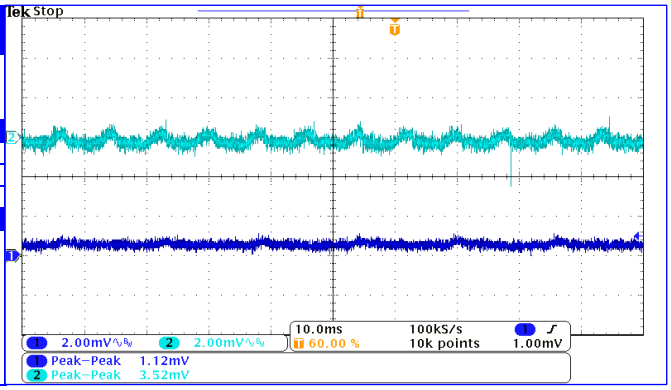


## Output Voltage Ripple (continued)

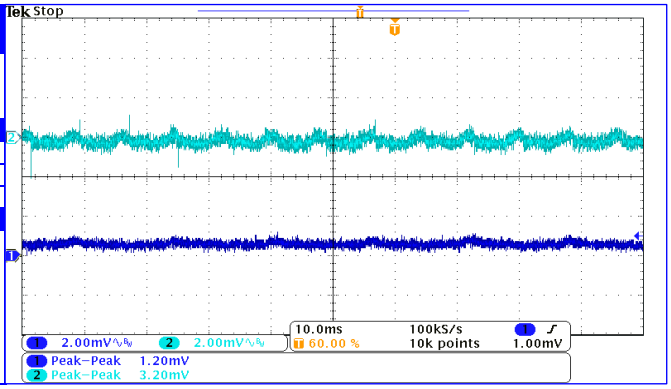
| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.4 | 5 | pass |
| Vo2.[mV] | 3.4 | 5 | pass |
| ***Comment:*** | | | |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |




| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.1 | 5 | pass |
| Vo2.[mV] | 3.5 | 5 | pass |
| ***Comment:*** | | | |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |




| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.2 | 5 | pass |
| Vo2.[mV] | 3.2 | 5 | pass |
| ***Comment:*** | | | |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

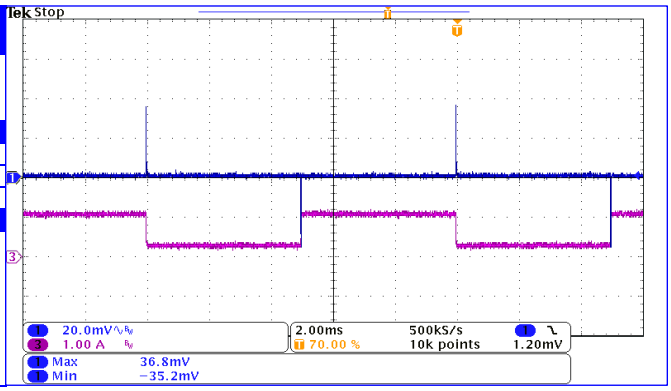


## 5.5 Dynamic load

Test pass

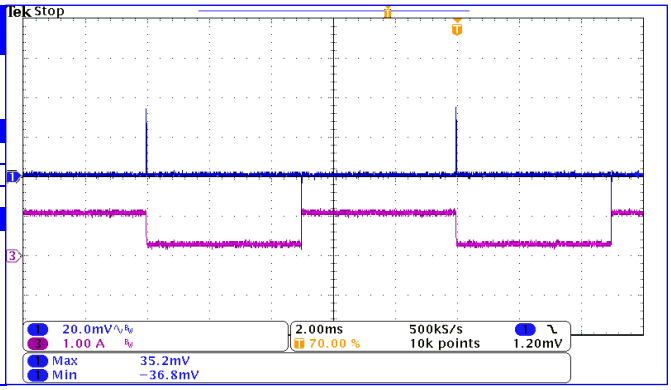
| ***Measured:*** | ***Dynamic load(Vo1)*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Io1=0.2 to 1A | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -35.2 | -120 | **pass** |
| Max[mV] | 36.8 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |

Load step slew rate 0.5A/us



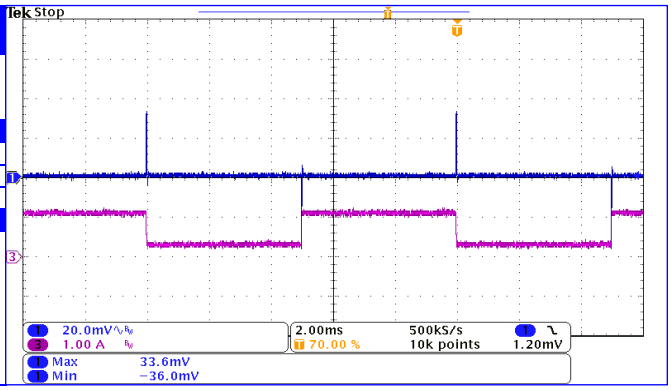

| ***Measured:*** | ***Dynamic load(Vo1)*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Io1=0.2 to 1A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -36.8 | -120 | **pass** |
| Max[mV] | 35.2 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |

Load step slew rate 0.5A/us



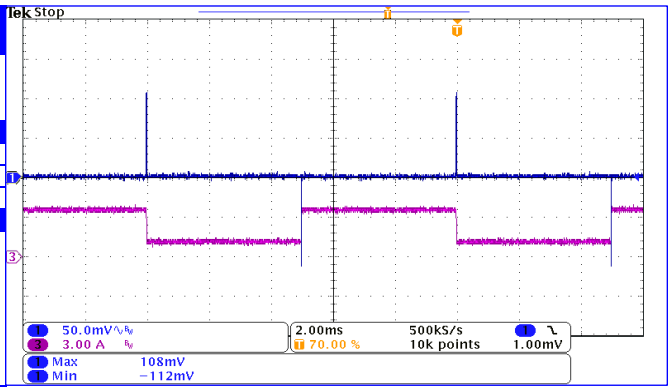

| ***Measured:*** | ***Dynamic load(Vo1)*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Io1=0.2 to 1A | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -36.0 | -120 | **pass** |
| Max[mV] | 33.6 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |

Load step slew rate 0.5A/us

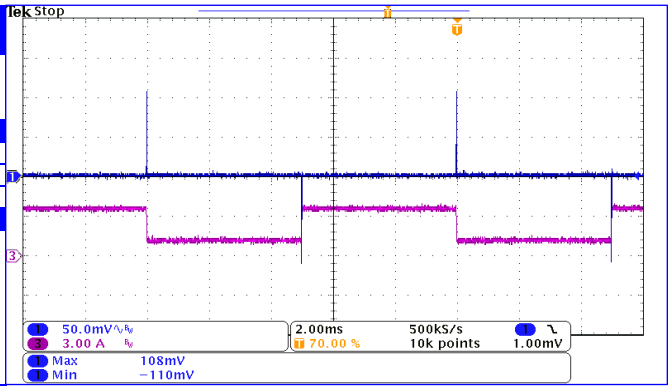


## Dynamic load (continued)

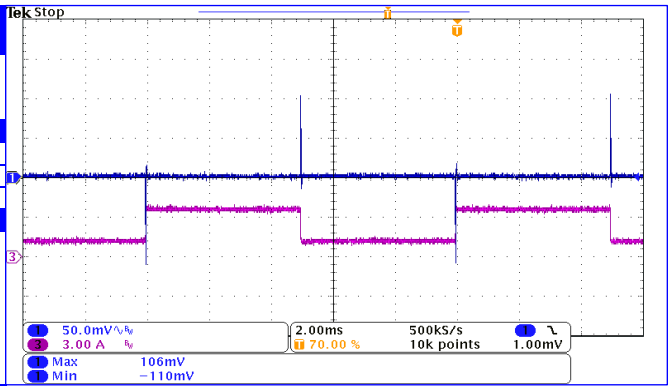
| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Io1=1 to 3.4A | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -112.0 | -120 | **pass** |
| Max[mV] | 108.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Io1=1 to 3.4A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -110.0 | -120 | **pass** |
| Max[mV] | 108.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

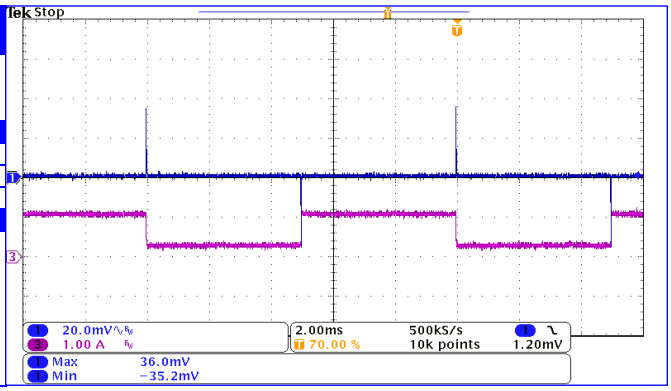



| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Io1=1 to 3.4A | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -110.0 | -120 | **pass** |
| Max[mV] | 106.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

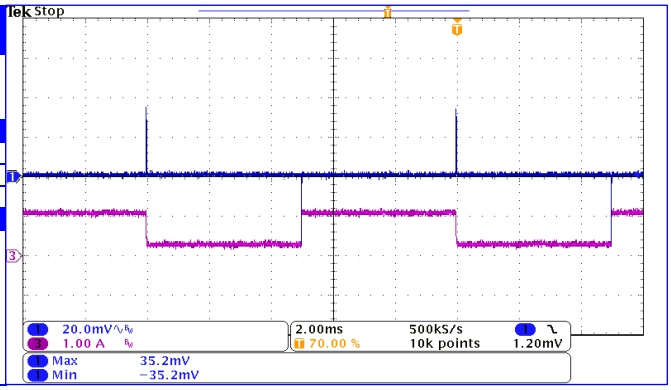


## Dynamic load (continued)

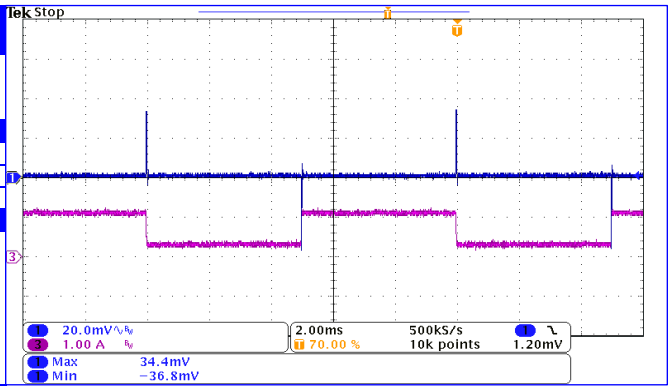
| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 100 V | |
| Output Current: | | Io1=0.2 to 1A | |
| Temperature: | | Ta = 0 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -35.2 | -120 | **pass** |
| Max[mV] | 36.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 100 V | |
| Output Current: | | Io1=0.2 to 1A | |
| Temperature: | | Ta = 25 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -35.2 | -120 | **pass** |
| Max[mV] | 35.2 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

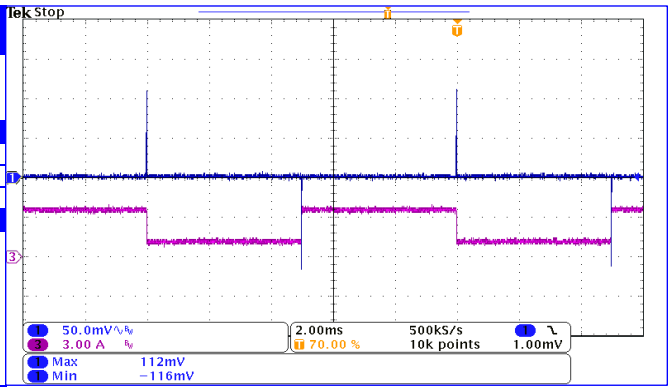



| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 100 V | |
| Output Current: | | Io1=0.2 to 1A | |
| Temperature: | | Ta = 50 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -36.8 | -120 | **pass** |
| Max[mV] | 34.4 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

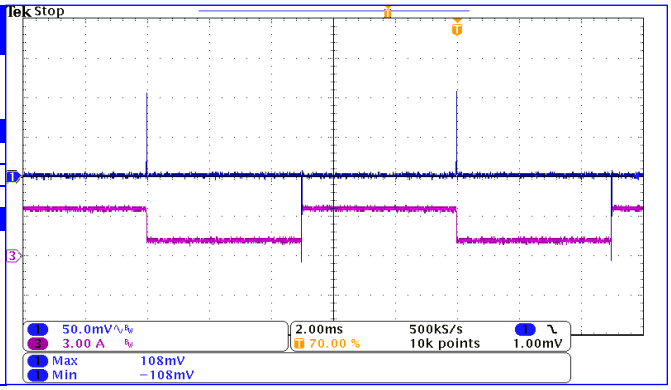


## Dynamic load (continued)

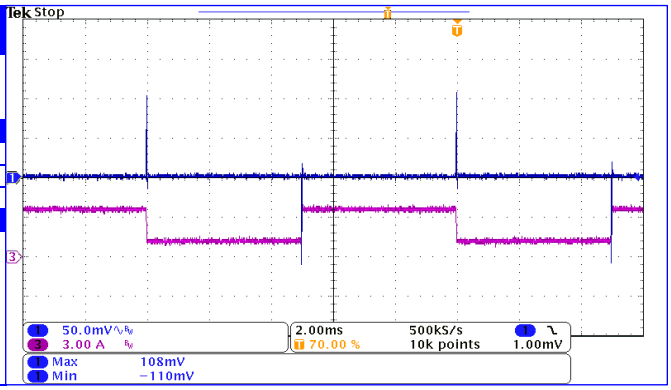
| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 100 V | |
| Output Current: | | Io1=1 to 3.4A | |
| Temperature: | | Ta = 0 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -116.0 | -120 | **pass** |
| Max[mV] | 112.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 100 V | |
| Output Current: | | Io1=1 to 3.4A | |
| Temperature: | | Ta = 25 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -108.0 | -120 | **pass** |
| Max[mV] | 108.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

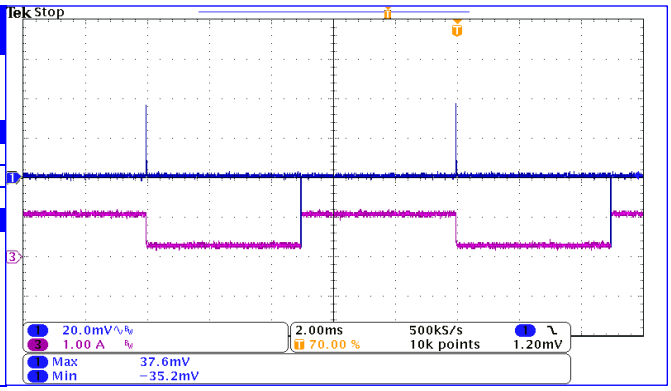



| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 100 V | |
| Output Current: | | Io1=1 to 3.4A | |
| Temperature: | | Ta = 50 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -110.0 | -120 | **pass** |
| Max[mV] | 108.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

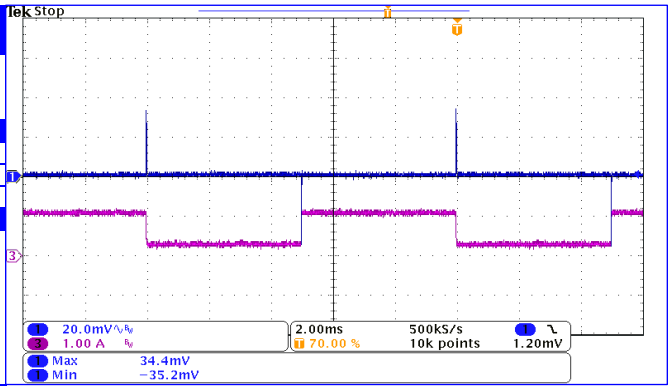


## Dynamic load (continued)

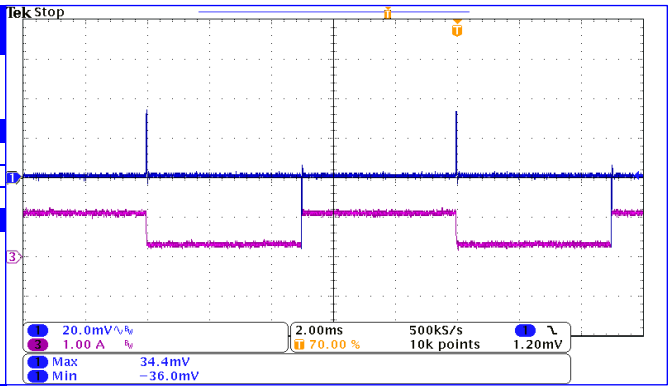
| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Io1=0.2 to 1A | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -35.2 | -120 | **pass** |
| Max[mV] | 37.6 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Io1=0.2 to 1A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -35.2 | -120 | **pass** |
| Max[mV] | 34.4 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

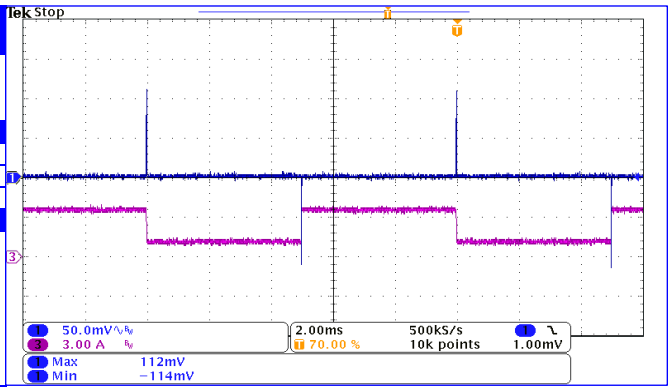



| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Io1=0.2 to 1A | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -36.0 | -120 | **pass** |
| Max[mV] | 34.4 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

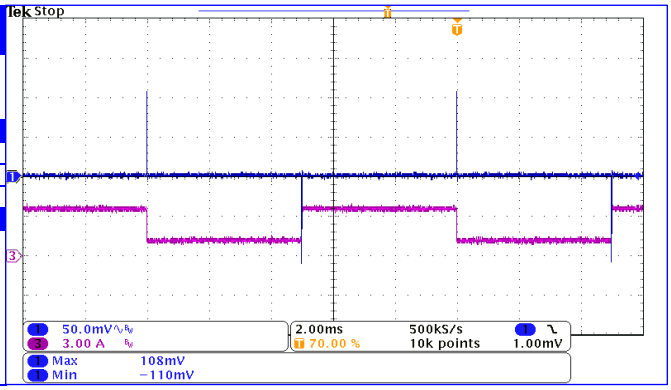


## Dynamic load (continued)

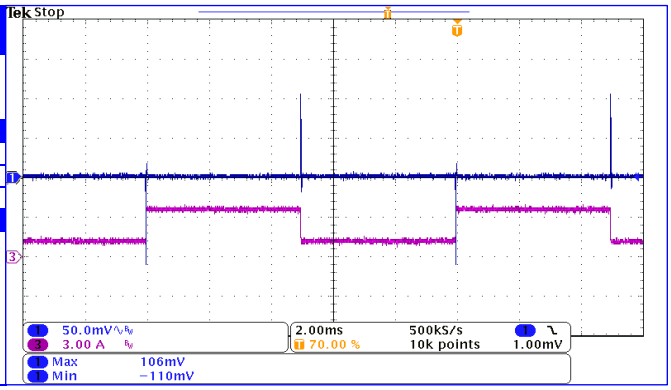
| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 110 V | |
| Output Current: | | Io1=1 to 3.4A | |
| Temperature: | | Ta = 0 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -114.0 | -120 | **pass** |
| Max[mV] | 112.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 110 V | |
| Output Current: | | Io1=1 to 3.4A | |
| Temperature: | | Ta = 25 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -110.0 | -120 | **pass** |
| Max[mV] | 108.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

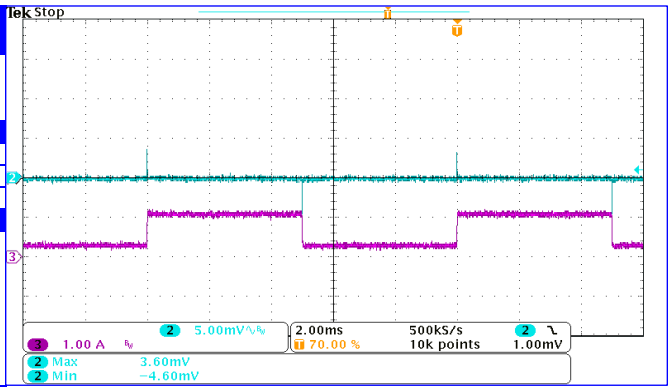



| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 110 V | |
| Output Current: | | Io1=1 to 3.4A | |
| Temperature: | | Ta = 50 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -110.0 | -120 | **pass** |
| Max[mV] | 106.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

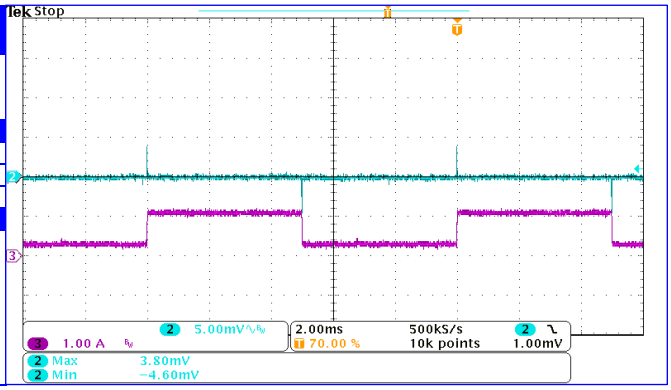


## Dynamic load (continued)

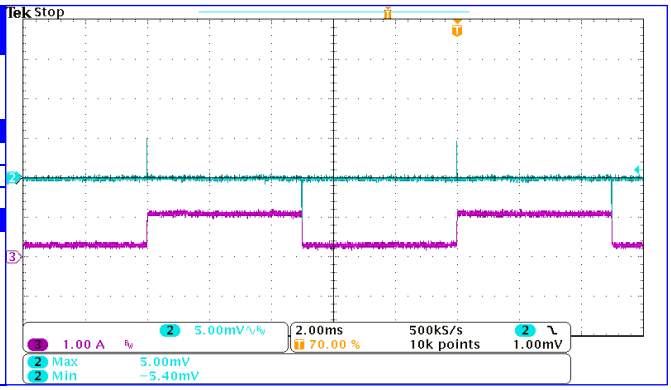
| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Io2=0.2 to 1A | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -4.6 | -120 | **pass** |
| Max[mV] | 3.6 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Io2=0.2 to 1A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -4.6 | -120 | **pass** |
| Max[mV] | 3.8 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

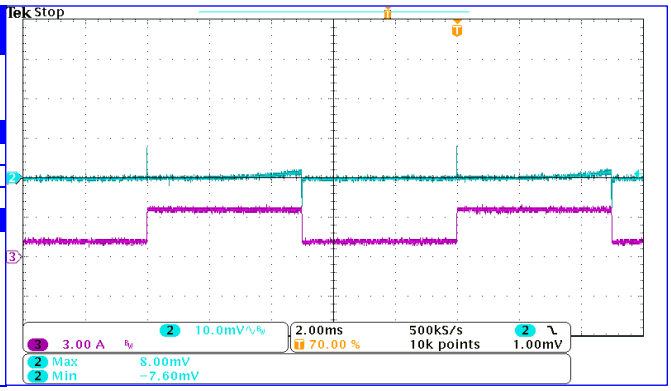



| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Io2=0.2 to 1A | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -5.4 | -120 | **pass** |
| Max[mV] | 5.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

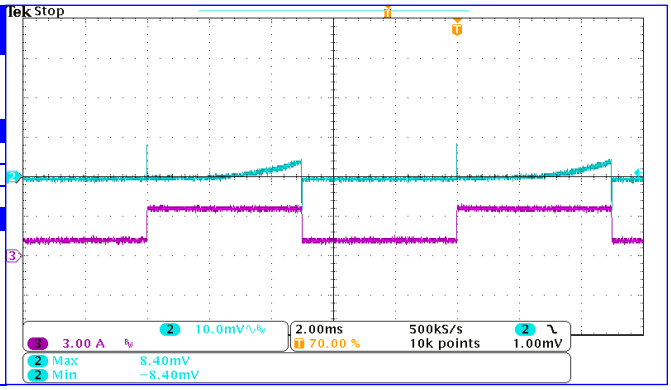


## Dynamic load (continued)

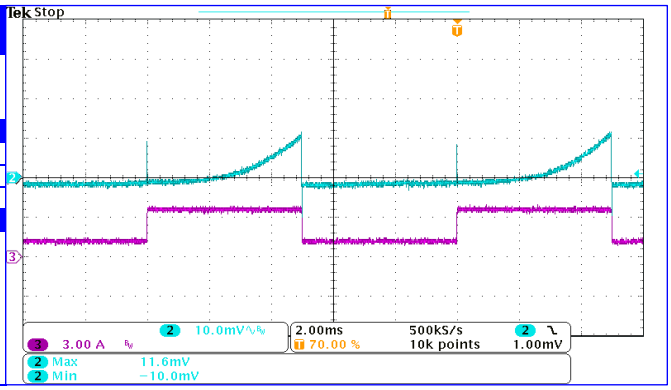
| ***Measured:*** | ***Dynamic load(Vo2)*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | ***Add CapLoad*** |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Io2=1 to 3.4A | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -7.6 | -120 | **pass** |
| Max[mV] | 8.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | ***Dynamic load(Vo2)*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | ***Add CapLoad*** |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Io2=1 to 3.4A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -7.6 | -120 | **pass** |
| Max[mV] | 8.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | ***Dynamic load(Vo2)*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | ***Add CapLoad*** |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Io2=1 to 3.4A | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -10.0 | -120 | **pass** |
| Max[mV] | 11.6 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

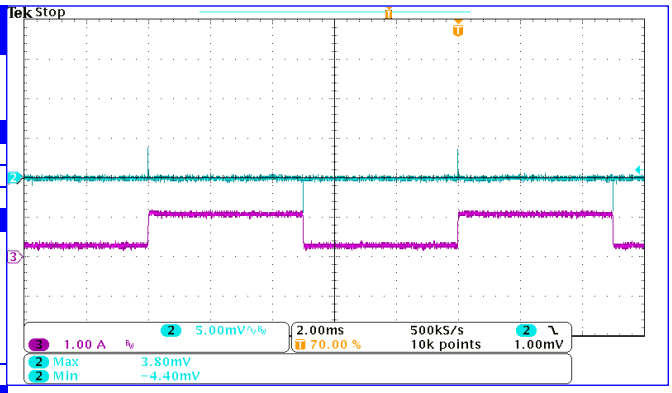


## Dynamic load (continued)

| ***Measured:*** | ***Dynamic load(Vo2)*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Io2=0.2 to 1A | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -4.4 | -120 | **pass** |
| Max[mV] | 3.8 | 120 | **pass** |
| ***Comment:*** | | | |

Io1=3.4A
CH1=no use
CH2=Vo2
CH3=Io2

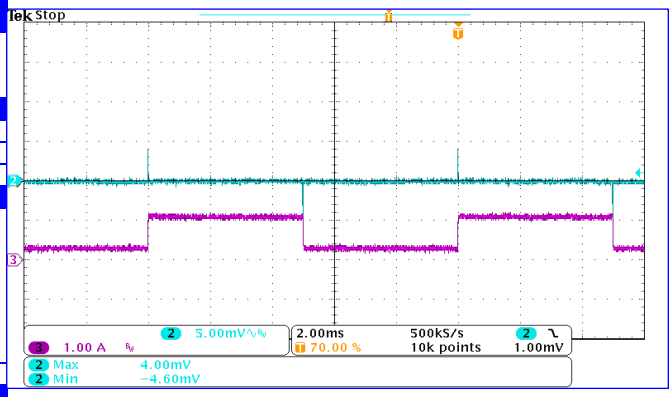
Load step slew rate 0.5A/us




| ***Measured:*** | ***Dynamic load(Vo2)*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Io2=0.2 to 1A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -4.6 | -120 | **pass** |
| Max[mV] | 4.0 | 120 | **pass** |
| ***Comment:*** | | | |

Io1=3.4A
CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use

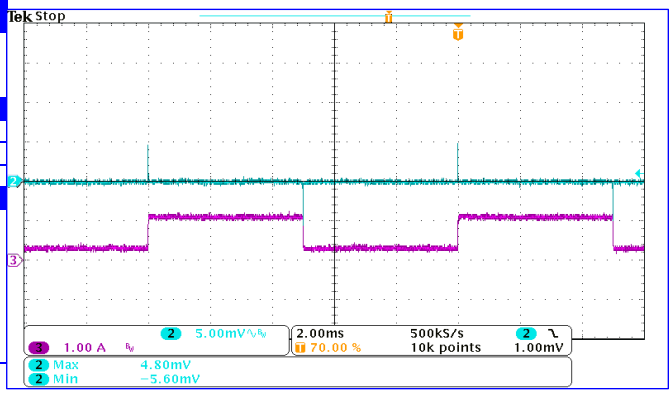
Load step slew rate 0.5A/us




| ***Measured:*** | ***Dynamic load(Vo2)*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Io2=0.2 to 1A | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -5.6 | -120 | **pass** |
| Max[mV] | 4.8 | 120 | **pass** |
| ***Comment:*** | | | |

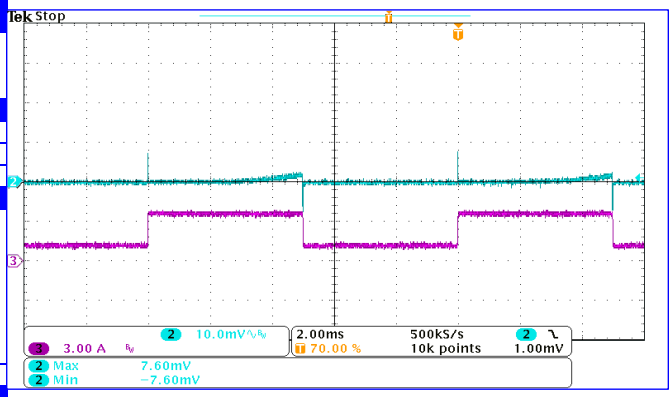
Io1=3.4A
CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use

Load step slew rate 0.5A/us

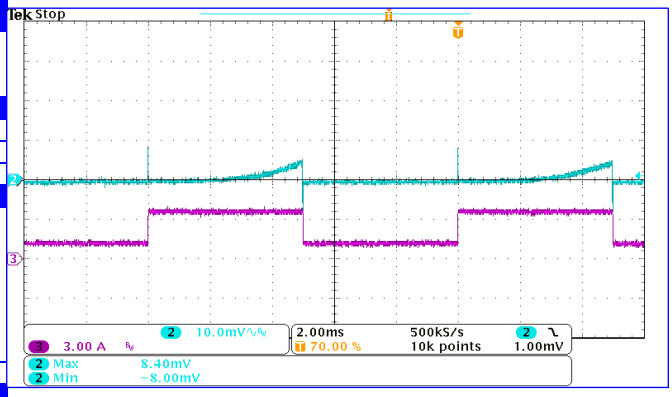


## Dynamic load (continued)

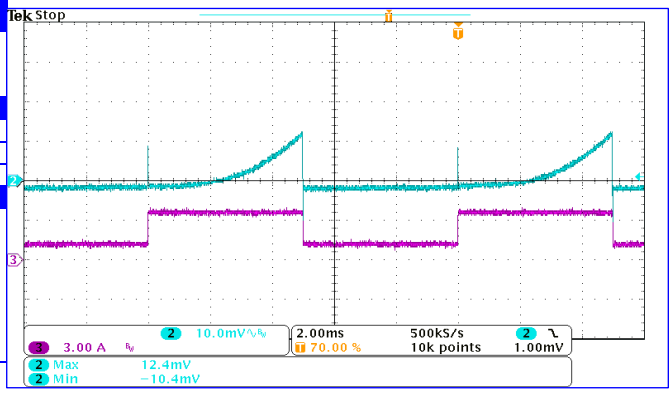
| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | ***Add CapLoad*** |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Io2=1 to 3.4A | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -7.6 | -120 | **pass** |
| Max[mV] | 7.6 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | ***Add CapLoad*** |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Io2=1 to 3.4A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -8.0 | -120 | **pass** |
| Max[mV] | 8.4 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

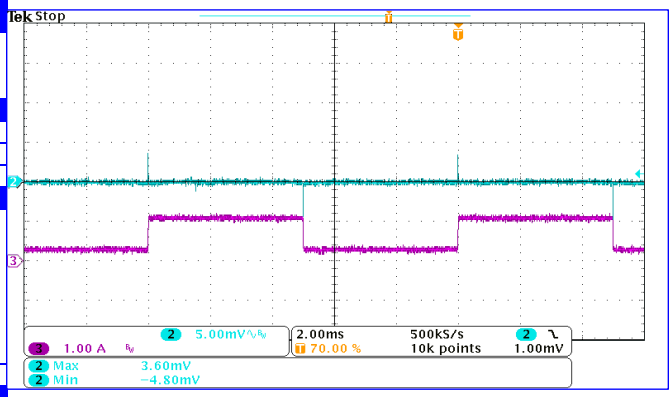



| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | ***Add CapLoad*** |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Io2=1 to 3.4A | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -10.4 | -120 | **pass** |
| Max[mV] | 12.4 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

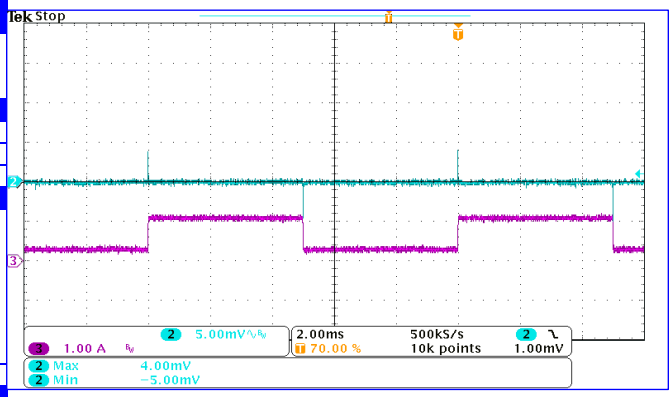


## Dynamic load (continued)

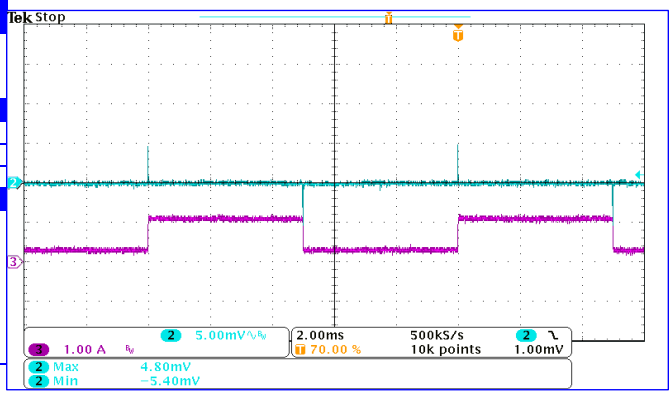
| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Io2=0.2 to 1A | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -4.8 | -120 | **pass** |
| Max[mV] | 3.6 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Io2=0.2 to 1A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -5.0 | -120 | **pass** |
| Max[mV] | 4.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

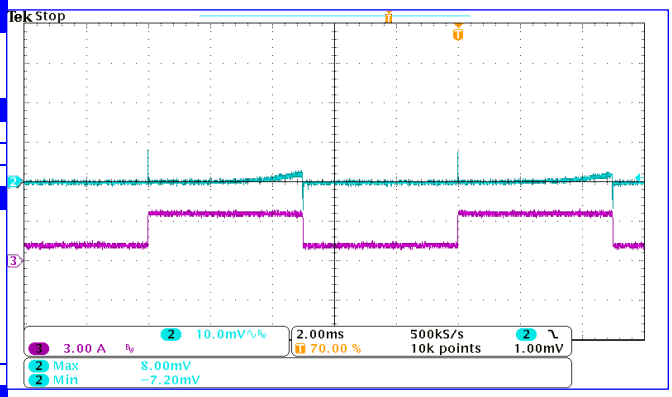



| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Io2=0.2 to 1A | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -5.4 | -120 | **pass** |
| Max[mV] | 4.8 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

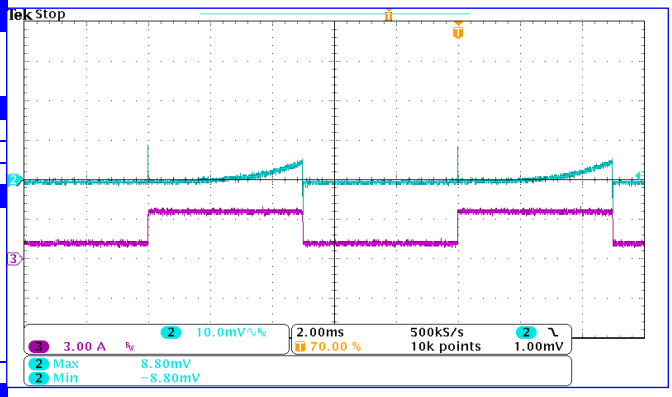


## Dynamic load (continued)

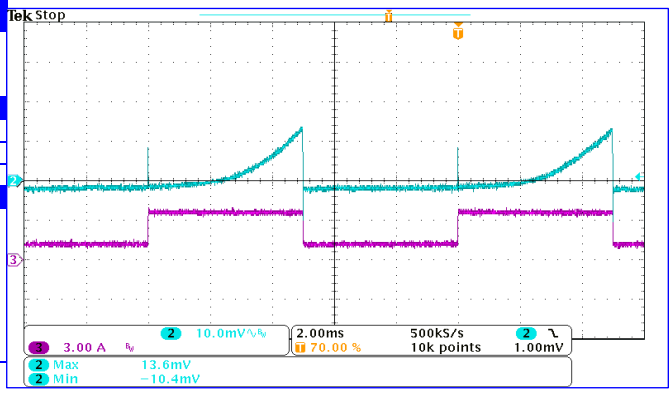
| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | ***Add CapLoad*** |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Io2=1 to 3.4A | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -7.2 | -120 | **pass** |
| Max[mV] | 8.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | ***Add CapLoad*** |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Io2=1 to 3.4A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -8.8 | -120 | **pass** |
| Max[mV] | 8.8 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |



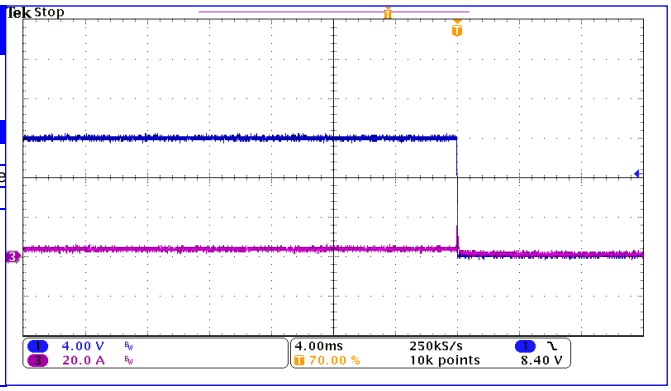

| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | ***Add CapLoad*** |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Io2=1 to 3.4A | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -10.4 | -120 | **pass** |
| Max[mV] | 13.6 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |



## 5.6 Short test

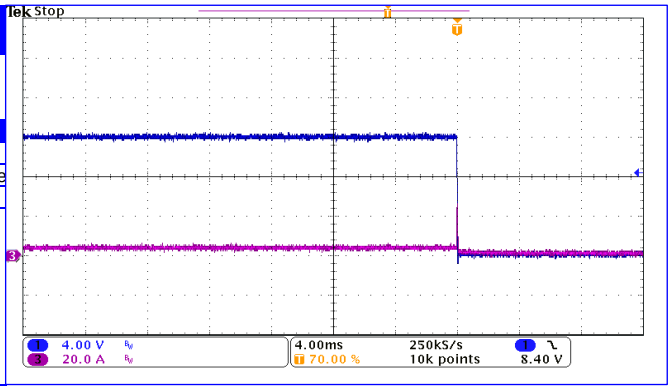
| ***Measured:*** | ***Vo1 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=Vo1
CH2=no use
CH3=Io1
CH4=no use



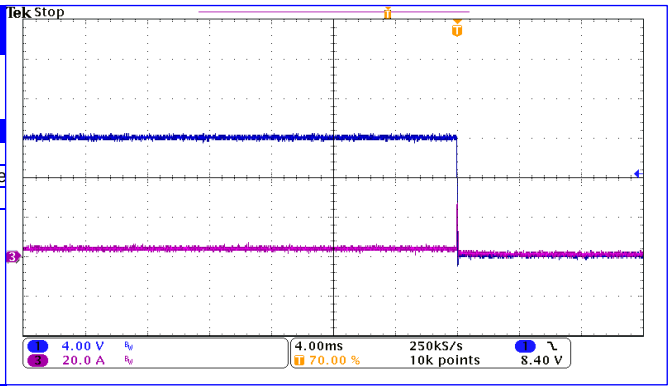

| ***Measured:*** | ***Vo1 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=Vo1
CH2=no use
CH3=Io1
CH4=no use




| ***Measured:*** | ***Vo1 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

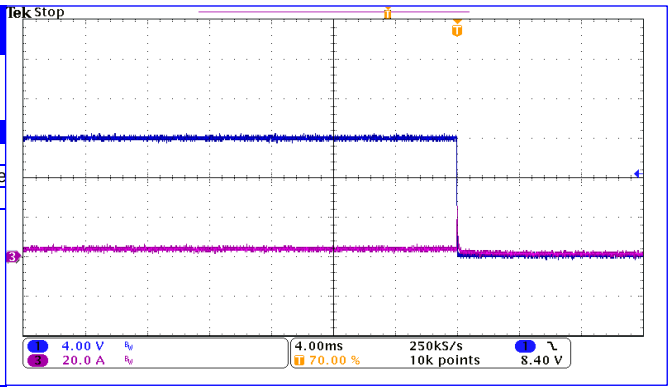
CH1=Vo1
CH2=no use
CH3=Io1
CH4=no use



## Short test (continued)

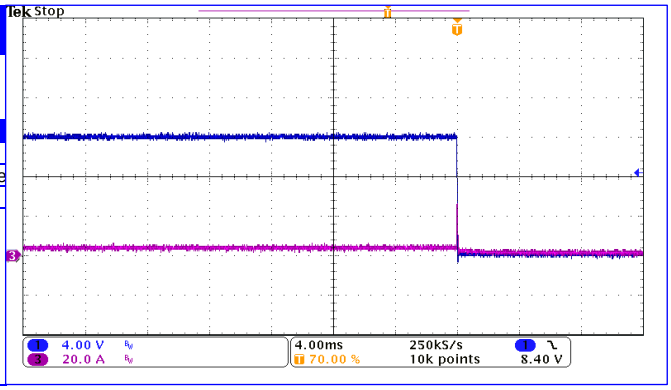
| ***Measured:*** | ***Vo1 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=Vo1
CH2=no use
CH3=Io1
CH4=no use



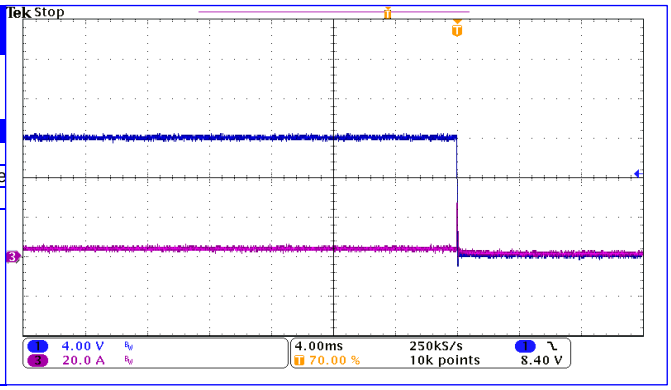

| ***Measured:*** | ***Vo1 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=Vo1
CH2=no use
CH3=Io1
CH4=no use




| ***Measured:*** | ***Vo1 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

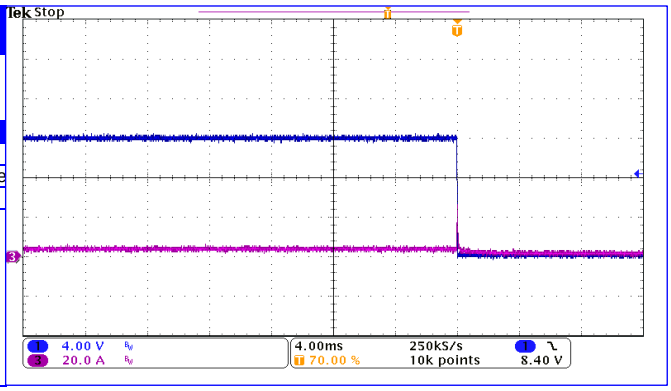
CH1=Vo1
CH2=no use
CH3=Io1
CH4=no use



## Short test (continued)

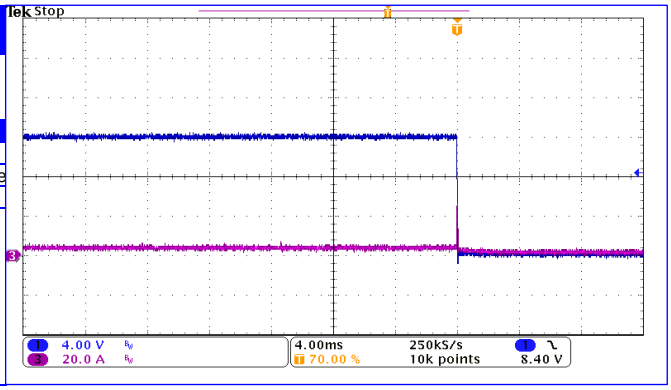
| ***Measured:*** | ***Vo1 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=Vo1
CH2=no use
CH3=Io1
CH4=no use



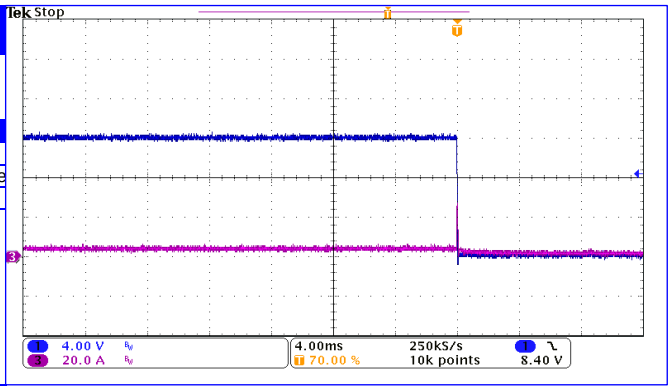

| ***Measured:*** | ***Vo1 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=Vo1
CH2=no use
CH3=Io1
CH4=no use




| ***Measured:*** | ***Vo1 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

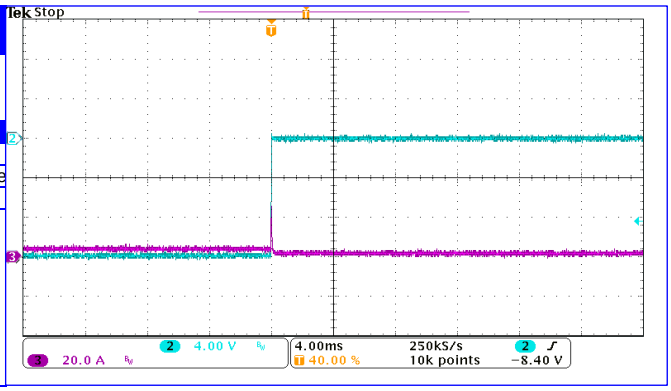
CH1=Vo1
CH2=no use
CH3=Io1
CH4=no use



## Short test (continued)

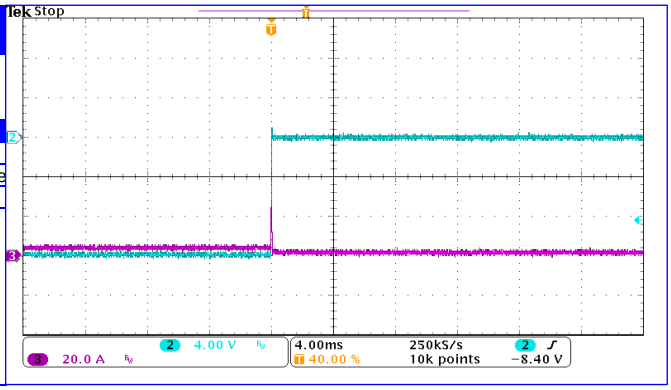
| ***Measured:*** | ***Vo2 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use



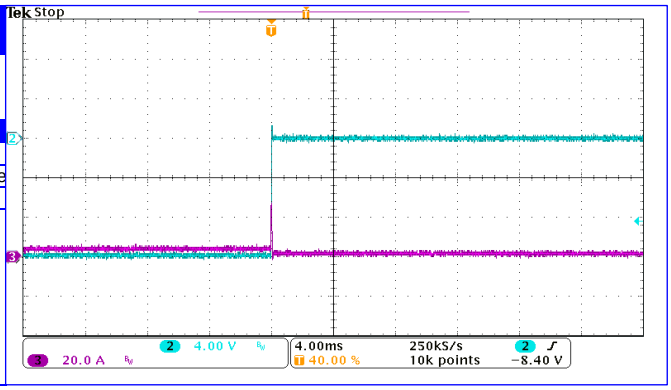

| ***Measured:*** | ***Vo2 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use




| ***Measured:*** | ***Vo2 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 87 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

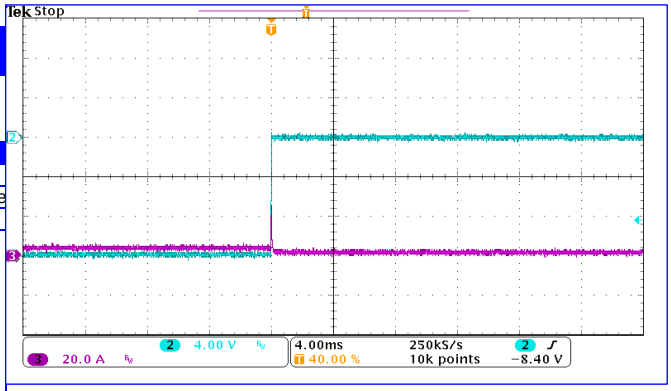
CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use



## Short test (continued)

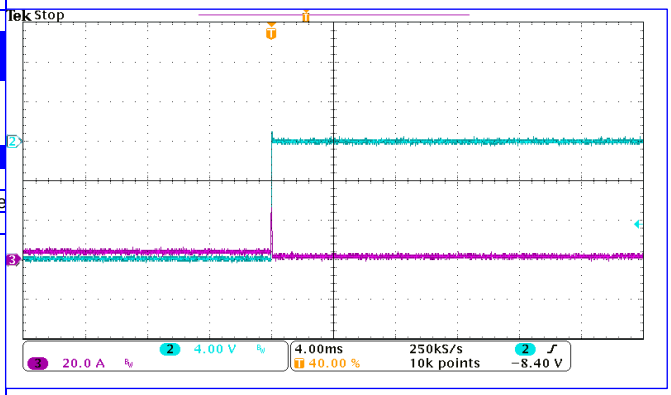
| ***Measured:*** | ***Vo2 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use



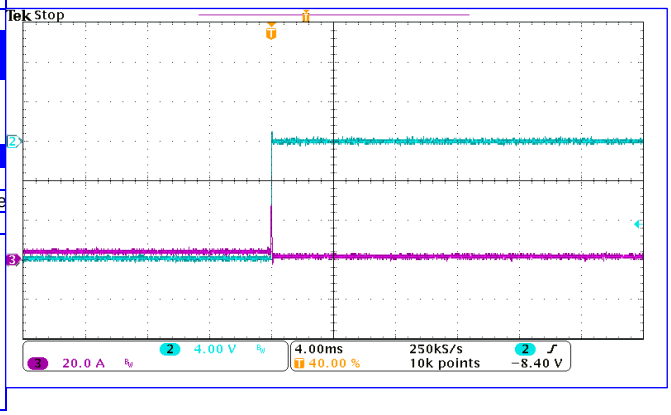

| ***Measured:*** | ***Vo2 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use




| ***Measured:*** | ***Vo2 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 100 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

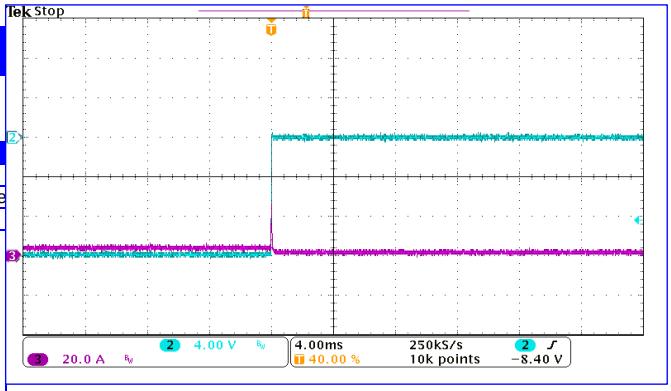
CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use



## Short test (continued)

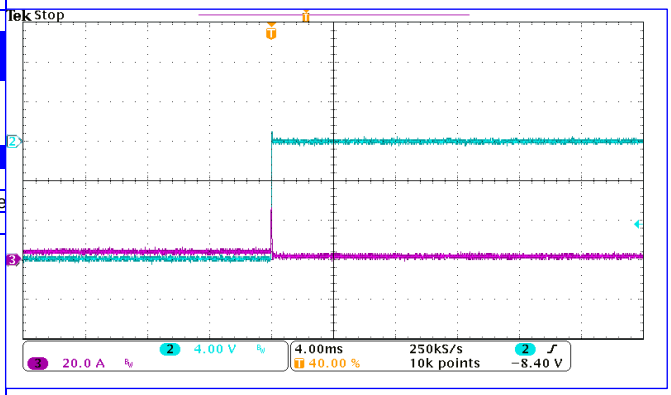
| ***Measured:*** | ***Vo2 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use



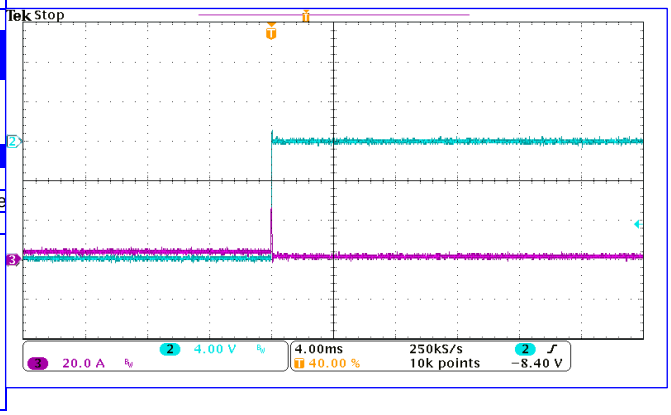

| ***Measured:*** | ***Vo2 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use




| ***Measured:*** | ***Vo2 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 110 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use



This report was generated fully automatically by an automatic test equipment designed at Bel Power Solutions.
The system consists of following hardware:

| Type | Manufacturer | Serial-Number |
|---|---|---|
| ***AC Power Source:*** | | |
| 6560 | Chroma, Taiwan | 656038001421 |
| ***Power Analyzer:*** | | |
| WT310HC | Yokogawa,Japan | C3RH26005E |
| Electronic Load: | | |
| 6314A | Chroma,Taiwan | 6314A0000618 |
| Digital Multi Meter: | | |
| 34970 | Agilent,USA | MY44049369 |
| Oscilloscope: | | |
| DPO3014 | Tektronix,USA | C012742 |
| Computer: | | |
| Deskpro | EVOC,China | |
| Temperature Chamber: | | |
| VT7021 | Votsch,German | 58566143790010 |

Bel Power Solutions
China Embedded DVT
GongMing
ShenZhen, China

# Characterization Test Report

Product

## HCC15-3-AG

**S/N:** Sample 1#

***Tester:*** Peter Liu
***Date:*** 8/30/2021

***Signature:*** Peter Liu

***Approved by:*** Unifive Song
***Date:*** 8/31/2021

***Signature:*** Unifive Song

Bel Power Solutions
China Embedded DVT
GongMing
ShenZhen, China

# Characterization Test Report

Product

## HCC15-3-AG

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# 1. Summary

| *Test* | *Result* |
|---|---|
| ***Static Measurements*** | |
| Output Voltage vs. Input Voltage | PASS |
| Line Regulation Summary | PASS |
| Output Voltage vs. Load Current | PASS |
| Load Regulation Summary | PASS |
| Efficiency vs. Input Voltage | PASS |
| Power Factor vs. Input Voltage | PASS |
| Efficiency vs. Output Power | |
| Current Limitation | PASS |
| ***Dynamic Measurements*** | |
| Inrush Current | PASS |
| Turn-On Behaviour | PASS |
| Turn-Off Behaviour | PASS |
| Output Voltage Ripple | PASS |
| Dynamic load | PASS |
| Short test | PASS |
| **OVERALL DESIGN VERIFICATION TEST** | **PASS** |

***Comment:***

1. Ripple voltage is not accurate because of long measurement cable applied.

## 2. Specifications

***Input Specifications***

| | min. | typ. | max. | unit | condition |
|---|---|---|---|---|---|
| Input Voltage | 191 | 220 | 242 | Vac | |
| Efficiency | | 55 | | % | @ Vi=100Vac,100% Full load |
| | | | | | |
| | | | | | |
| | | | | | |

***Output Specifications***

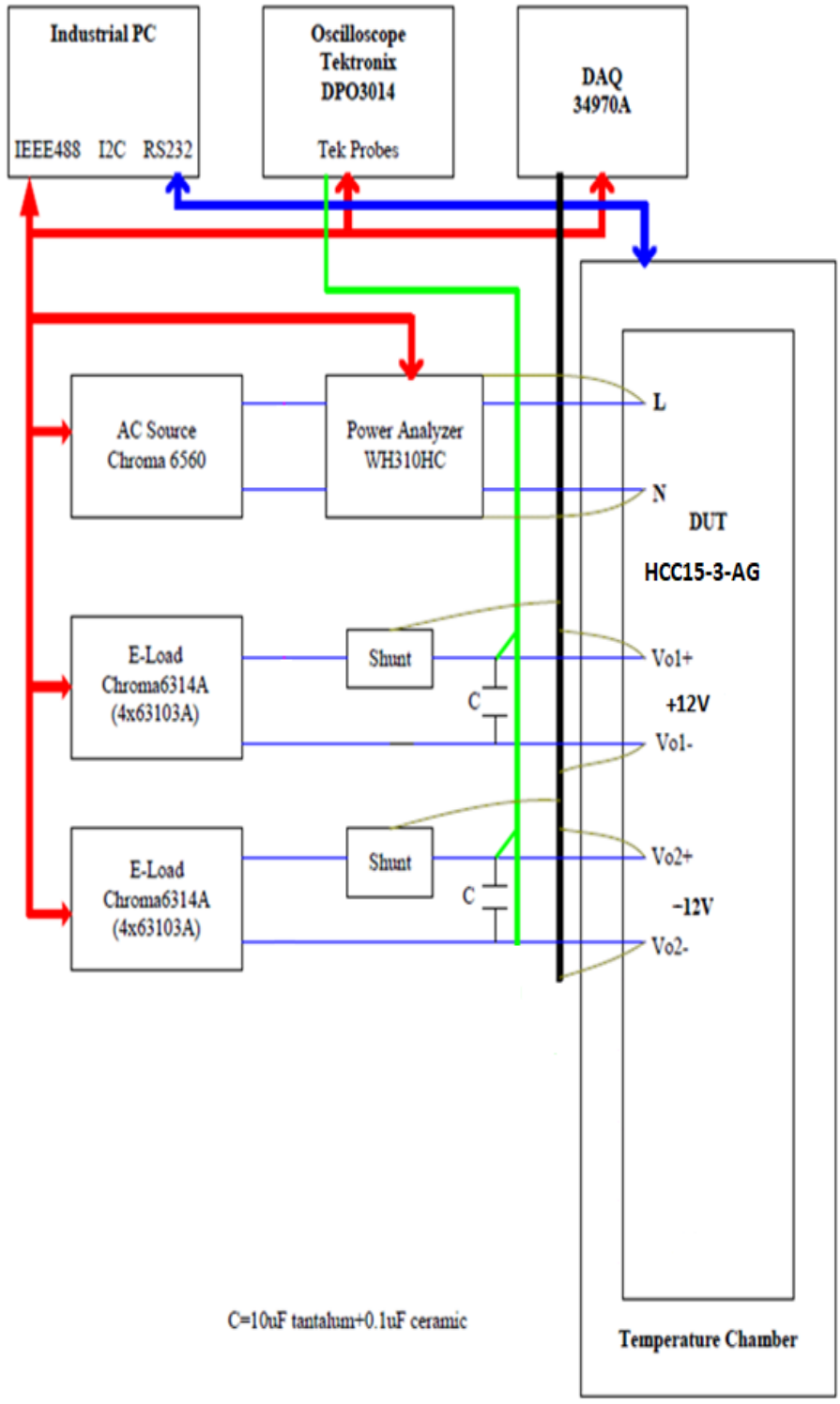
| *Vo1 (+12.0V Rail)* | min. | typ. | max. | unit | condition |
|---|---|---|---|---|---|
| Output Voltage Accuracy | 11.880 | 12.00 | 12.120 | Vdc | @ Vimin…Vimax, Iomin...Iomax, Tamin…Tamax |
| Ripple & Noise | | | 5 | mVpp | @ 20 MHz BW |
| Minimal Output Current | | 0 | | A | |
| Nominal Output Current | | 3.4 | | A | |
| Line Regulation/Load Regulation | | | 120 | mV | |
| Dynamic Load | | | 240 | mV | |

| *Vo2 (-12.0V Rail)* | min. | typ. | max. | unit | condition |
|---|---|---|---|---|---|
| Output Voltage Accuracy | -11.88 | -12 | -12.12 | Vdc | @ Vimin…Vimax, Iomin...Iomax, Tamin…Tamax |
| Ripple & Noise | | | 5 | mVpp | @ 20 MHz BW |
| Minimal Output Current | | 0 | | A | |
| Nominal Output Current | | 3.4 | | A | |
| Line Regulation/Load Regulation | | | 120 | mV | |
| Dynamic Load | | | 240 | mV | |

***Environmental Test Conditions***

| | min. | typ. | max. | unit | condition |
|---|---|---|---|---|---|
| Temperature Range | 0 | 25 | 50 | °C | |
| | | | | | |
| | | | | | |
| | | | | | |

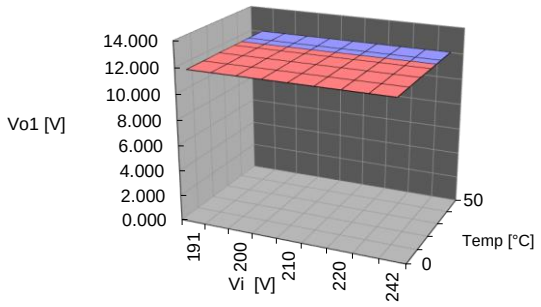
## 3. Test Setup


Industrial PC
IEEE488 I2C RS232
Oscilloscope
Tektronix
DPO3014
Tek Probes
DAQ
34970A
AC Source
Chroma 6560
Power Analyzer
WH310HC
L
N
DUT
HCC15-3-AG
E-Load
Chroma6314A
(4x63103A)
Shunt
C
Vo1+
+12V
Vo1-
E-Load
Chroma6314A
(4x63103A)
Shunt
C
Vo2+
-12V
Vo2-
C=10uF tantalum+0.1uF ceramic
Temperature Chamber

## 4.1 Output Voltage vs. Input Voltage

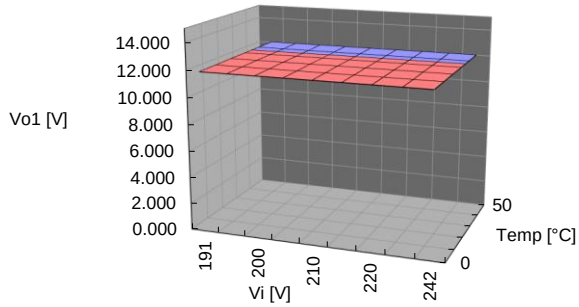
Test **PASS**

| ***Measured:*** | ***Vo1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 ... 242 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo1 Min [V] | 11.97 | 11.88 | **PASS** |
| Vo1 Max [V] | 12.01 | 12.12 | **PASS** |
| ***Comment:*** | | | |



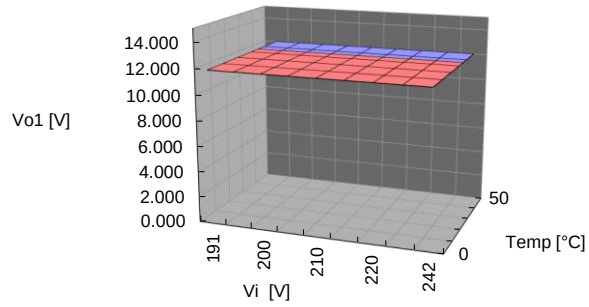

**Min Load**

| ***Measured:*** | ***Vo1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 ... 242 V | | |
| Output Current: | 20% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo1 Min [V] | 11.97 | 11.88 | **PASS** |
| Vo1 Max [V] | 12.01 | 12.12 | **PASS** |
| ***Comment:*** | | | |



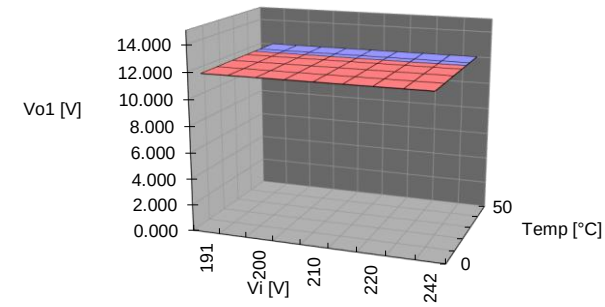

**20% Full Load**

| ***Measured:*** | ***Vo1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 ... 242 V | | |
| Output Current: | 50% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo1 Min [V] | 11.97 | 11.88 | **PASS** |
| Vo1 Max [V] | 12.01 | 12.12 | **PASS** |
| ***Comment:*** | | | |




**50% Full Load**

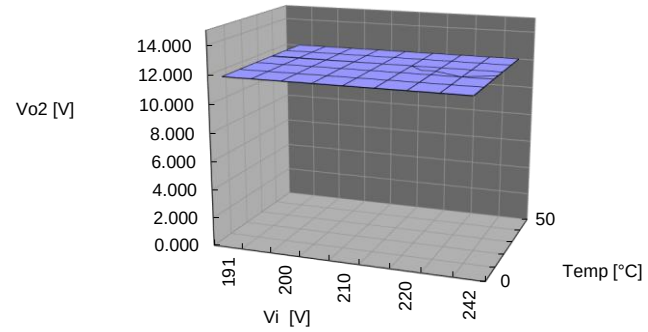
| ***Measured:*** | ***Vo1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 ... 242 V | | |
| Output Current: | 100% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo1 Min [V] | 11.97 | 11.88 | **PASS** |
| Vo1 Max [V] | 12.01 | 12.12 | **PASS** |
| ***Comment:*** | | | |




**100% Full Load**

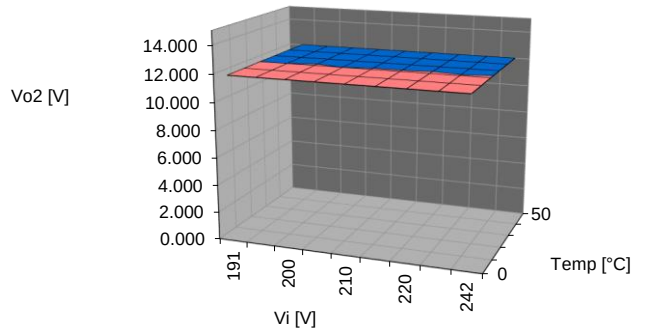
## Output Voltage vs. Input Voltage (continued)

| ***Measured:*** | ***Vo2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 ... 242 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo2 Min [V] | 11.972 | 11.88 | **PASS** |
| Vo2 Max [V] | 12.006 | 12.12 | **PASS** |
| ***Comment:*** | | | |
| Vo2=Abs(Vo2) | | | |



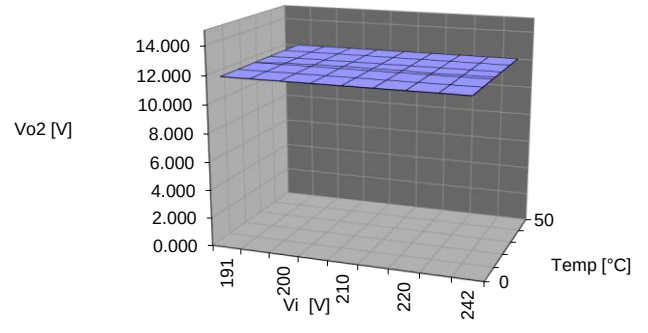

**Min Load**

| ***Measured:*** | ***Vo2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 ... 242 V | | |
| Output Current: | 20% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo2 Min [V] | 11.974 | 11.88 | **PASS** |
| Vo2 Max [V] | 12.005 | 12.12 | **PASS** |
| ***Comment:*** | | | |
| Vo2=Abs(Vo2) | | | |



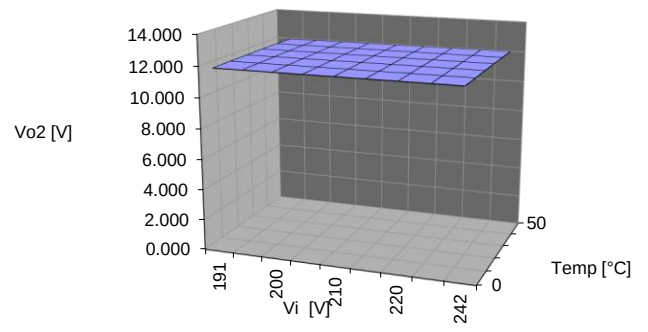

**20% Full Load**

| ***Measured:*** | ***Vo2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 ... 242 V | | |
| Output Current: | 50% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo2 Min [V] | 11.975 | 11.88 | **PASS** |
| Vo2 Max [V] | 12.005 | 12.12 | **PASS** |
| ***Comment:*** | | | |
| Vo2=Abs(Vo2) | | | |




**50% Full Load**

| ***Measured:*** | ***Vo2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 ... 242 V | | |
| Output Current: | 100% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo2 Min [V] | 11.933 | 11.88 | **PASS** |
| Vo2 Max [V] | 11.987 | 12.12 | **PASS** |
| ***Comment:*** | | | |
| Vo2=Abs(Vo2) | | | |

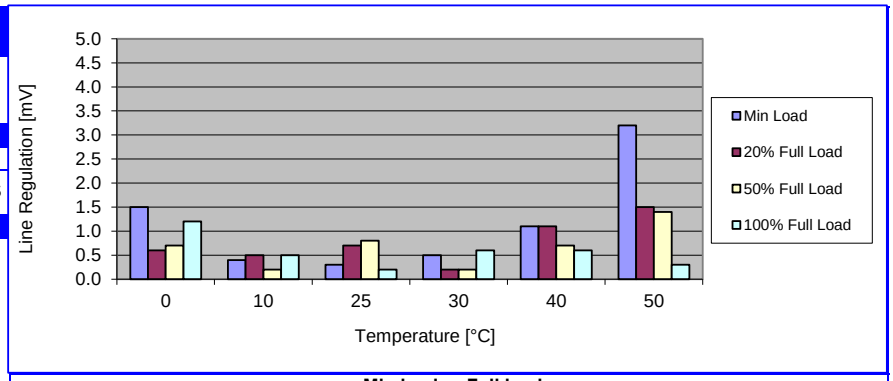



**100% Full Load**

## 4.2 Line Regulation Summary

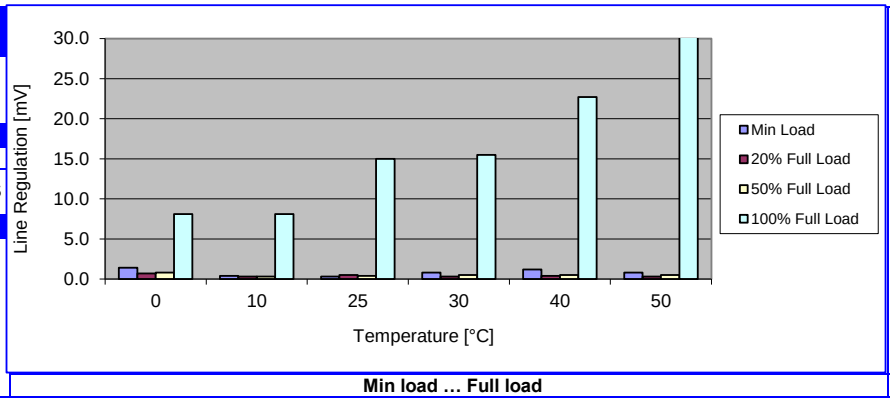
Test **PASS**

| ***Measured:*** | ***Vo1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 ... 242 V | | |
| Output Current: | Min load … Full load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Line Regulation*** | | | |
| | Meas. | Limit | |
| Line Reg. Max [mV] | 3.2 | 120 | **PASS** |
| ***Comment:*** | | | |




**Min load … Full load**

| ***Measured:*** | ***Vo2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 ... 242 V | | |
| Output Current: | Min load … Full load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Line Regulation*** | | | |
| | Meas. | Limit | |
| Line Reg. Max [mV] | 32.2 | 120 | **PASS** |
| ***Comment:*** | | | |

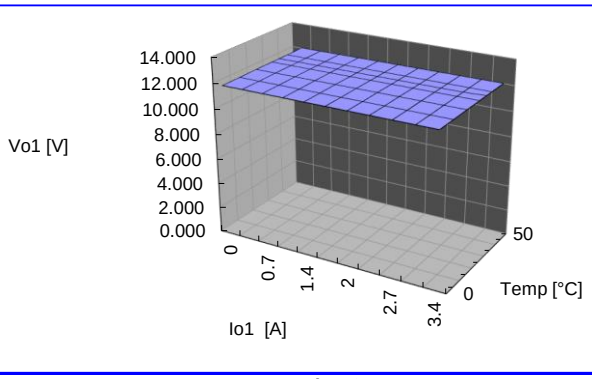



**Min load … Full load**

## 4.3 Output Voltage vs. Load Current

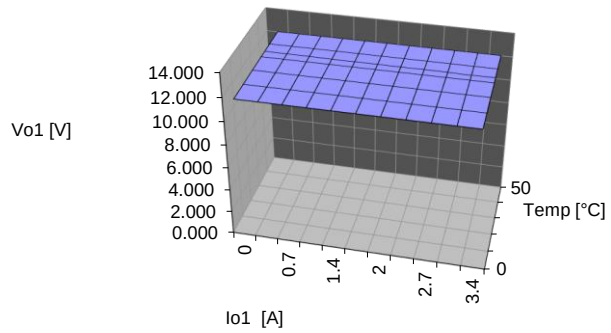
Test **PASS**

| ***Measured:*** | ***Vo1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Io1 = 0 ... 3.4 A | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo1 Min [V] | 11.971 | 11.880 | **PASS** |
| Vo1 Max [V] | 12.012 | 12.120 | **PASS** |
| ***Comment:*** | | | |
| Io2 = 3.4 A | | | |



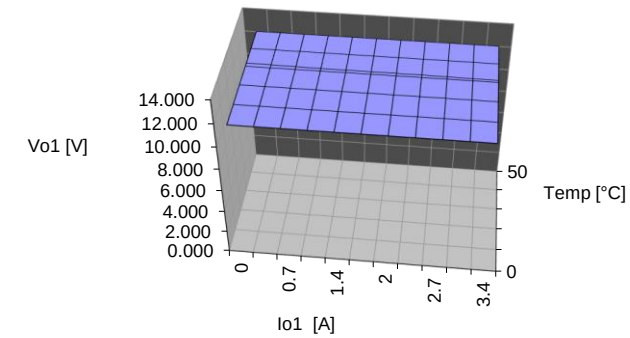

**Vi = 191 V**

| ***Measured:*** | ***Vo1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Io1 = 0 ... 3.4 A | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo1 Min [V] | 11.973 | 11.880 | **PASS** |
| Vo1 Max [V] | 12.012 | 12.120 | **PASS** |
| ***Comment:*** | | | |
| Io2 = 3.4 A | | | |




**Vi = 220 V**

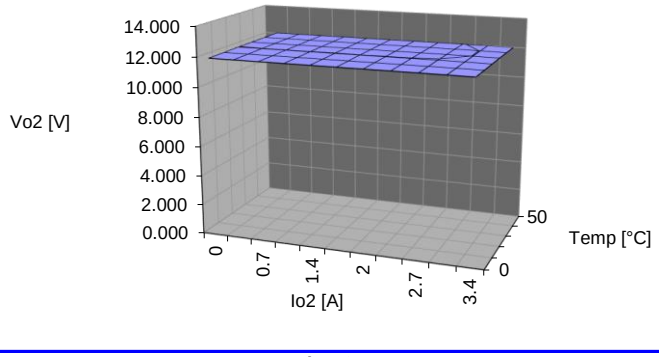
| ***Measured:*** | ***Vo1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Io1 = 0 ... 3.4 A | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo1 Min [V] | 11.975 | 11.880 | **PASS** |
| Vo1 Max [V] | 12.012 | 12.120 | **PASS** |
| ***Comment:*** | | | |
| Io2 = 3.4 A | | | |




**Vi = 242 V**

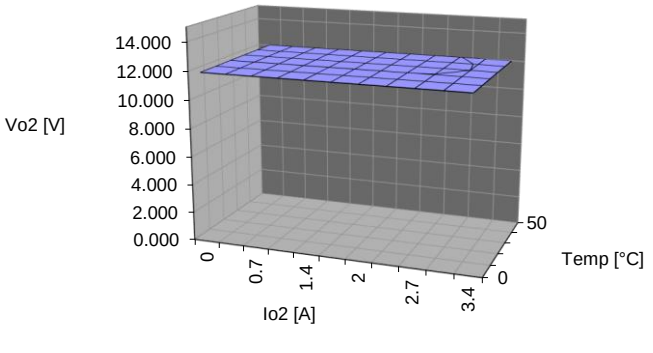
## Output Voltage vs. Load Current (continued)

| ***Measured:*** | ***Vo2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Io2 = 0 ... 3.4 A | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo2 Min [V] | 11.967 | 11.88 | **PASS** |
| Vo2 Max [V] | 12.005 | 12.12 | **PASS** |
| ***Comment:*** | | | |
| Io1 = 3.4 A<br>Vo2=Abs(Vo2) | | | |



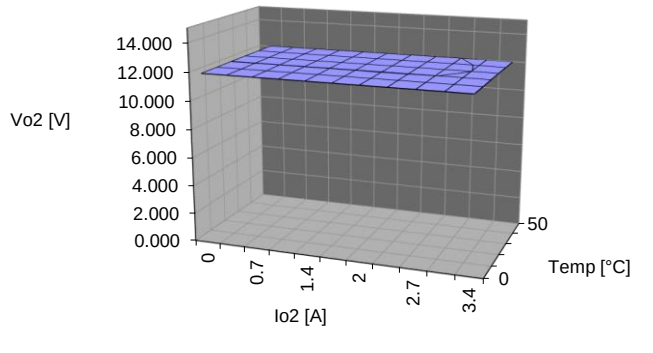

**Vi = 191 V**

| ***Measured:*** | ***Vo2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Io2 = 0 ... 3.4 A | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo2 Min [V] | 11.967 | 11.880 | **PASS** |
| Vo2 Max [V] | 12.005 | 12.120 | **PASS** |
| ***Comment:*** | | | |
| Io1 = 3.4 A<br>Vo2=Abs(Vo2) | | | |




**Vi = 220 V**

| ***Measured:*** | ***Vo2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Io2 = 0 ... 3.4 A | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Output Voltage*** | | | |
| | Meas. | Limit | |
| Vo2 Min [V] | 11.964 | 11.880 | **PASS** |
| Vo2 Max [V] | 12.005 | 12.120 | **PASS** |
| ***Comment:*** | | | |
| Io1 = 3.4 A<br>Vo2=Abs(Vo2) | | | |

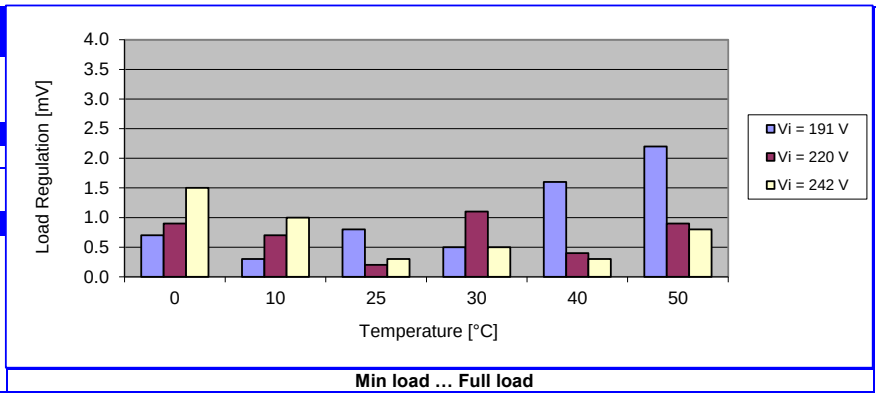



**Vi = 242 V**

## 4.4 Load Regulation Summary

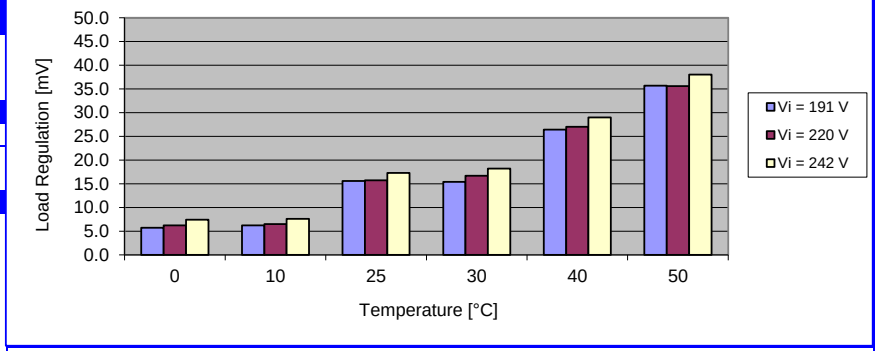
Test **PASS**

| ***Measured:*** | ***Vo1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 ... 242 V | | |
| Output Current: | Min load … Full load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Load Regulation*** | | | |
| | Meas. | Limit | |
| Load Reg. Max [mV] | 2.2 | 120 | **PASS** |
| ***Comment:*** | | | |




**Min load … Full load**

| ***Measured:*** | ***Vo2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 ... 242 V | | |
| Output Current: | Min load … Full load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Result: Load Regulation*** | | | |
| | Meas. | Limit | |
| Load Reg. Max [mV] | 38 | 120 | **PASS** |
| ***Comment:*** | | | |




**Min load … Full load**

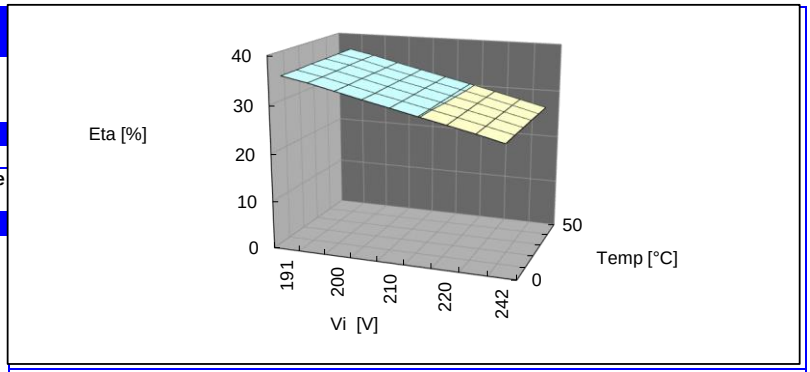
## 4.5 Efficiency vs. Input Voltage

Test **PASS**

| ***Measured:*** | ***Efficiency*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 191 ... 242 V |
| Output Current: | 10% Full Load |
| Temperature: | Ta = 0 ... 50 °C |
| ***Test Condition: 230Vac/25°C*** | |

| | Meas. | Limit |
|---|---|---|
| Eta min[87V] | 36.28 | **Reference** |

***Comment:***

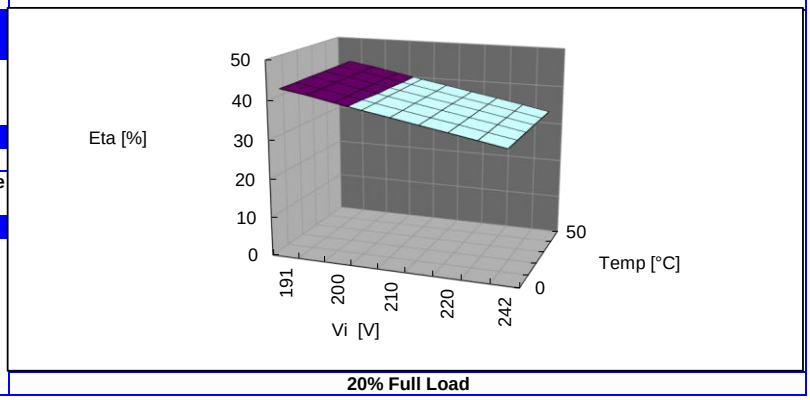



**10% Full Load**

| ***Measured:*** | ***Efficiency*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 191 ... 242 V |
| Output Current: | 20% Full Load |
| Temperature: | Ta = 0 ... 50 °C |
| ***Test Condition: 230Vac/25°C*** | |

| | Meas. | Limit |
|---|---|---|
| Eta min[87V] | 43.26 | **Reference** |

***Comment:***

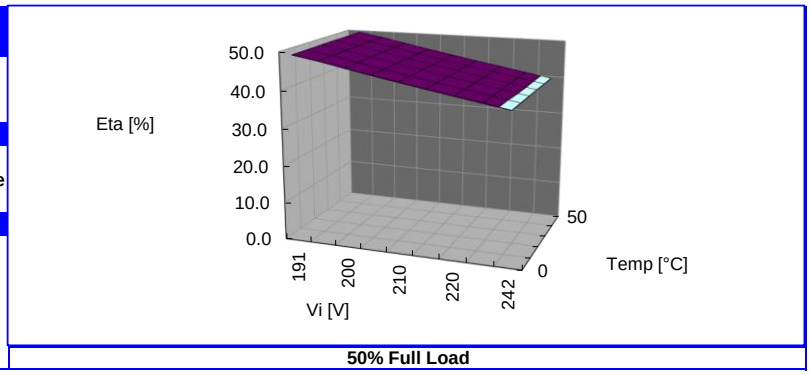



**20% Full Load**

| ***Measured:*** | ***Efficiency*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 191 ... 242 V |
| Output Current: | 50% Full Load |
| Temperature: | Ta = 0 ... 50 °C |
| ***Test Condition: 230Vac/25°C*** | |

| | Meas. | Limit |
|---|---|---|
| Eta min[87V] | 49.47 | **Reference** |

***Comment:***

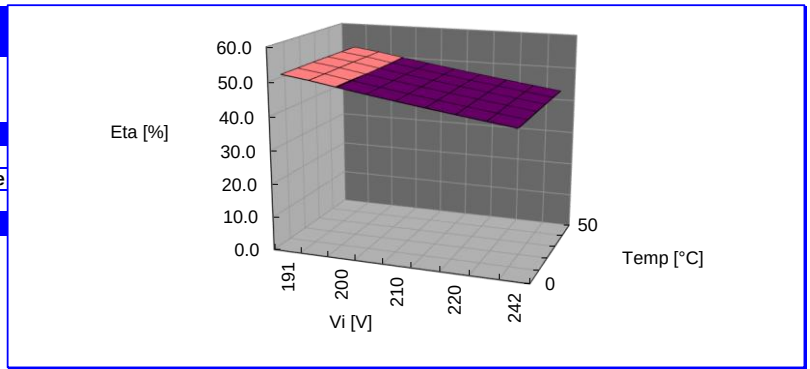



**50% Full Load**

| ***Measured:*** | ***Efficiency*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 191 ... 242 V |
| Output Current: | 100% Full Load |
| Temperature: | Ta = 0 ... 50 °C |
| ***Test Condition: 230Vac/25°C*** | |

| | Meas. | Limit |
|---|---|---|
| Eta min[87V] | 52.53 | **Reference** |

***Comment:***

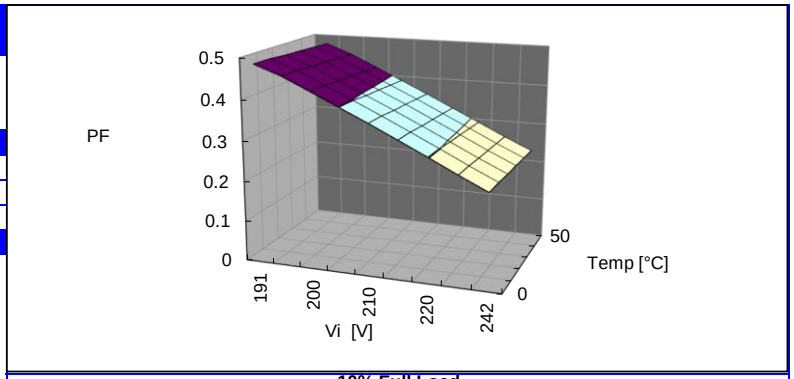



**100% Full Load**

## 4.6 Power Factor vs. Input Voltage

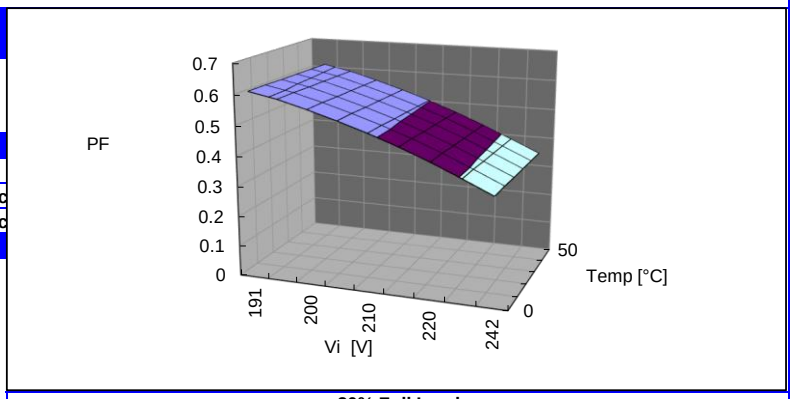
Test **PASS**

| ***Measured:*** | ***PF*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 ... 242 V | | |
| Output Current: | 10% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Condition:*** | | | |
| | Meas. | Limit | |
| PF min[87V] | 0.48 | **Reference** | |
| PF min[110V] | 0.23 | **Reference** | |
| ***Comment:*** | | | |



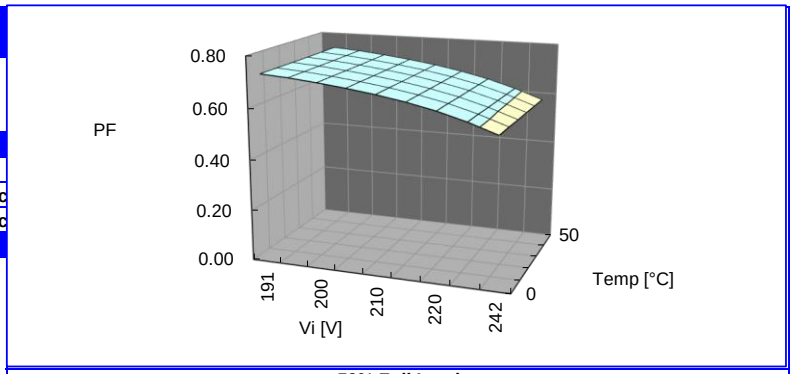

**10% Full Load**

| ***Measured:*** | ***PF*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 ... 242 V | | |
| Output Current: | 20% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Condition:*** | | | |
| | Meas. | Limit | |
| PF min[87V] | 0.61 | **Referenc** | |
| PF min[110V] | 0.34 | **Referenc** | |
| ***Comment:*** | | | |



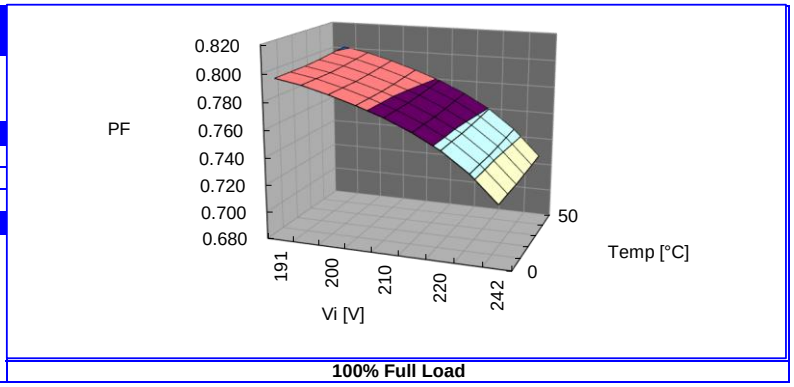

**20% Full Load**

| ***Measured:*** | ***PF*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 ... 242 V | | |
| Output Current: | 50% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Condition:*** | | | |
| | Meas. | Limit | |
| PF min[87V] | 0.7354 | **Referenc** | |
| PF min[110V] | 0.5711 | **Referenc** | |
| ***Comment:*** | | | |




**50% Full Load**

| ***Measured:*** | ***PF*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 ... 242 V | | |
| Output Current: | 100% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Test Condition:*** | | | |
| | Meas. | Limit | |
| PF min[87V] | 0.7973 | 0.65 | **PASS** |
| PF min[110V] | 0.7244 | 0.65 | **PASS** |
| ***Comment:*** | | | |



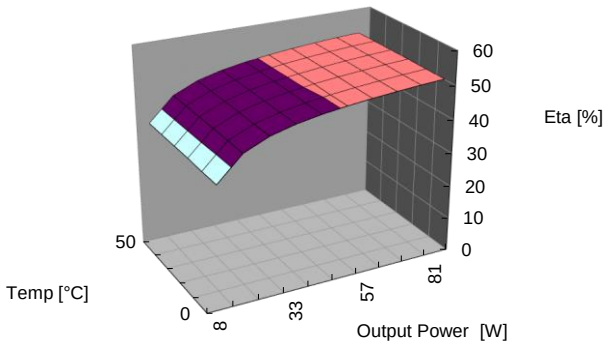

**100% Full Load**

## 4.7 Efficiency vs. Output Power

***Measured:*** ***Efficiency***
***Test conditions:***
Input Voltage: Vi = 191 V
Iout: 10%Full load … Full load
Temperature: Ta = 0 ... 50 °C
***Test Result: Efficiency***

| | | | |
|---|---|---|---|
| | | | |
| | | **Reference** | |
| | | | |

***Comment:***

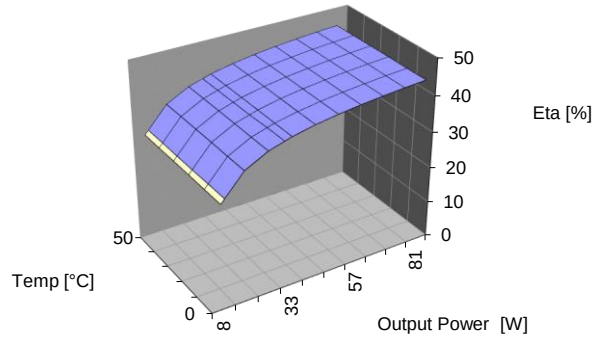



**Vi = 191 V**

***Measured:*** ***Efficiency***
***Test conditions:***
Input Voltage: Vi = 220 V
Iout: 10%Full load … Full load
Temperature: Ta = 0 ... 50 °C
***Test Result: Efficiency***

| | | | |
|---|---|---|---|
| | | | |
| | | **Reference** | |
| | | | |

***Comment:***

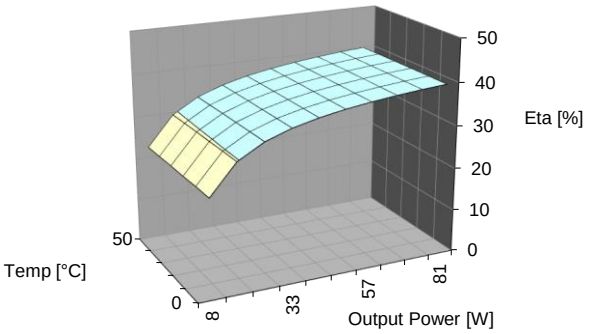



**Vi = 220 V**

***Measured:*** ***Efficiency***
***Test conditions:***
Input Voltage: Vi = 242 V
Iout: 10%Full load … Full load
Temperature: Ta = 0 ... 50 °C
***Test Result: Efficiency***

| | | | |
|---|---|---|---|
| | | | |
| | | **Reference** | |
| | | | |

***Comment:***

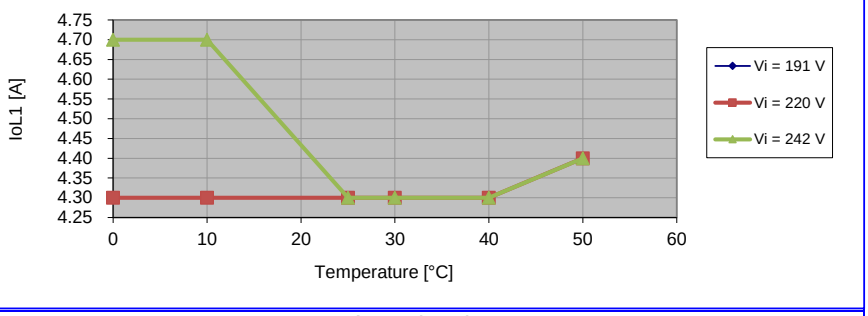



**Vi = 242 V**

## 4.8 Current Limitation

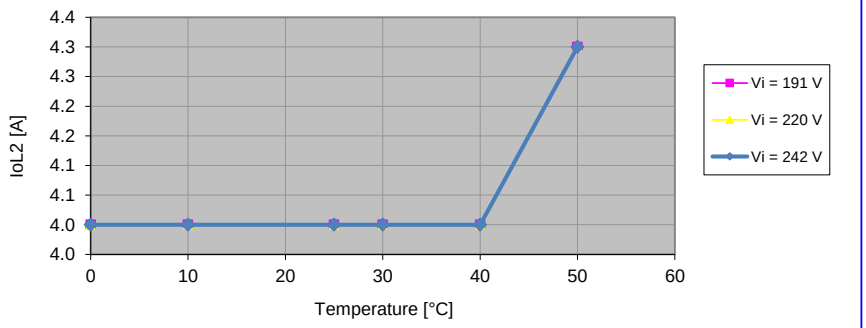
Test **PASS**

| ***Measured:*** | ***Io1*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 / 220 /242 V | | |
| Output Current: | 100% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Output Current Limit*** | | | |
| Unit:(A) | Meas. | Limit | |
| IoL_lim Min | 4.3 | 3.91 | **PASS** |
| IoL_lim Max | 4.7 | 4.76 | **PASS** |
| ***Comment:*** | | | |




**Vi = 191 / 220 /242 V**

| ***Measured:*** | ***Io2*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 / 220 /242 V | | |
| Output Current: | 100% Full Load | | |
| Temperature: | Ta = 0 ... 50 °C | | |
| ***Output Current Limit*** | | | |
| | Meas. | Limit | |
| IoLim Min [A] | 4.0 | 3.91 | **PASS** |
| IoLim Max [A] | 4.3 | 4.76 | **PASS** |
| ***Comment:*** | | | |

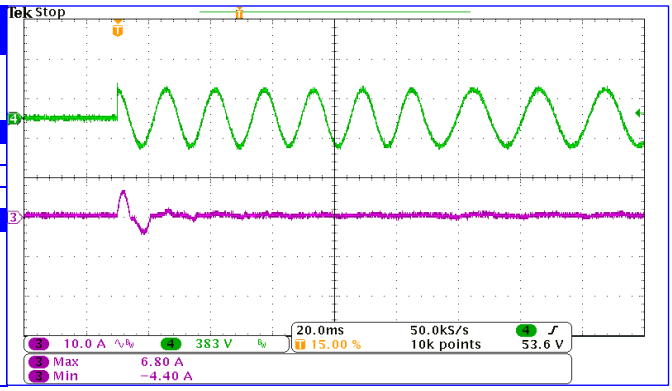



**Vi = 191 / 220 /242 V**

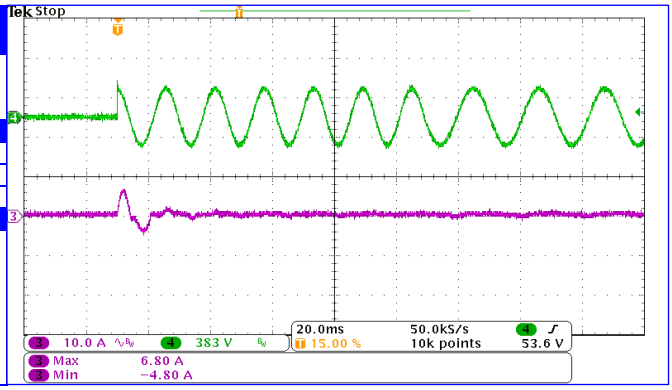
## 5.1 Inrush Current

Test pass

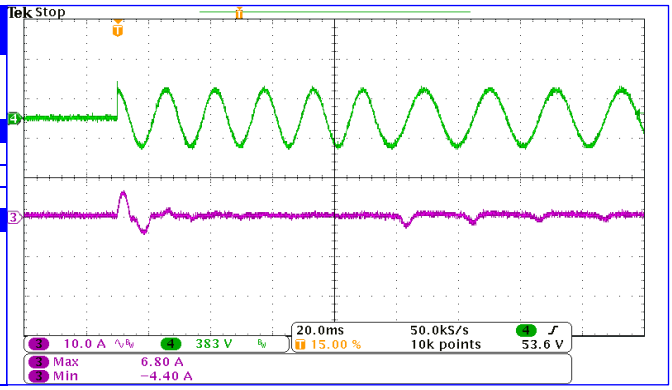
| ***Measured:*** | | ***Inrush Current*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 191 V | |
| Output Current: | | Full load | |
| Temperature: | | Ta = 0 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Ii [A pp] | 6.8 | 30 | pass |
| | | | |
| ***Comment:*** | | | |
| CH1=no use | | | |
| CH2=no use | | | |
| CH3=Ii | | | |
| CH4=Vi | | | |




| ***Measured:*** | | ***Inrush Current*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 191 V | |
| Output Current: | | Full load | |
| Temperature: | | Ta = 25 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Ii [A pp] | 6.8 | 30 | pass |
| | | | |
| ***Comment:*** | | | |
| CH1=no use | | | |
| CH2=no use | | | |
| CH3=Ii | | | |
| CH4=Vi | | | |

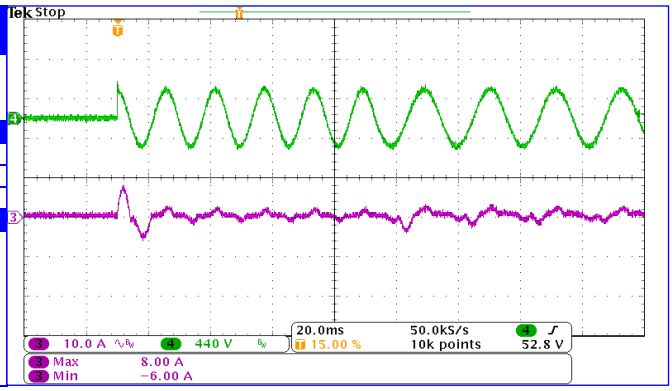



| ***Measured:*** | | ***Inrush Current*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 191 V | |
| Output Current: | | Full load | |
| Temperature: | | Ta = 50 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Ii [A pp] | 6.8 | 30 | pass |
| | | | |
| ***Comment:*** | | | |
| CH1=no use | | | |
| CH2=no use | | | |
| CH3=Ii | | | |
| CH4=Vi | | | |

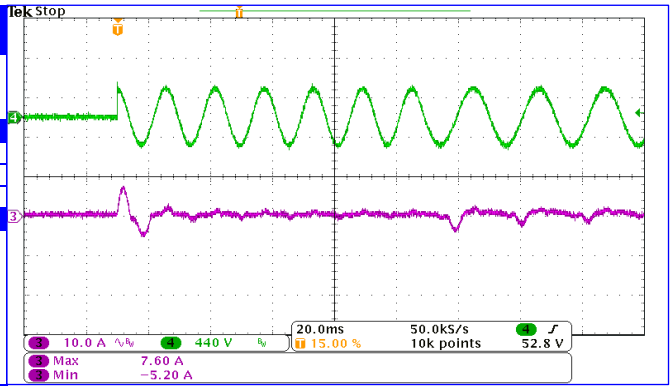


## Inrush Current (continued)

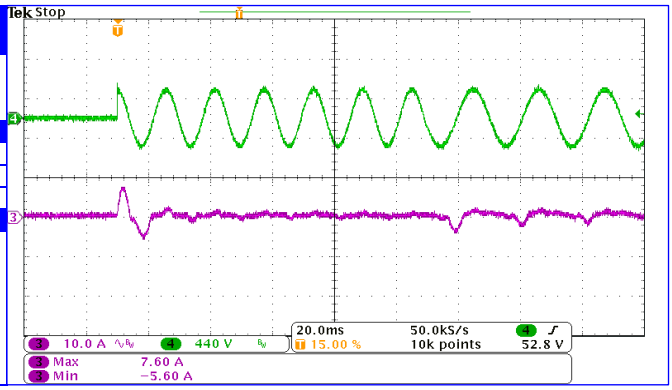
| ***Measured:*** | ***Inrush Current*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Full load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Vo1*** | | | |
| | Meas. | Limit | |
| Ii [A pp] | 8.0 | 30 | pass |
| | | | |
| ***Comment:*** | | | |
| CH1=no use | | | |
| CH2=no use | | | |
| CH3=Ii | | | |
| CH4=Vi | | | |




| ***Measured:*** | ***Inrush Current*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Full load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Vo1*** | | | |
| | Meas. | Limit | |
| Ii [A pp] | 7.6 | 30 | pass |
| | | | |
| ***Comment:*** | | | |
| CH1=no use | | | |
| CH2=no use | | | |
| CH3=Ii | | | |
| CH4=Vi | | | |

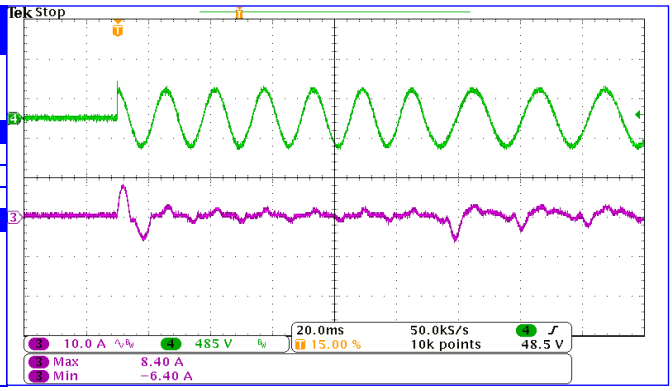



| ***Measured:*** | ***Inrush Current*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Full load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Vo1*** | | | |
| | Meas. | Limit | |
| Ii [A pp] | 7.6 | 30 | pass |
| | | | |
| ***Comment:*** | | | |
| CH1=no use | | | |
| CH2=no use | | | |
| CH3=Ii | | | |
| CH4=Vi | | | |

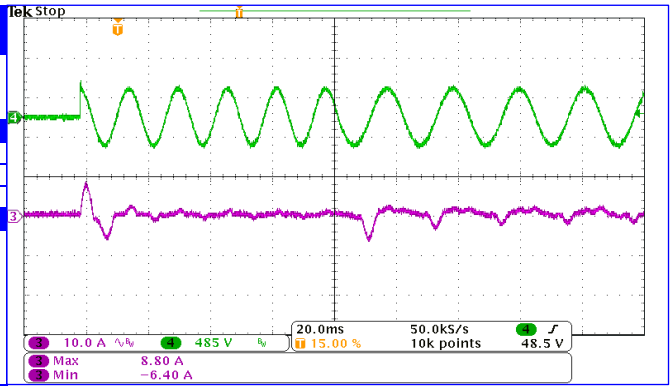


## Inrush Current (continued)

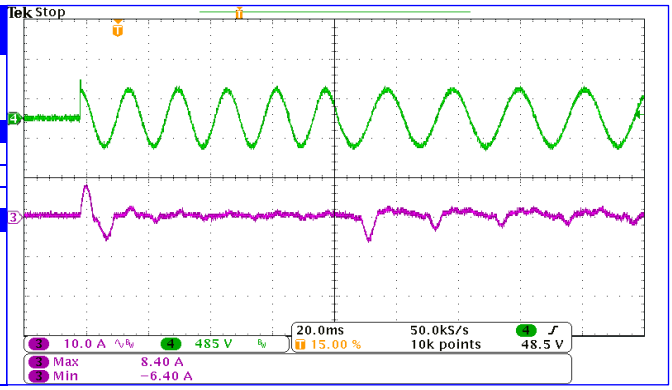
| ***Measured:*** | | ***Inrush Current*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 242 V | |
| Output Current: | | Full load | |
| Temperature: | | Ta = 0 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Ii [A pp] | 8.4 | 30 | pass |
| | | | |
| ***Comment:*** | | | |
| CH1=no use | | | |
| CH2=no use | | | |
| CH3=Ii | | | |
| CH4=Vi | | | |




| ***Measured:*** | | ***Inrush Current*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 242 V | |
| Output Current: | | Full load | |
| Temperature: | | Ta = 25 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Ii [A pp] | 8.8 | 30 | pass |
| | | | |
| ***Comment:*** | | | |
| CH1=no use | | | |
| CH2=no use | | | |
| CH3=Ii | | | |
| CH4=Vi | | | |




| ***Measured:*** | | ***Inrush Current*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 242 V | |
| Output Current: | | Full load | |
| Temperature: | | Ta = 50 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Ii [A pp] | 8.4 | 30 | pass |
| | | | |
| ***Comment:*** | | | |
| CH1=no use | | | |
| CH2=no use | | | |
| CH3=Ii | | | |
| CH4=Vi | | | |

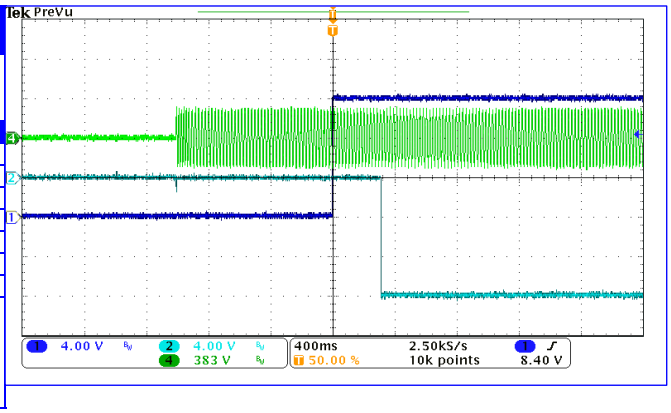


## 5.2 Turn-On Behaviour

Test pass

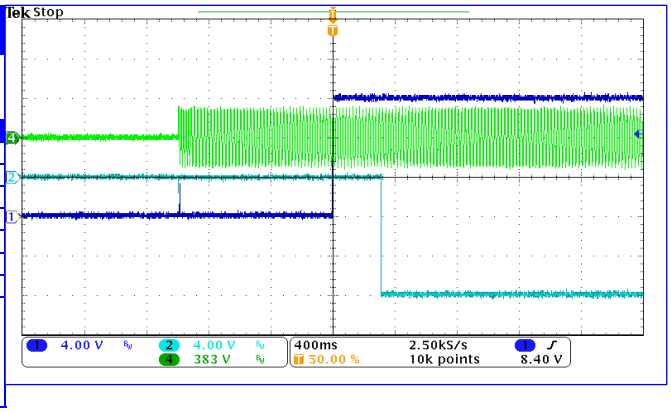
| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 1001.6 | | |
| Vo2.[ms] | 1307.2 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



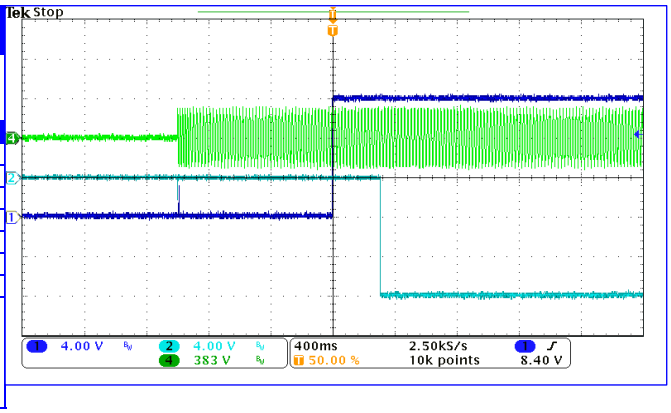

| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 197.9 | | |
| Vo2.[ms] | 397.8 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 189.1 | | |
| Vo2.[ms] | 388.9 | | |
| | | | |
| | | | |
| | | | |
| | | | |

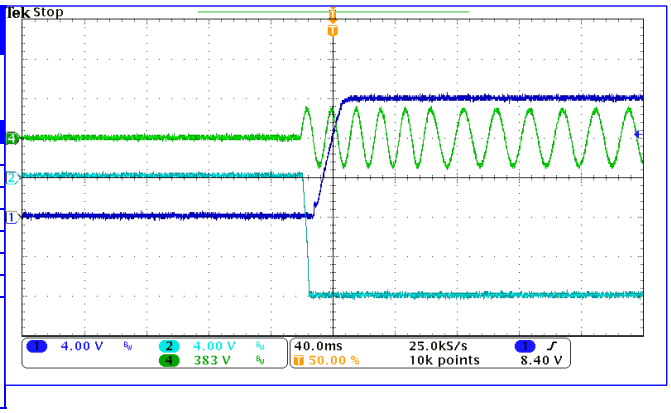
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-On Behaviour (continued)

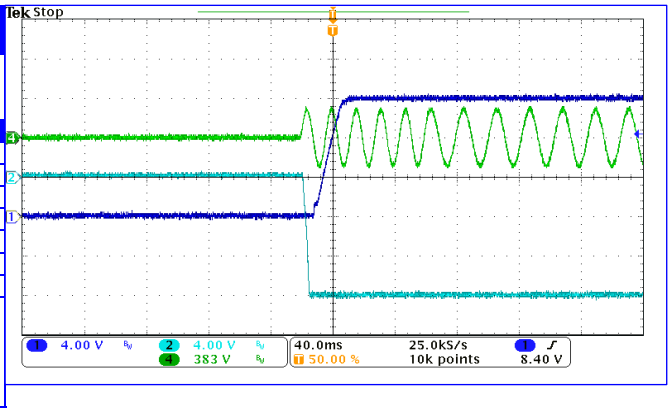
| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 25.1 | | |
| Vo2.[ms] | 4.6 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



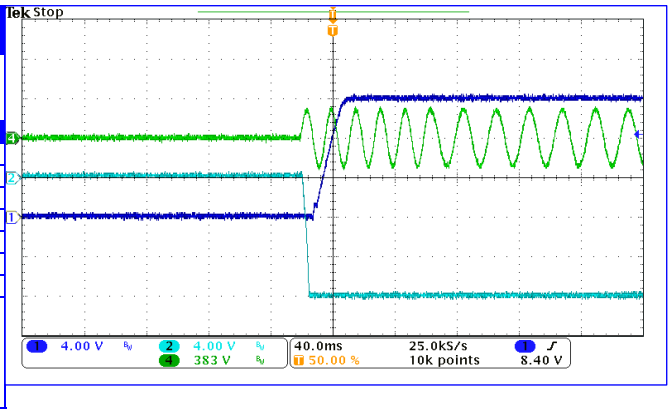

| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 25.3 | | |
| Vo2.[ms] | 4.5 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 25.8 | | |
| Vo2.[ms] | 4.8 | | |
| | | | |
| | | | |
| | | | |
| | | | |

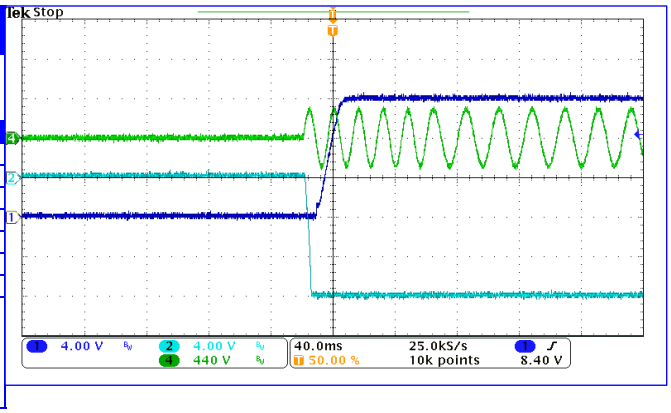
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-On Behaviour (continued)

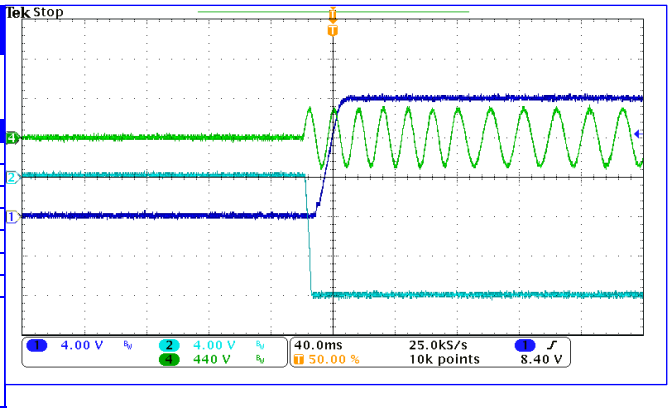
| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 23.0 | | |
| Vo2.[ms] | 4.5 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



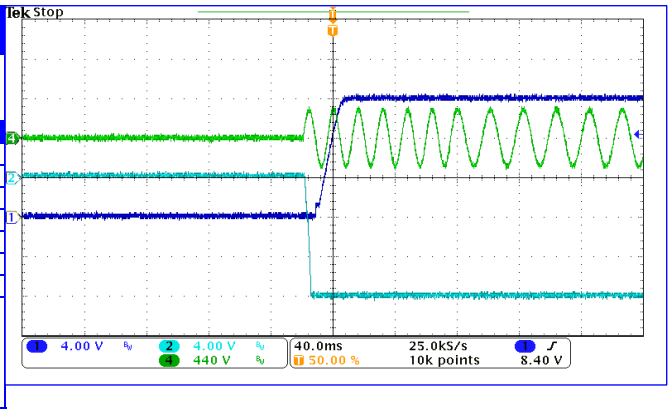

| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 23.2 | | |
| Vo2.[ms] | 4.4 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 23.2 | | |
| Vo2.[ms] | 4.4 | | |
| | | | |
| | | | |
| | | | |
| | | | |

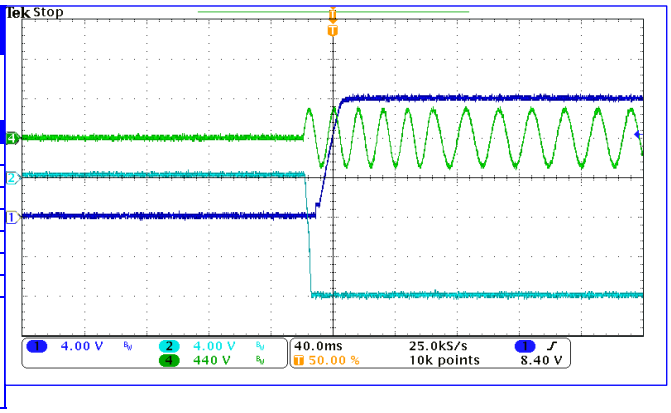
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-On Behaviour (continued)

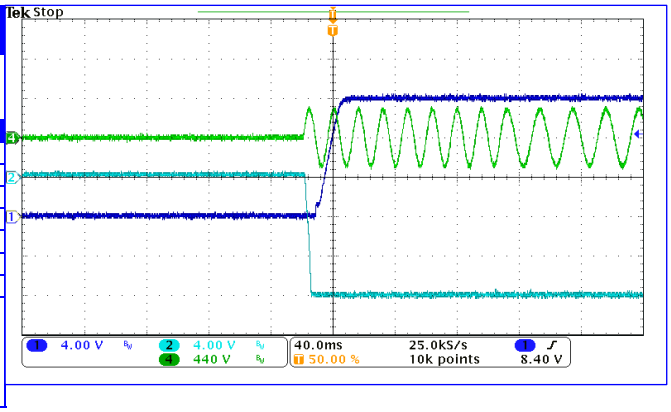
| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 22.9 | | |
| Vo2.[ms] | 4.4 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



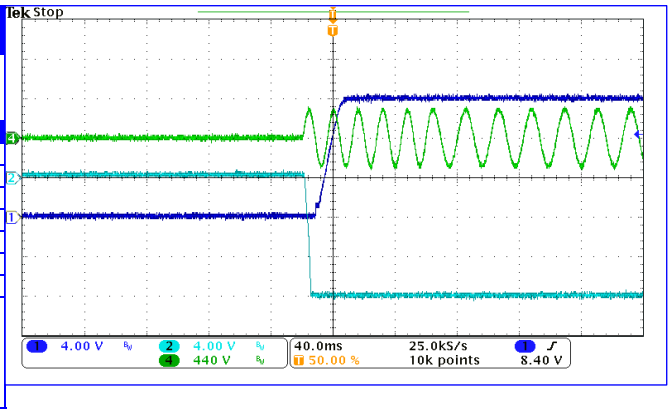

| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 22.9 | | |
| Vo2.[ms] | 4.2 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 23.4 | | |
| Vo2.[ms] | 4.3 | | |
| | | | |
| | | | |
| | | | |
| | | | |

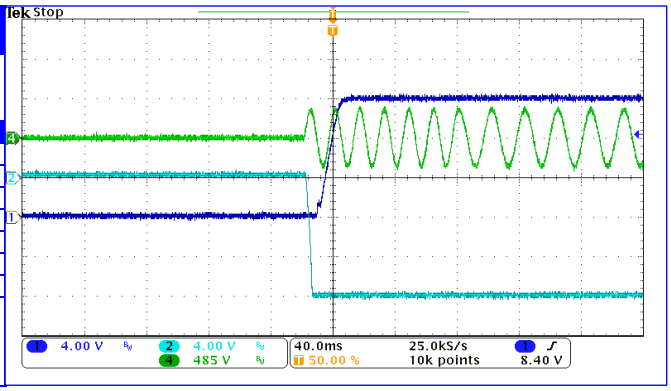
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-On Behaviour (continued)

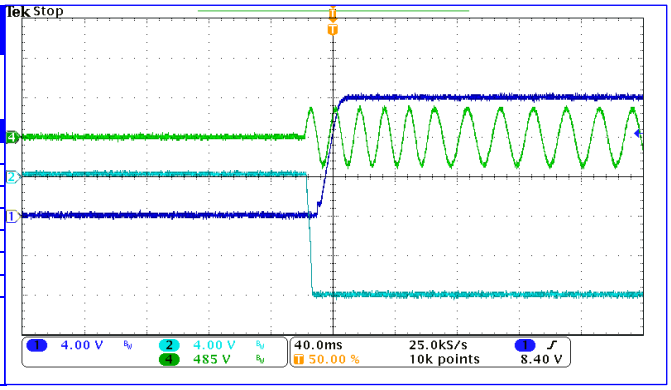
| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 21.9 | | |
| Vo2.[ms] | 4.4 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



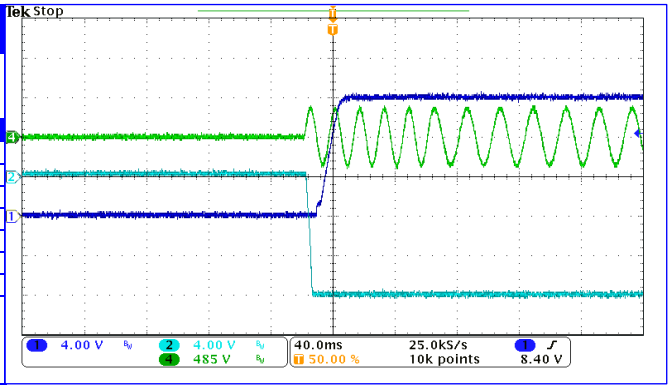

| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 21.8 | | |
| Vo2.[ms] | 4.2 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 22.1 | | |
| Vo2.[ms] | 4.2 | | |
| | | | |
| | | | |
| | | | |
| | | | |

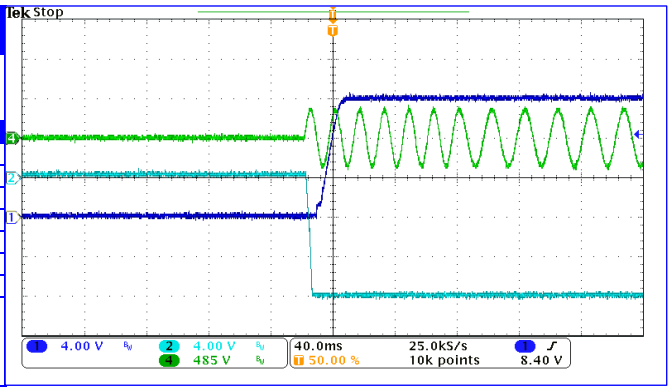
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-On Behaviour (continued)

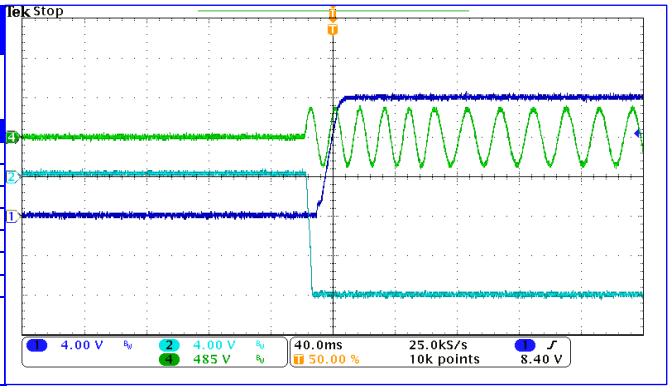
| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 22.0 | | |
| Vo2.[ms] | 4.2 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



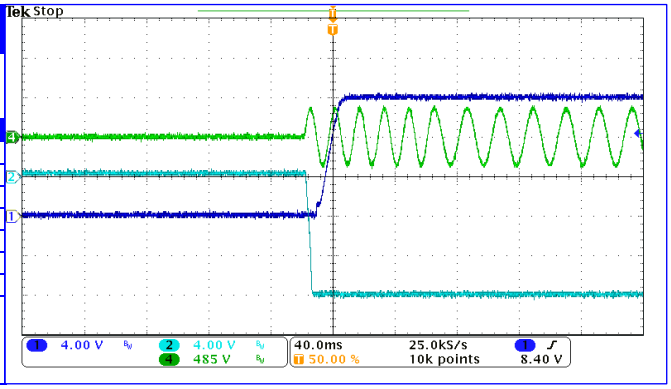

| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 21.8 | | |
| Vo2.[ms] | 4.0 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Turn On By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 21.9 | | |
| Vo2.[ms] | 4.4 | | |
| | | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## 5.3 Turn-Off Behaviour

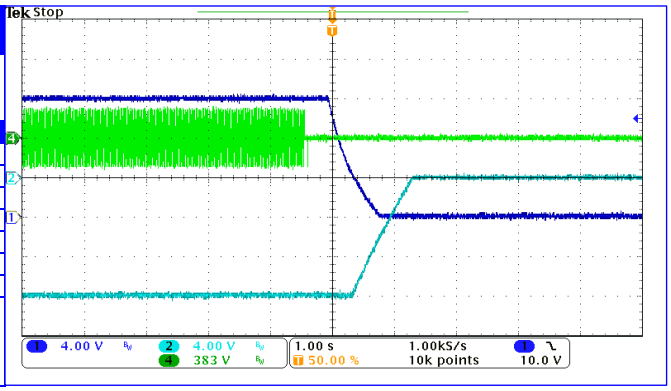
Test pass

| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 191 V |
| Output Current: | Min Load |
| Temperature: | Ta = 0 °C |

***Test Result: Hold Up Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 390.0 | | |
| | | | |
| Vo2.[ms] | 1499.0 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi

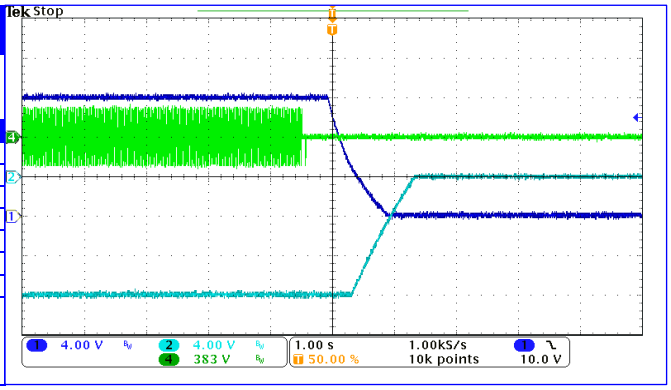



| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 191 V |
| Output Current: | Min Load |
| Temperature: | Ta = 25 °C |

***Test Result: Hold Up Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 418.0 | | |
| | | | |
| Vo2.[ms] | 1541.0 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi

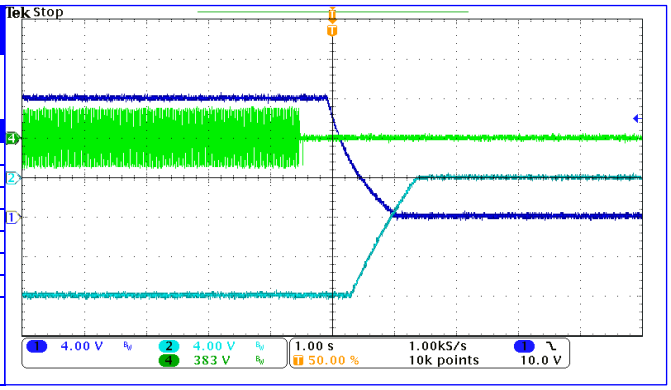



| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 191 V |
| Output Current: | Min Load |
| Temperature: | Ta = 50 °C |

***Test Result: Hold Up Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 466.0 | | |
| | | | |
| Vo2.[ms] | 1627.0 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



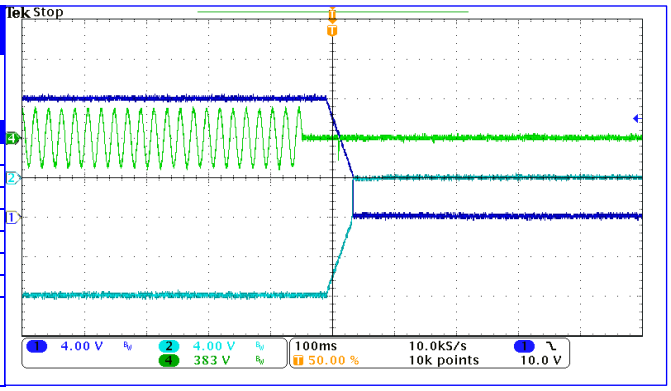
## Turn-Off Behaviour (continued)

| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 191 V |
| Output Current: | 50% Full Load |
| Temperature: | Ta = 0 °C |

***Test Result: Hold Up Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 12.4 | | |
| | | | |
| Vo2.[ms] | 21.3 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi

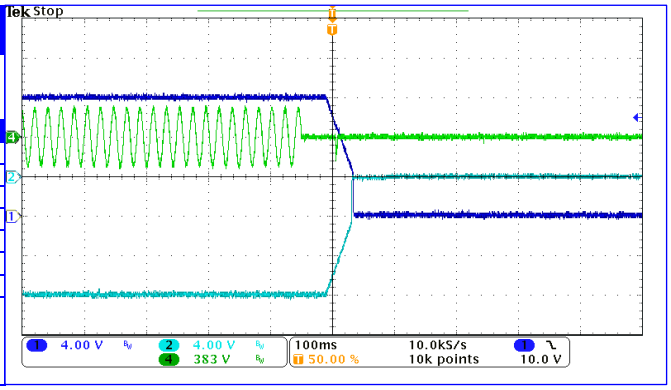



| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 191 V |
| Output Current: | 50% Full Load |
| Temperature: | Ta = 25 °C |

***Test Result: Hold Up Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 8.9 | | |
| | | | |
| Vo2.[ms] | 23.4 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi

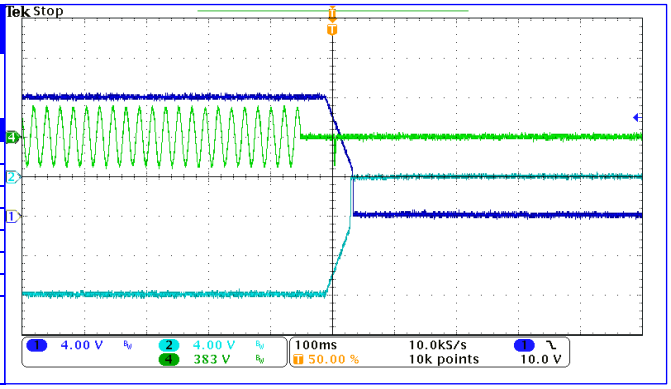



| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 191 V |
| Output Current: | 50% Full Load |
| Temperature: | Ta = 50 °C |

***Test Result: Hold Up Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 7.2 | | |
| | | | |
| Vo2.[ms] | 23.7 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



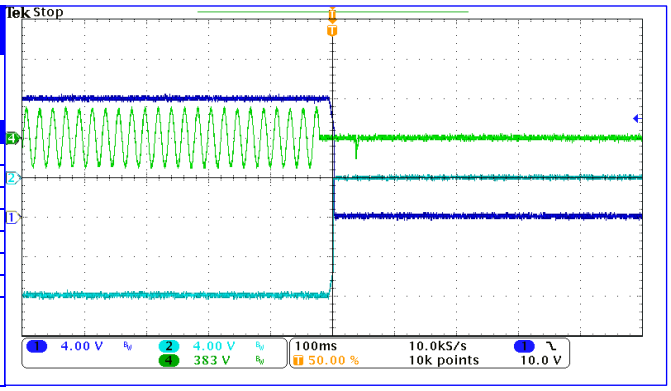
## Turn-Off Behaviour (continued)

| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 191 V |
| Output Current: | 100% Full Load |
| Temperature: | Ta = 0 °C |

***Test Result: Hold Up Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 41.5 | | |
| | | | |
| Vo2.[ms] | 38.6 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi

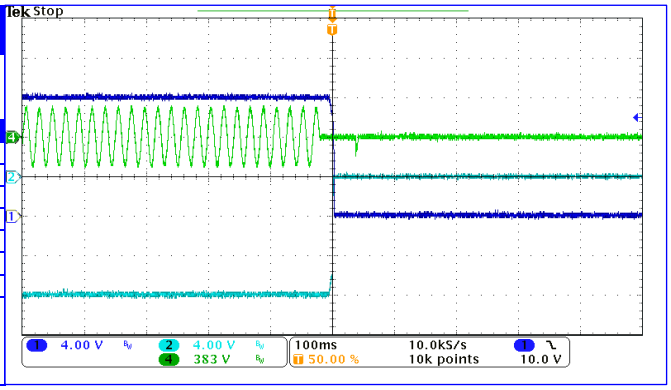



| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 191 V |
| Output Current: | 100% Full Load |
| Temperature: | Ta = 25 °C |

***Test Result: Hold Up Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 40.8 | | |
| | | | |
| Vo2.[ms] | 39.4 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi

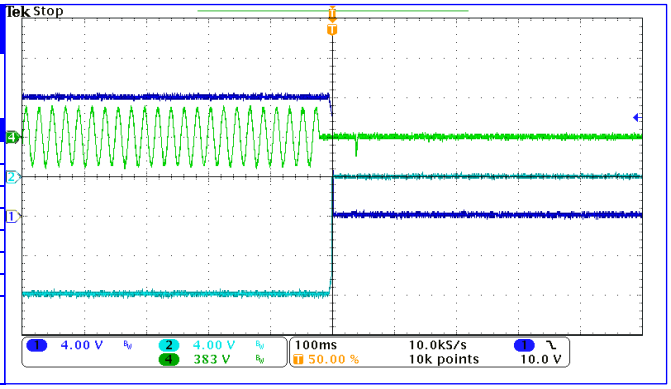



| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 191 V |
| Output Current: | 100% Full Load |
| Temperature: | Ta = 50 °C |

***Test Result: Hold Up Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 40.6 | | |
| | | | |
| Vo2.[ms] | 40.8 | | |
| | | | |
| | | | |
| | | | |

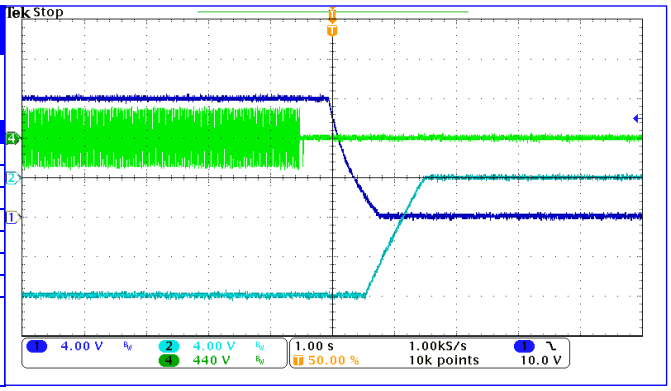
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-Off Behaviour (continued)

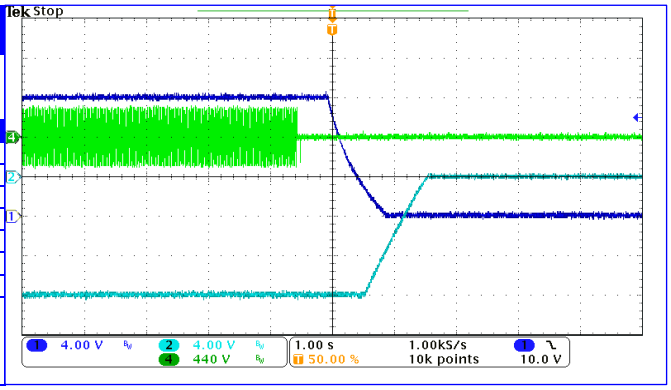
| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Hold Up Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 463.0 | | |
| | | | |
| Vo2.[ms] | 1777.0 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



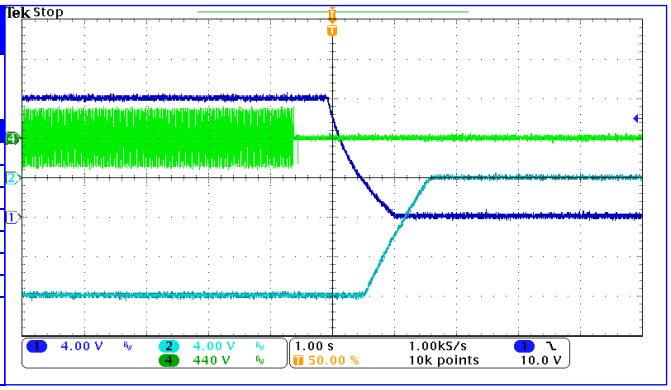

| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Hold Up Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 510.0 | | |
| | | | |
| Vo2.[ms] | 1841.0 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Hold Up Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 555.0 | | |
| | | | |
| Vo2.[ms] | 1920.0 | | |
| | | | |
| | | | |
| | | | |

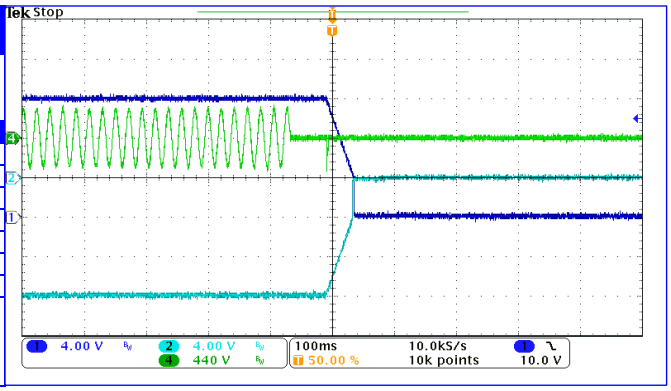
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-Off Behaviour (continued)

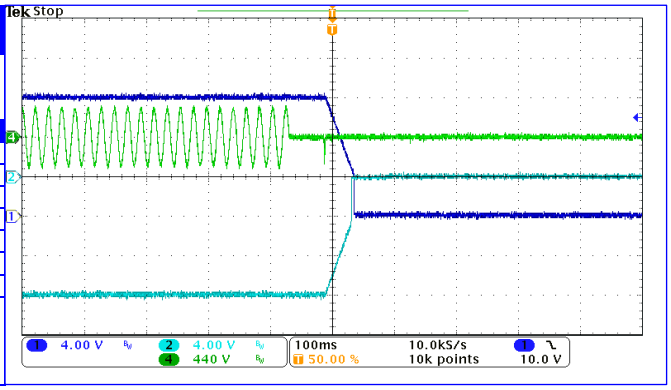
| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | 50% Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 6.2 | | |
| | | | |
| Vo2.[ms] | 39.5 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



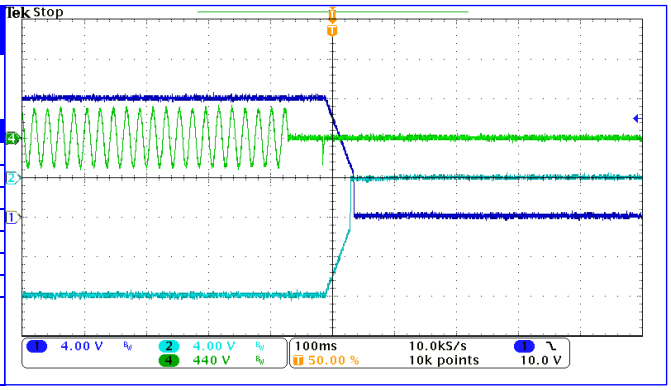

| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | 50% Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 9.9 | | |
| | | | |
| Vo2.[ms] | 42.8 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | 50% Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 12.6 | | |
| | | | |
| Vo2.[ms] | 43.3 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



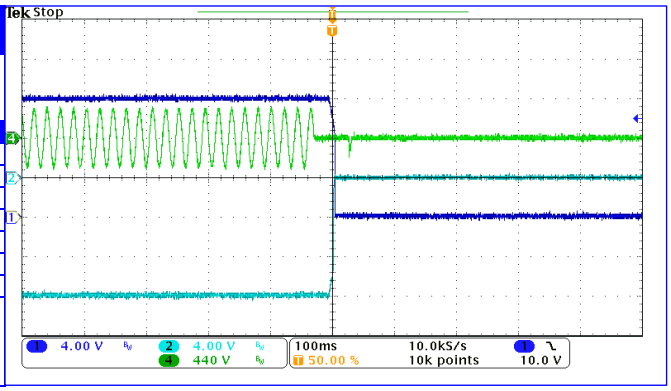
## Turn-Off Behaviour (continued)

| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 220 V |
| Output Current: | 100% Full Load |
| Temperature: | Ta = 0 °C |

***Test Result: Turn On Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 30.7 | | |
| | | | |
| Vo2.[ms] | 27.7 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi

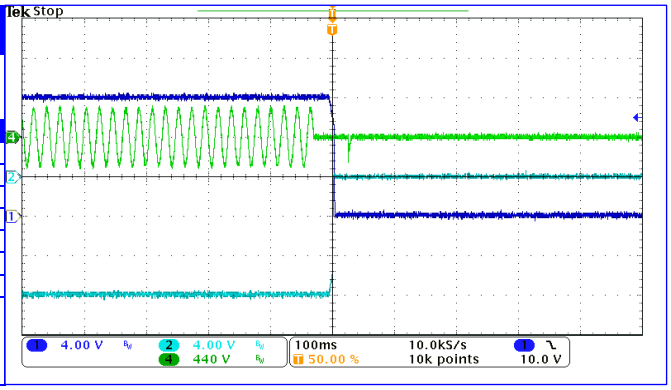



| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 220 V |
| Output Current: | 100% Full Load |
| Temperature: | Ta = 25 °C |

***Test Result: Turn On Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 29.0 | | |
| | | | |
| Vo2.[ms] | 27.4 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi

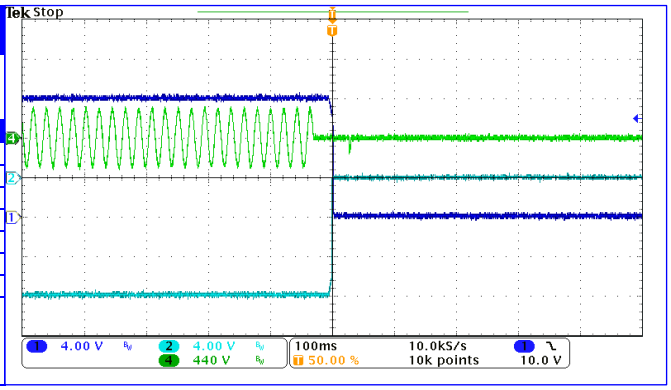



| ***Measured:*** | ***Hold Up By AC*** |
|---|---|
| ***Test conditions:*** | |
| Input Voltage: | Vi = 220 V |
| Output Current: | 100% Full Load |
| Temperature: | Ta = 50 °C |

***Test Result: Turn On Time***

| | Meas. | Limit | |
|---|---|---|---|
| Vo1.[ms] | 29.6 | | |
| | | | |
| Vo2.[ms] | 30.0 | | |
| | | | |
| | | | |
| | | | |

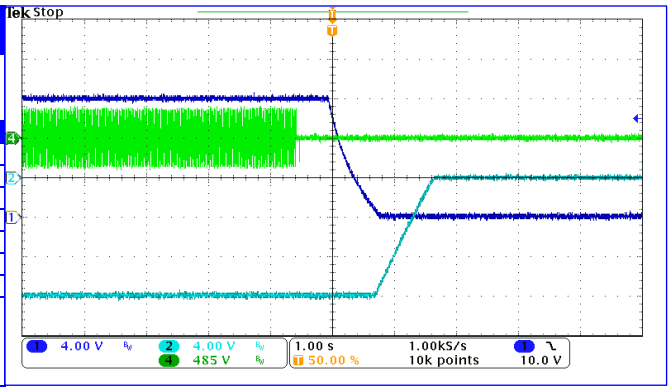
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-Off Behaviour (continued)

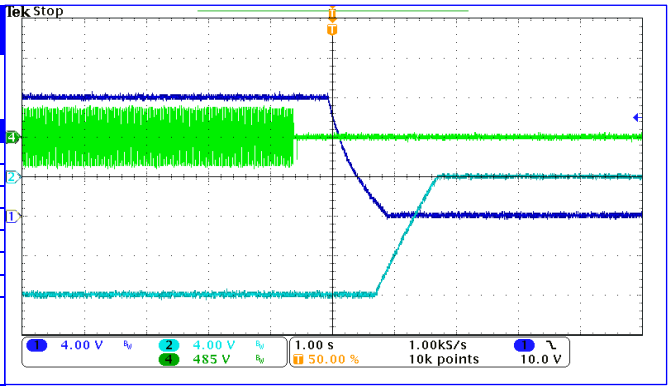
| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 518.0 | | |
| | | | |
| Vo2.[ms] | 1986.0 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



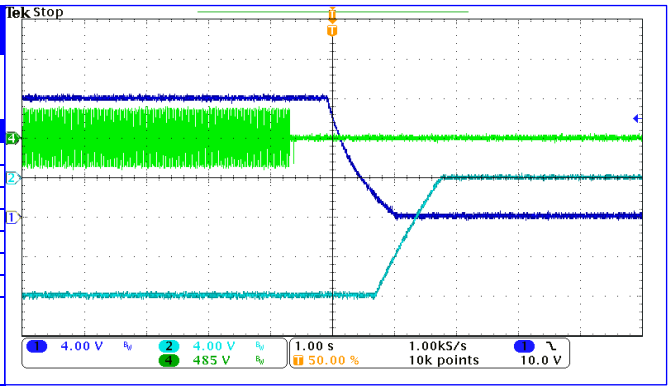

| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 561.0 | | |
| | | | |
| Vo2.[ms] | 2065.0 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 617.0 | | |
| | | | |
| Vo2.[ms] | 2158.0 | | |
| | | | |
| | | | |
| | | | |

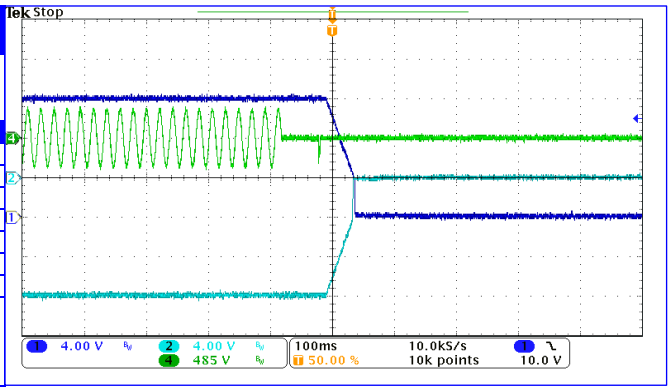
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-Off Behaviour (continued)

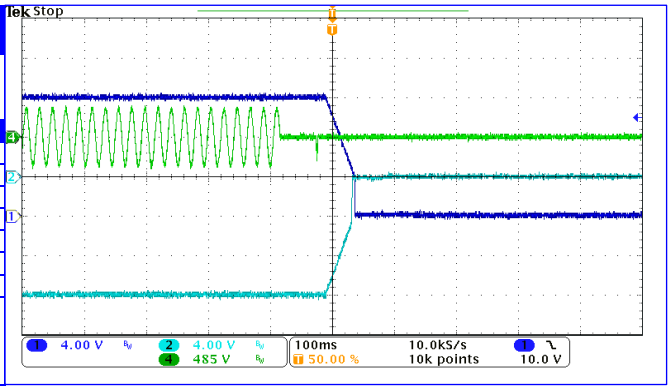
| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | 50% Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 19.5 | | |
| | | | |
| Vo2.[ms] | 53.0 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



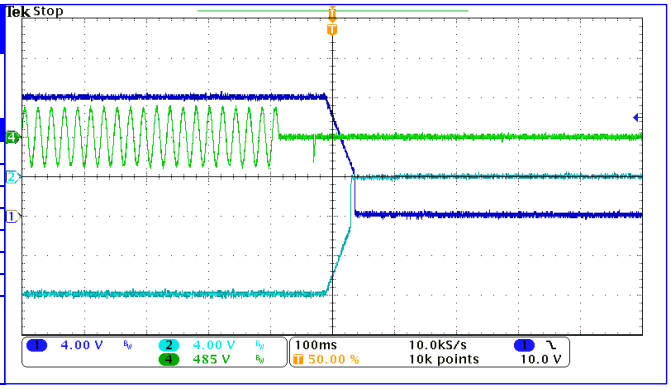

| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | 50% Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 23.8 | | |
| | | | |
| Vo2.[ms] | 55.5 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | 50% Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 28.0 | | |
| | | | |
| Vo2.[ms] | 58.6 | | |
| | | | |
| | | | |
| | | | |

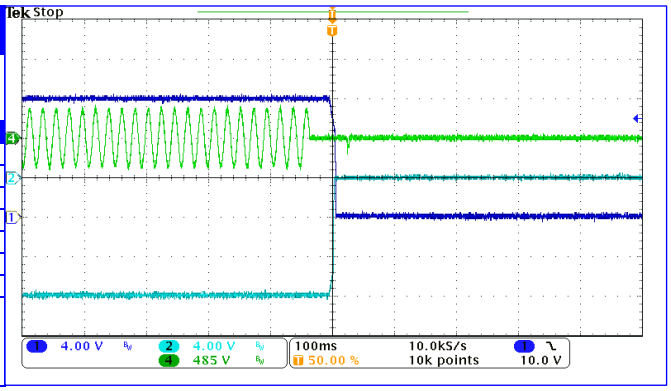
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



## Turn-Off Behaviour (continued)

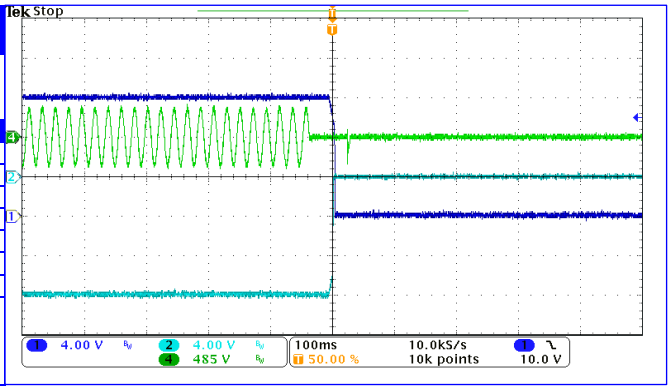
| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 27.2 | | |
| | | | |
| Vo2.[ms] | 24.2 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



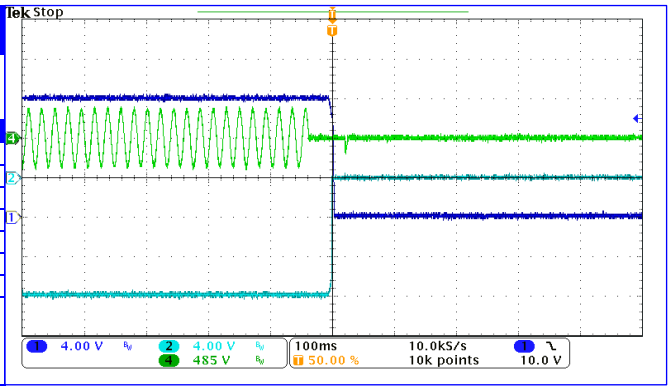

| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 27.6 | | |
| | | | |
| Vo2.[ms] | 26.3 | | |
| | | | |
| | | | |
| | | | |

CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi




| ***Measured:*** | ***Hold Up By AC*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[ms] | 24.3 | | |
| | | | |
| Vo2.[ms] | 24.1 | | |
| | | | |
| | | | |
| | | | |

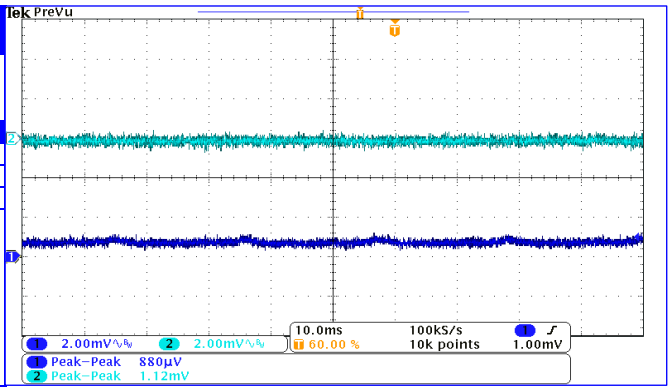
CH1=Vo1
CH2=Vo2
CH3=no use
CH4=Vi



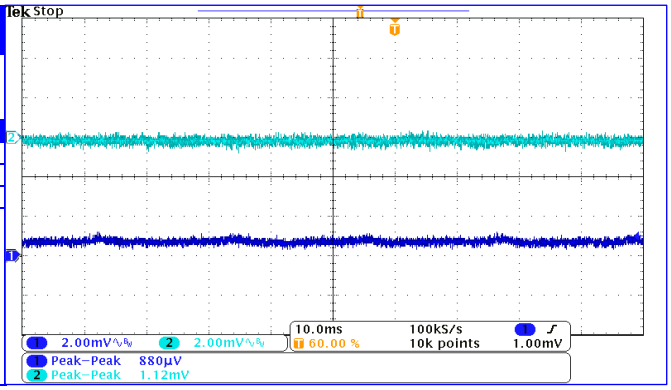
## 5.4 Output Voltage Ripple

Test pass

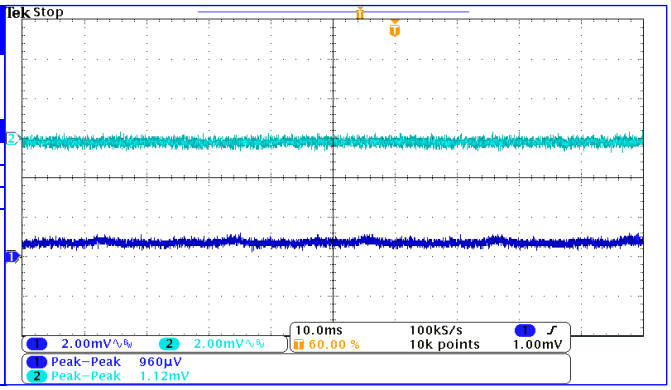
| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 0.9 | 5 | pass |
| Vo2.[mV] | 2.0 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |




| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 0.9 | 5 | pass |
| Vo2.[mV] | 1.8 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

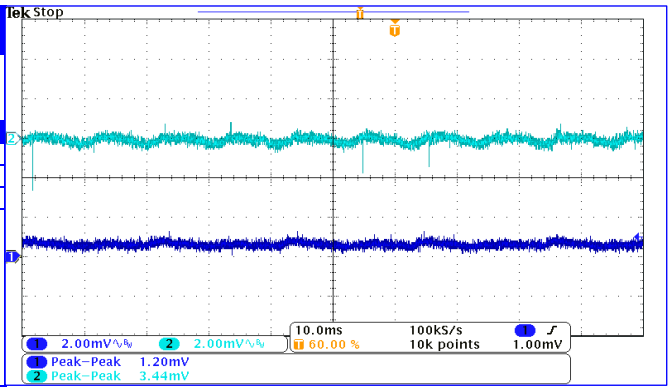



| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.0 | 5 | pass |
| Vo2.[mV] | 1.4 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

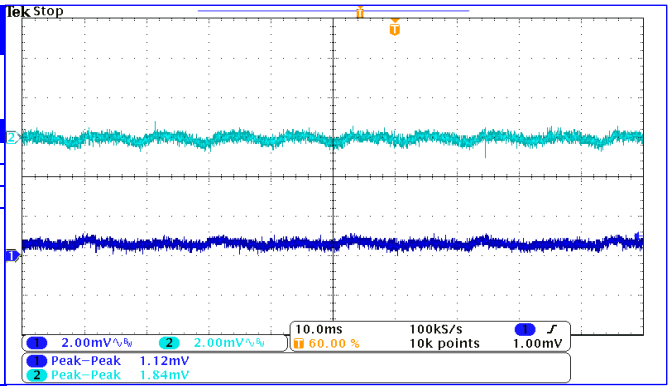


## Output Voltage Ripple (continued)

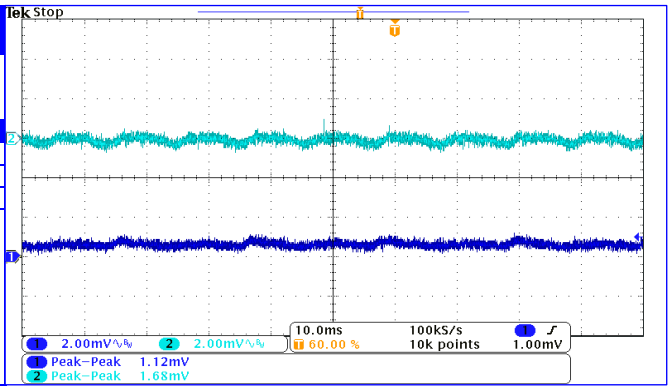
| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.2 | 5 | pass |
| Vo2.[mV] | 3.4 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |




| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.1 | 5 | pass |
| Vo2.[mV] | 1.8 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

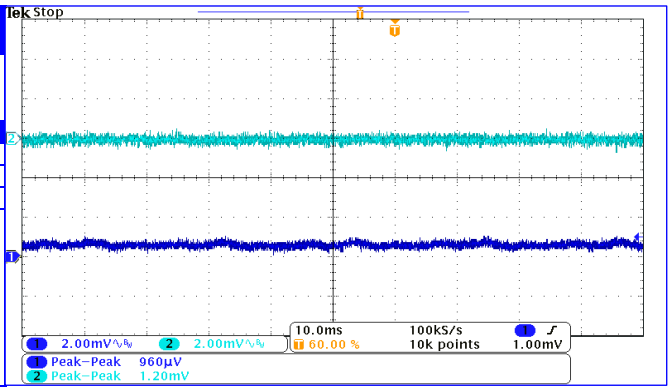



| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.1 | 5 | pass |
| Vo2.[mV] | 1.7 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

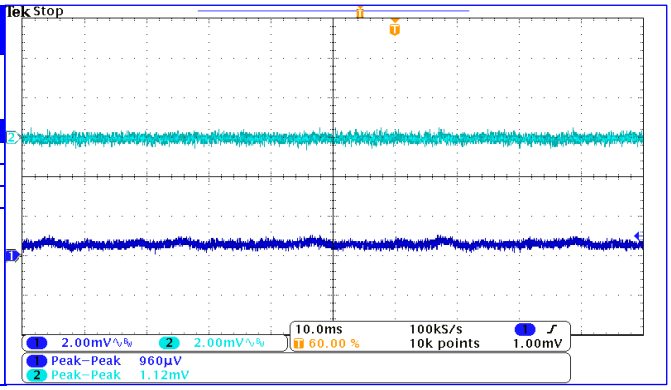


## Output Voltage Ripple (continued)

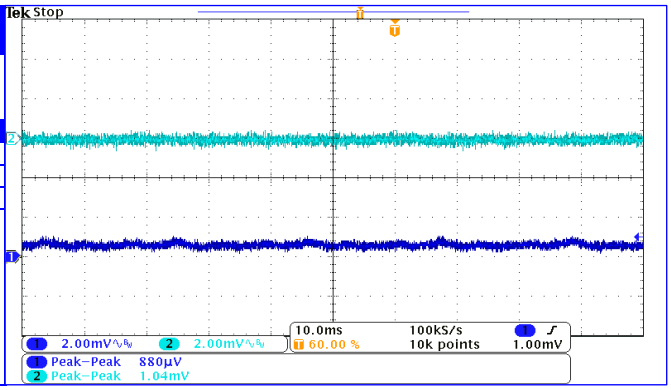
| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.0 | 5 | pass |
| Vo2.[mV] | 1.2 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |




| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.0 | 5 | pass |
| Vo2.[mV] | 1.1 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

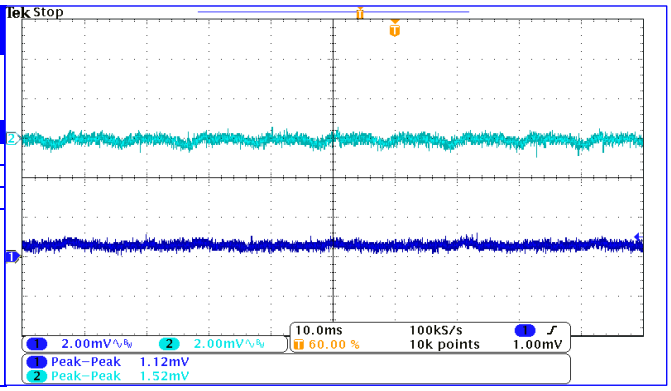



| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 0.9 | 5 | pass |
| Vo2.[mV] | 1.0 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

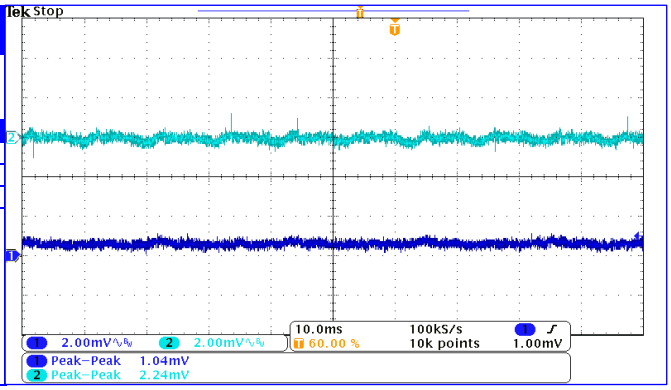


## Output Voltage Ripple (continued)

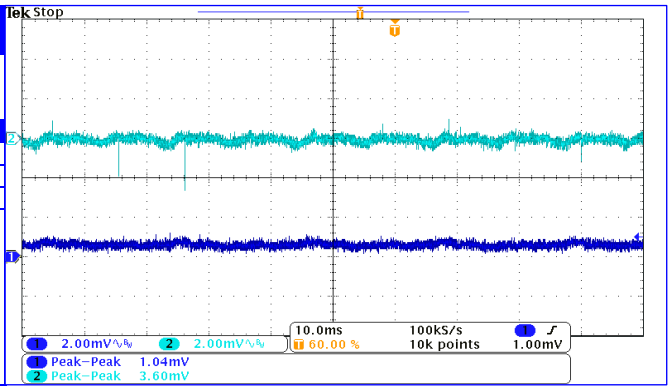
| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.1 | 5 | pass |
| Vo2.[mV] | 1.5 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |




| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.0 | 5 | pass |
| Vo2.[mV] | 2.2 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

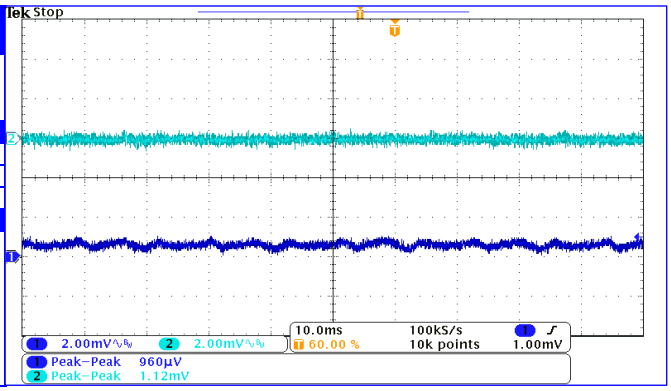



| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Ripple*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.0 | 5 | pass |
| Vo2.[mV] | 3.6 | 5 | pass |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

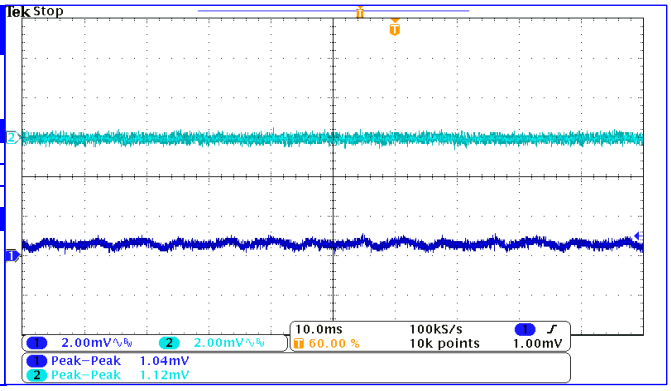


## Output Voltage Ripple (continued)

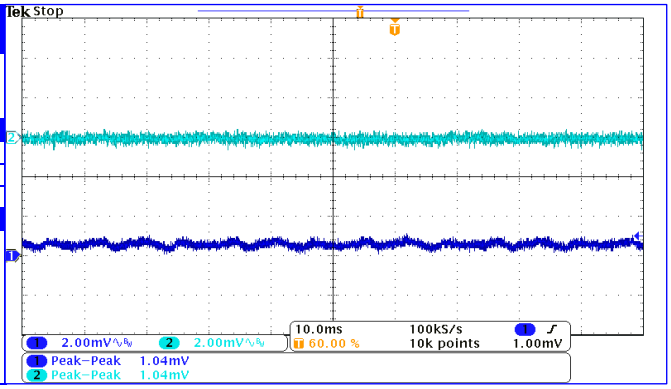
| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.0 | 5 | pass |
| Vo2.[mV] | 1.1 | 5 | pass |
| ***Comment:*** | | | |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |




| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.0 | 5 | pass |
| Vo2.[mV] | 1.1 | 5 | pass |
| ***Comment:*** | | | |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

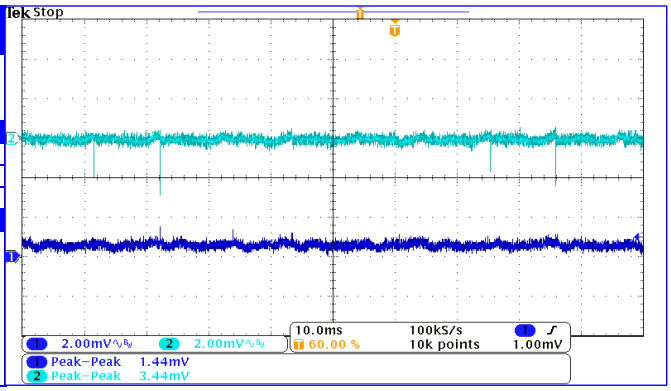



| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Min Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.0 | 5 | pass |
| Vo2.[mV] | 1.0 | 5 | pass |
| ***Comment:*** | | | |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |

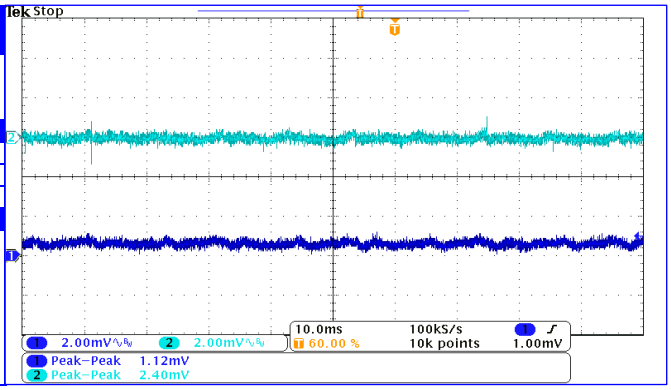


## Output Voltage Ripple (continued)

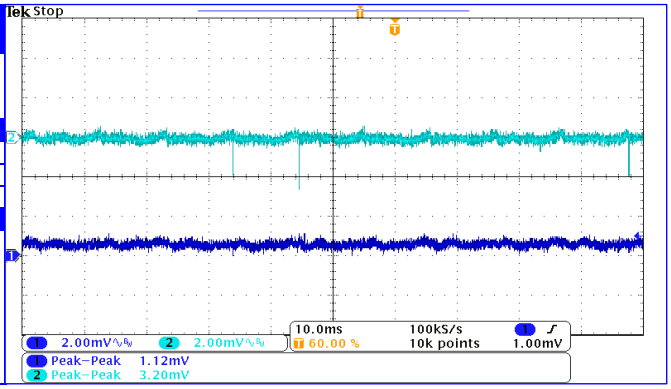
| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.4 | 5 | pass |
| Vo2.[mV] | 3.4 | 5 | pass |
| ***Comment:*** | | | |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |




| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.1 | 5 | pass |
| Vo2.[mV] | 2.4 | 5 | pass |
| ***Comment:*** | | | |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |



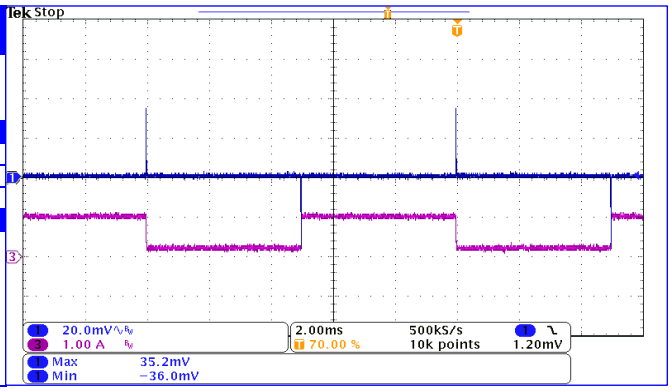

| ***Measured:*** | ***Ripple*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result: Turn On Time*** | | | |
| | Meas. | Limit | |
| Vo1.[mV] | 1.1 | 5 | pass |
| Vo2.[mV] | 3.2 | 5 | pass |
| ***Comment:*** | | | |
| CH1=Vo1 | | | |
| CH2=Vo2 | | | |
| CH3=no use | | | |
| CH4=no use | | | |



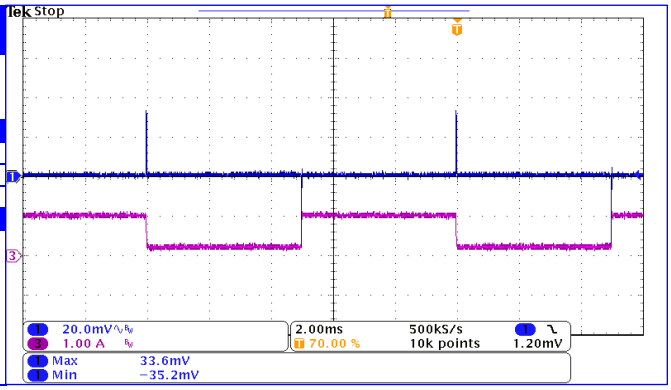
## 5.5 Dynamic load

Test pass

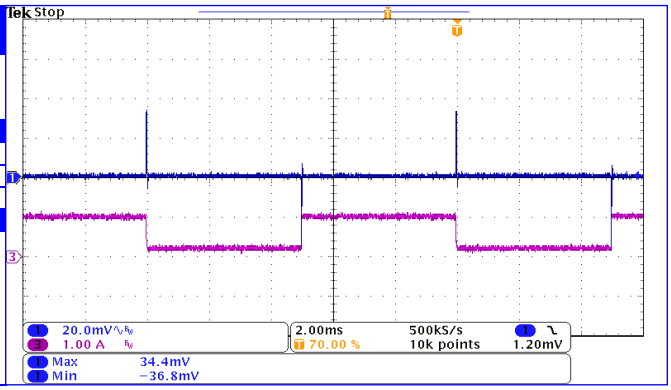
| ***Measured:*** | ***Dynamic load(Vo1)*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Io1=0.2 to 1A | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -36.0 | -120 | **pass** |
| Max[mV] | 35.2 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | ***Dynamic load(Vo1)*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Io1=0.2 to 1A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -35.2 | -120 | **pass** |
| Max[mV] | 33.6 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

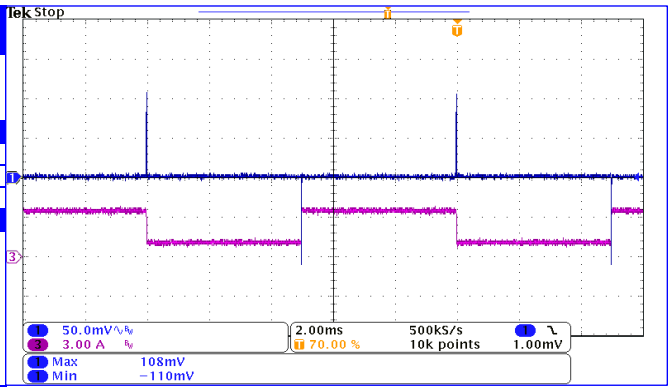



| ***Measured:*** | ***Dynamic load(Vo1)*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Io1=0.2 to 1A | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -36.8 | -120 | **pass** |
| Max[mV] | 34.4 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

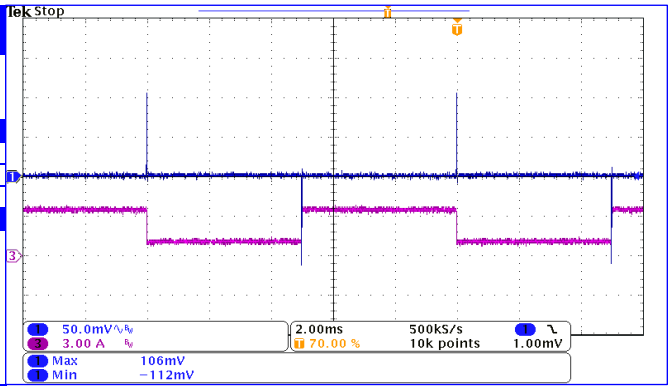


## Dynamic load (continued)

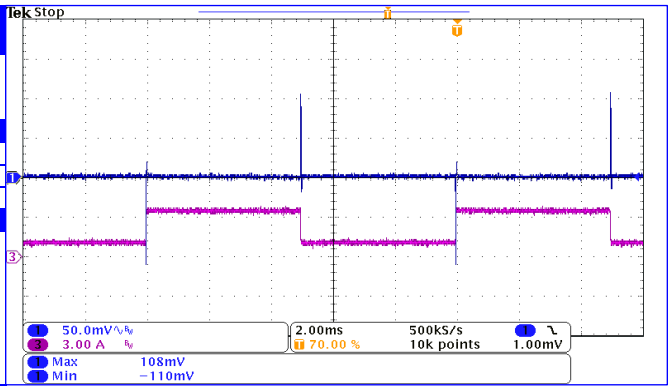
| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 191 V | |
| Output Current: | | Io1=1 to 3.4A | |
| Temperature: | | Ta = 0 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -110.0 | -120 | **pass** |
| Max[mV] | 108.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 191 V | |
| Output Current: | | Io1=1 to 3.4A | |
| Temperature: | | Ta = 25 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -112.0 | -120 | **pass** |
| Max[mV] | 106.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

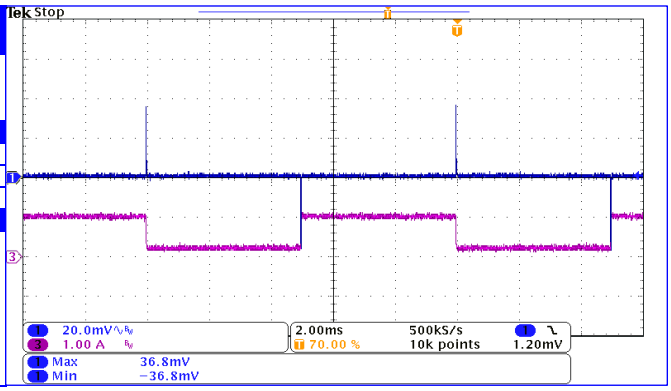



| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 191 V | |
| Output Current: | | Io1=1 to 3.4A | |
| Temperature: | | Ta = 50 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -110.0 | -120 | **pass** |
| Max[mV] | 108.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

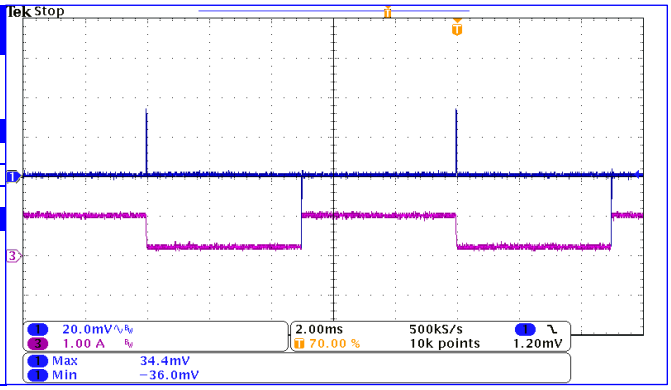


## Dynamic load (continued)

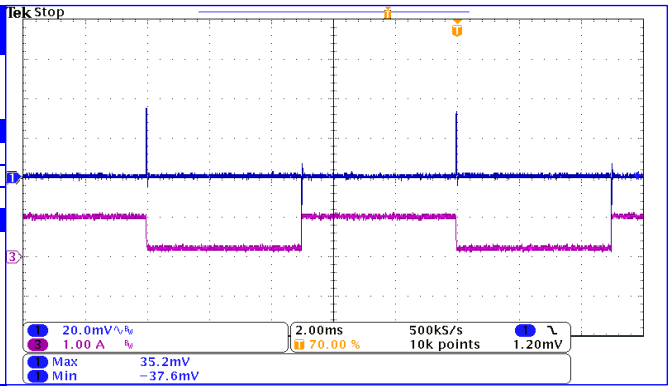
| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Io1=0.2 to 1A | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -36.8 | -120 | **pass** |
| Max[mV] | 36.8 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Io1=0.2 to 1A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -36.0 | -120 | **pass** |
| Max[mV] | 34.4 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

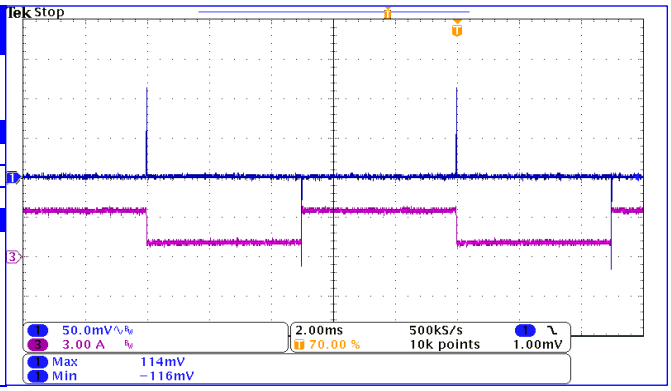



| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Io1=0.2 to 1A | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -37.6 | -120 | **pass** |
| Max[mV] | 35.2 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

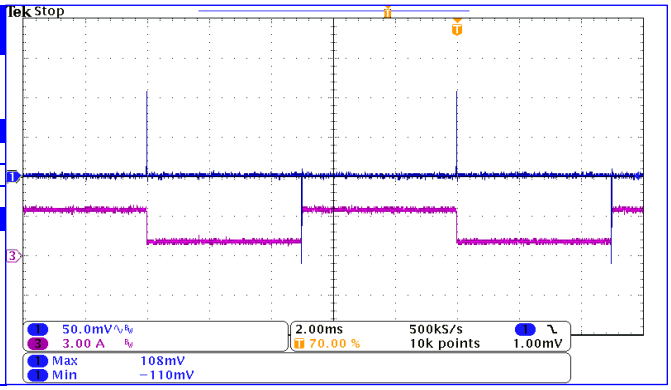


## Dynamic load (continued)

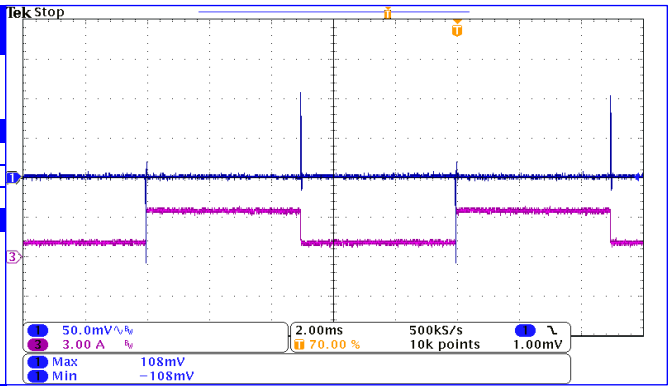
| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 220 V | |
| Output Current: | | Io1=1 to 3.4A | |
| Temperature: | | Ta = 0 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -116.0 | -120 | **pass** |
| Max[mV] | 114.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 220 V | |
| Output Current: | | Io1=1 to 3.4A | |
| Temperature: | | Ta = 25 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -110.0 | -120 | **pass** |
| Max[mV] | 108.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

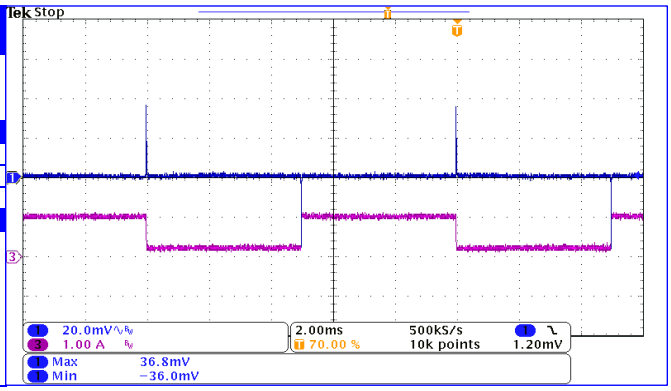



| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 220 V | |
| Output Current: | | Io1=1 to 3.4A | |
| Temperature: | | Ta = 50 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -108.0 | -120 | **pass** |
| Max[mV] | 108.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

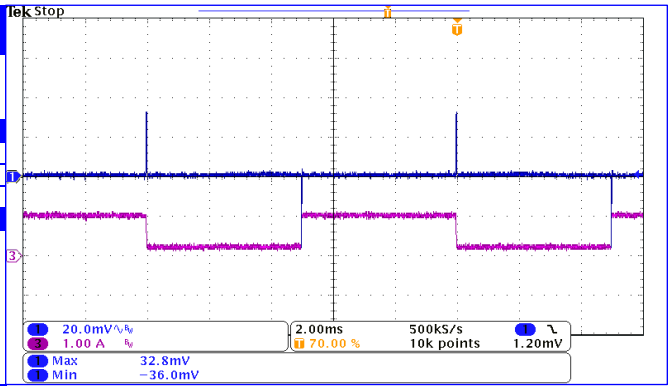


## Dynamic load (continued)

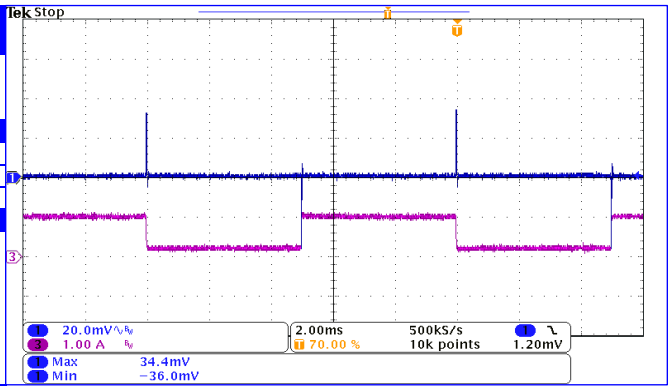
| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Io1=0.2 to 1A | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -36.0 | -120 | **pass** |
| Max[mV] | 36.8 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Io1=0.2 to 1A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -36.0 | -120 | **pass** |
| Max[mV] | 32.8 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

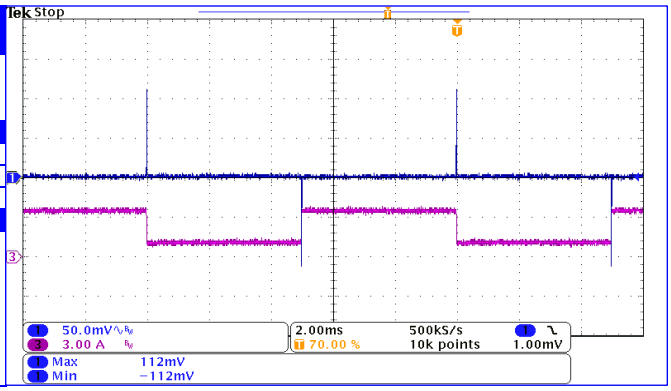



| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Io1=0.2 to 1A | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -36.0 | -120 | **pass** |
| Max[mV] | 34.4 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

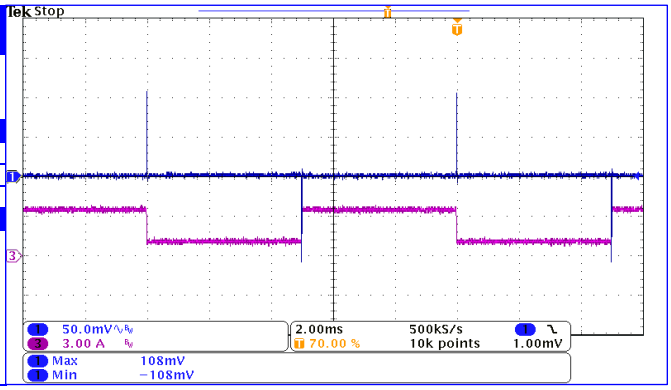


## Dynamic load (continued)

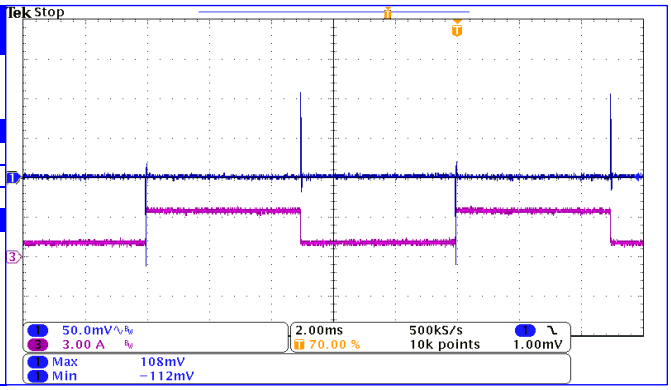
| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 242 V | |
| Output Current: | | Io1=1 to 3.4A | |
| Temperature: | | Ta = 0 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -112.0 | -120 | **pass** |
| Max[mV] | 112.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 242 V | |
| Output Current: | | Io1=1 to 3.4A | |
| Temperature: | | Ta = 25 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -108.0 | -120 | **pass** |
| Max[mV] | 108.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

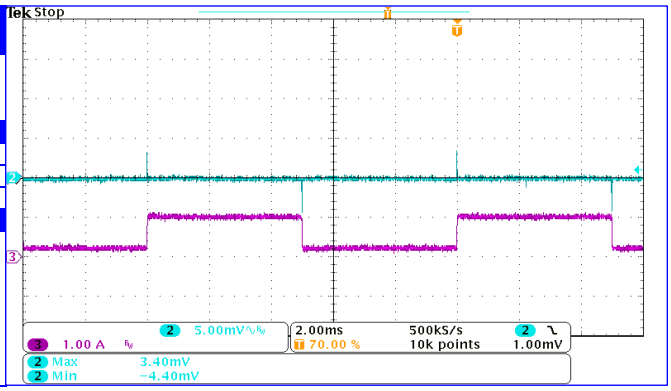



| ***Measured:*** | | ***Dynamic load(Vo1)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | | Vi = 242 V | |
| Output Current: | | Io1=1 to 3.4A | |
| Temperature: | | Ta = 50 °C | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -112.0 | -120 | **pass** |
| Max[mV] | 108.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io2=3.4A | | | |
| CH1=Vo1 | | | |
| CH2=no use | | | |
| CH3=Io1 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

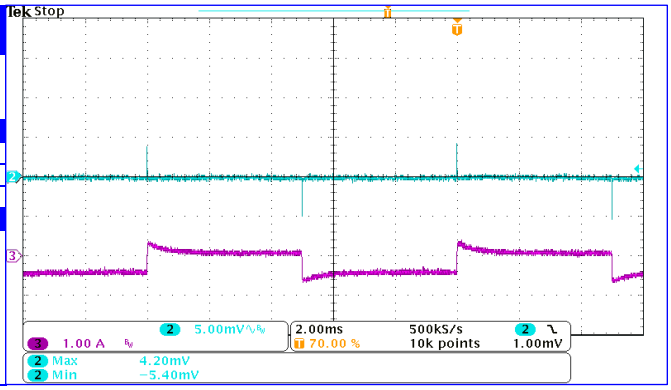


## Dynamic load (continued)

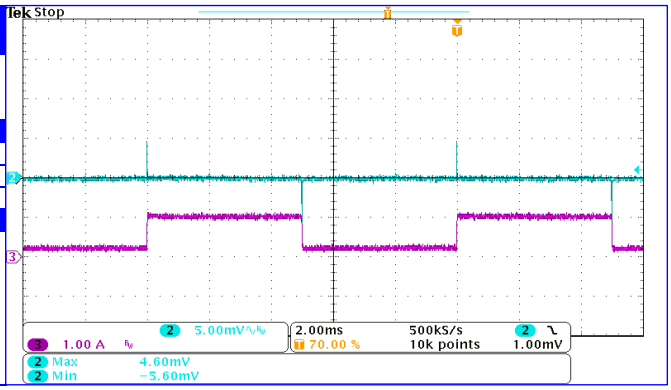
| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Io2=0.2 to 1A | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -4.4 | -120 | **pass** |
| Max[mV] | 3.4 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Io2=0.2 to 1A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -5.4 | -120 | **pass** |
| Max[mV] | 4.2 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

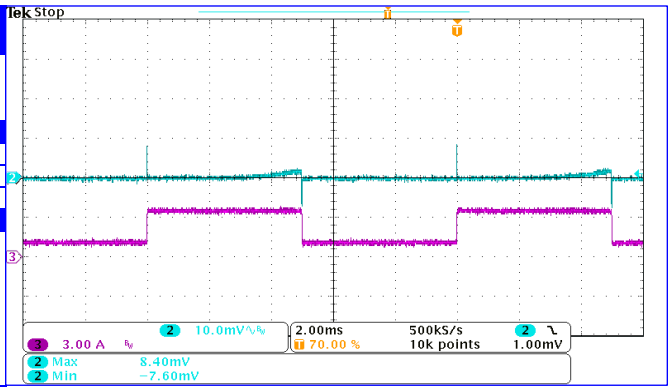



| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Io2=0.2 to 1A | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -5.6 | -120 | **pass** |
| Max[mV] | 4.6 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

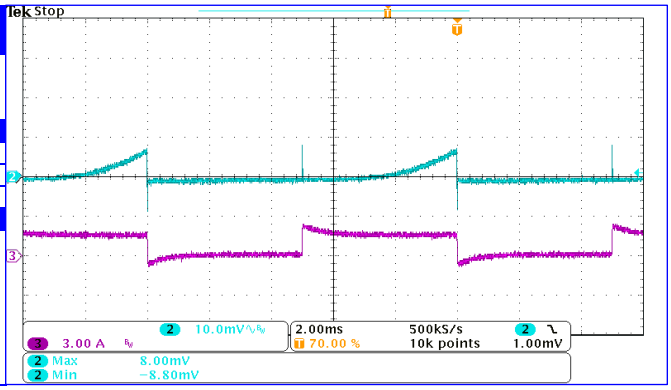


## Dynamic load (continued)

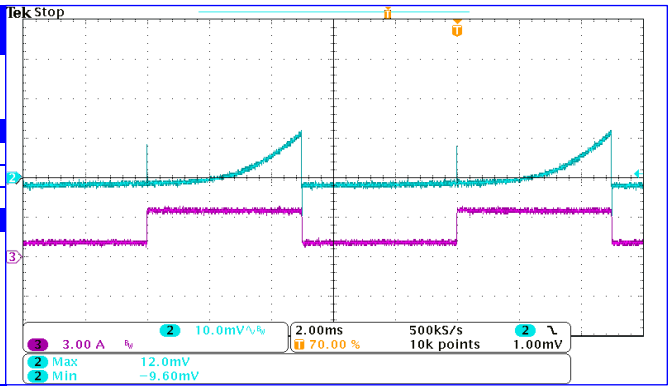
| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | ***Add CapLoad*** |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Io2=1 to 3.4A | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -7.6 | -120 | **pass** |
| Max[mV] | 8.4 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | ***Add CapLoad*** |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Io2=1 to 3.4A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -7.6 | -120 | **pass** |
| Max[mV] | 8.4 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

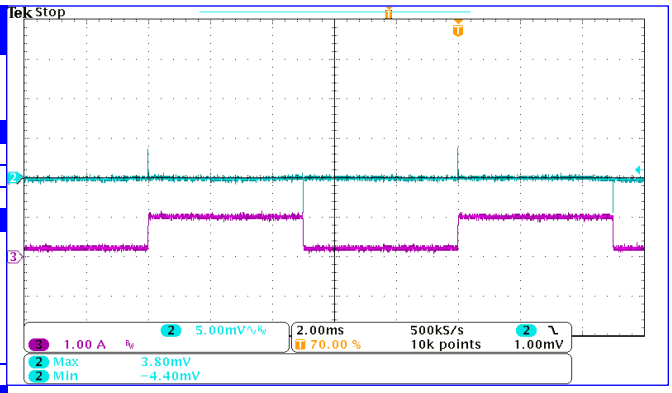



| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | ***Add CapLoad*** |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Io2=1 to 3.4A | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -9.6 | -120 | **pass** |
| Max[mV] | 12.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

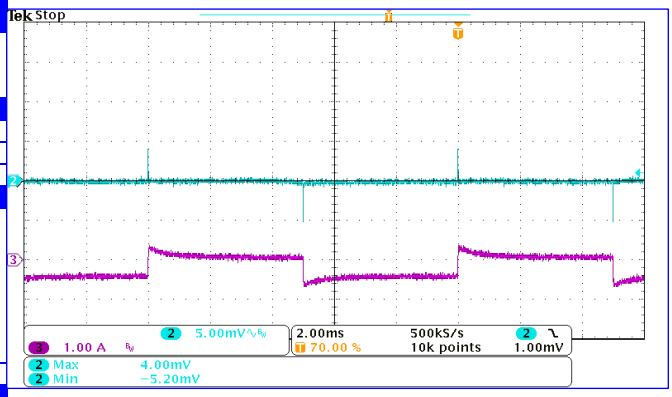


## Dynamic load (continued)

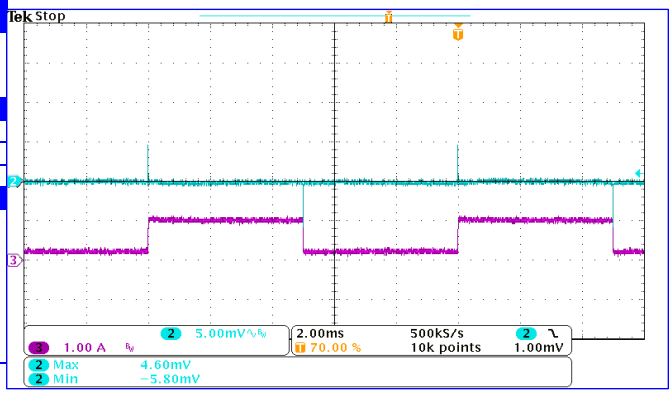
| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Io2=0.2 to 1A | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -4.4 | -120 | **pass** |
| Max[mV] | 3.8 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Io2=0.2 to 1A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -5.2 | -120 | **pass** |
| Max[mV] | 4.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

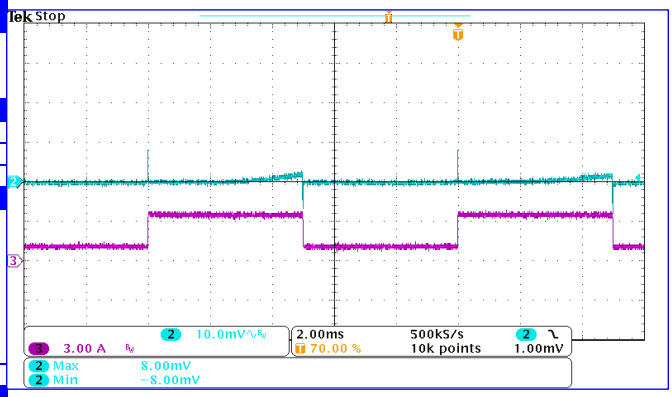



| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Io2=0.2 to 1A | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -5.8 | -120 | **pass** |
| Max[mV] | 4.6 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

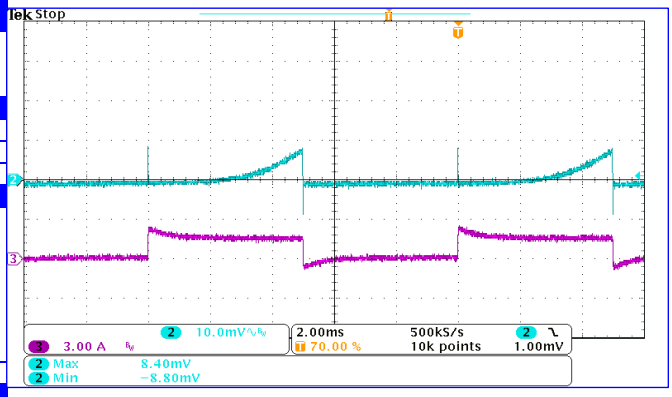


## Dynamic load (continued)

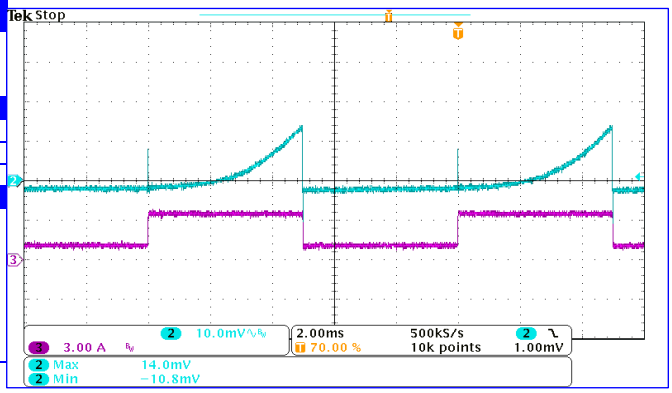
| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | ***Add CapLoad*** |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Io2=1 to 3.4A | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -8.0 | -120 | **pass** |
| Max[mV] | 8.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | ***Add CapLoad*** |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Io2=1 to 3.4A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -8.8 | -120 | **pass** |
| Max[mV] | 8.4 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

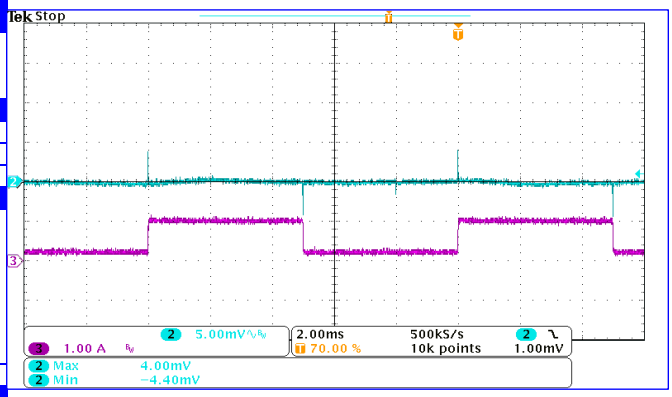



| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | ***Add CapLoad*** |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Io2=1 to 3.4A | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -10.8 | -120 | **pass** |
| Max[mV] | 14.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

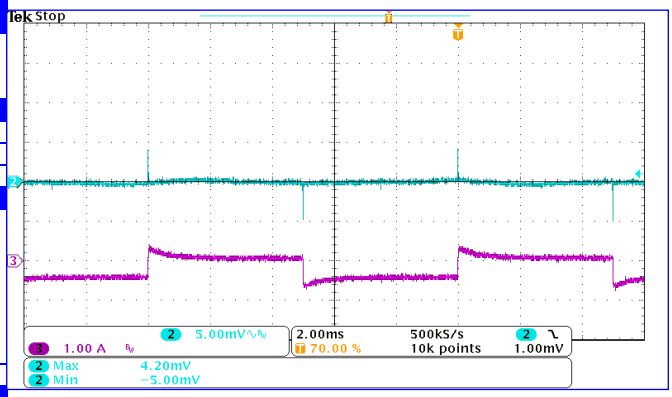


## Dynamic load (continued)

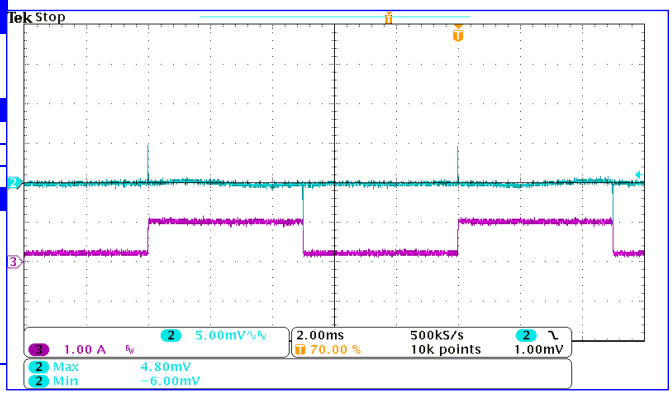
| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Io2=0.2 to 1A | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -4.4 | -120 | **pass** |
| Max[mV] | 4.0 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Io2=0.2 to 1A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -5.0 | -120 | **pass** |
| Max[mV] | 4.2 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

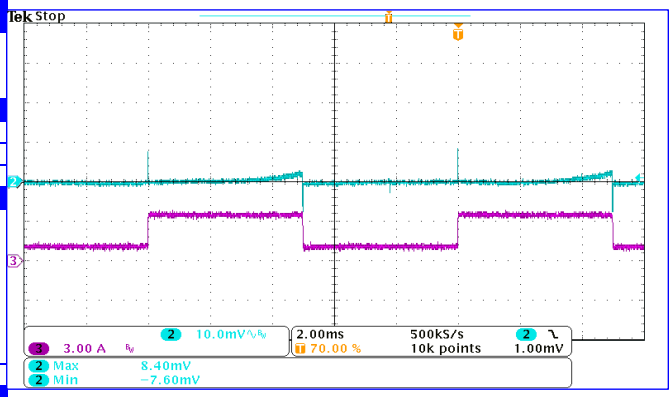



| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Io2=0.2 to 1A | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -6.0 | -120 | **pass** |
| Max[mV] | 4.8 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |

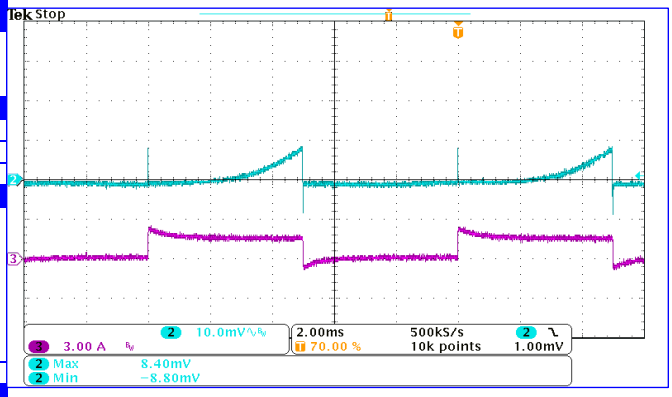


## Dynamic load (continued)

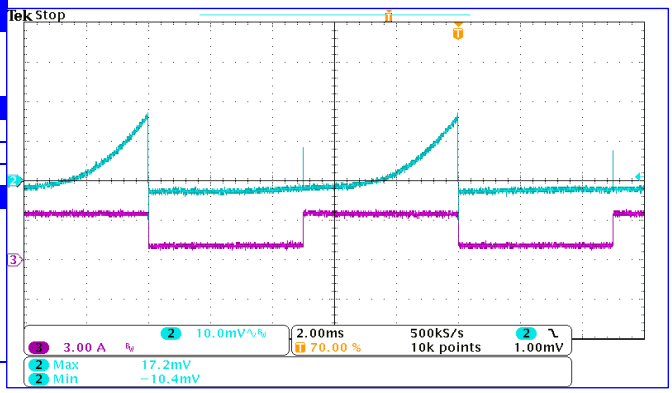
| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | ***Add CapLoad*** |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Io2=1 to 3.4A | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -7.6 | -120 | **pass** |
| Max[mV] | 8.4 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |




| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | ***Add CapLoad*** |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Io2=1 to 3.4A | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -8.8 | -120 | **pass** |
| Max[mV] | 8.4 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |



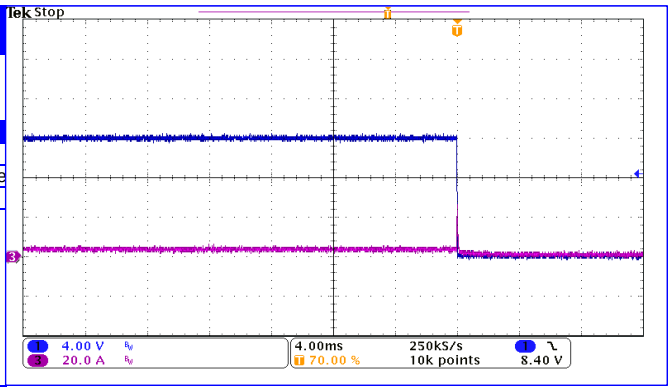

| ***Measured:*** | | ***Dynamic load(Vo2)*** | |
|---|---|---|---|
| ***Test conditions:*** | | | ***Add CapLoad*** |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Io2=1 to 3.4A | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| Min[mV] | -10.4 | -120 | **pass** |
| Max[mV] | 17.2 | 120 | **pass** |
| ***Comment:*** | | | |
| Io1=3.4A | | | |
| CH1=no use | | | |
| CH2=Vo2 | | | |
| CH3=Io2 | | | |
| CH4=no use | | | |
| Load step slew rate 0.5A/us | | | |



## 5.6 Short test

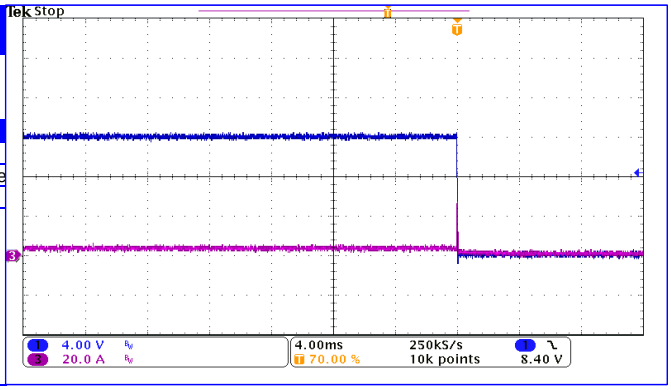
| ***Measured:*** | ***Vo1 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=Vo1
CH2=no use
CH3=Io1
CH4=no use



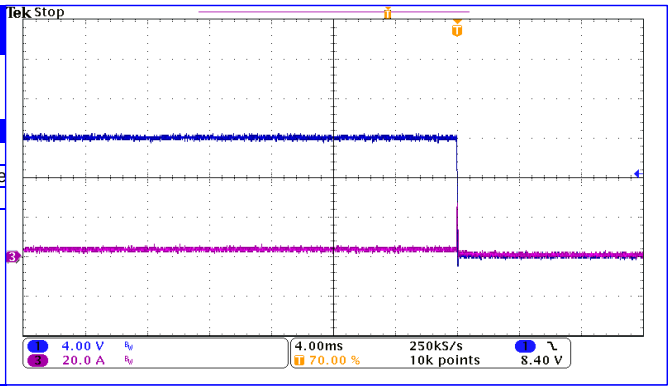

| ***Measured:*** | ***Vo1 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=Vo1
CH2=no use
CH3=Io1
CH4=no use




| ***Measured:*** | ***Vo1 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

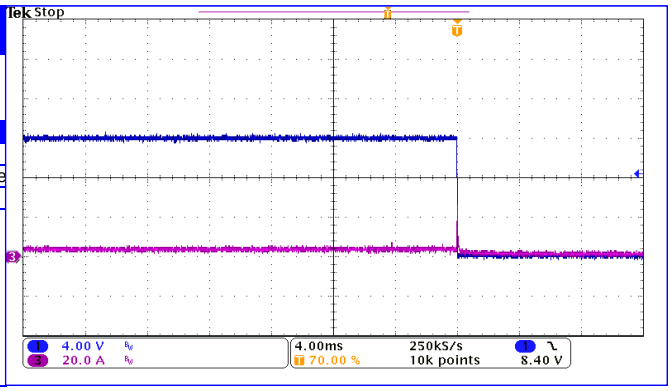
CH1=Vo1
CH2=no use
CH3=Io1
CH4=no use



## Short test (continued)

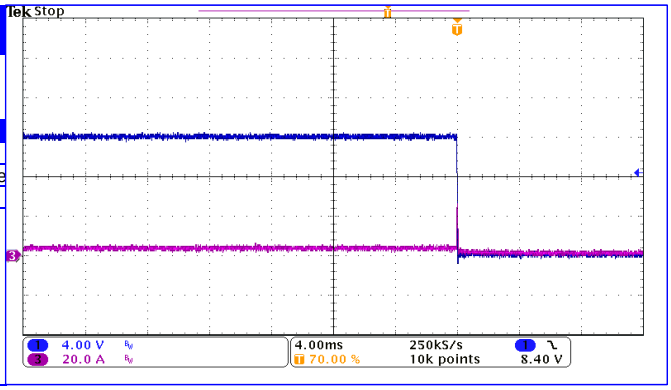
| ***Measured:*** | ***Vo1 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=Vo1
CH2=no use
CH3=Io1
CH4=no use



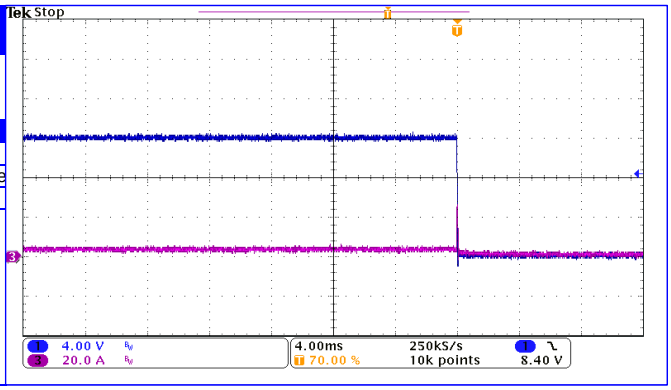

| ***Measured:*** | ***Vo1 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=Vo1
CH2=no use
CH3=Io1
CH4=no use




| ***Measured:*** | ***Vo1 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

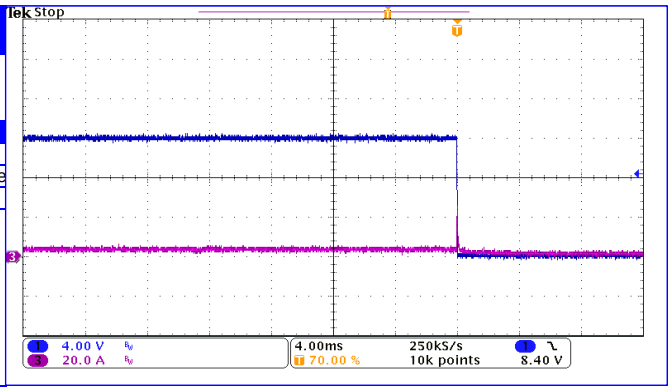
CH1=Vo1
CH2=no use
CH3=Io1
CH4=no use



## Short test (continued)

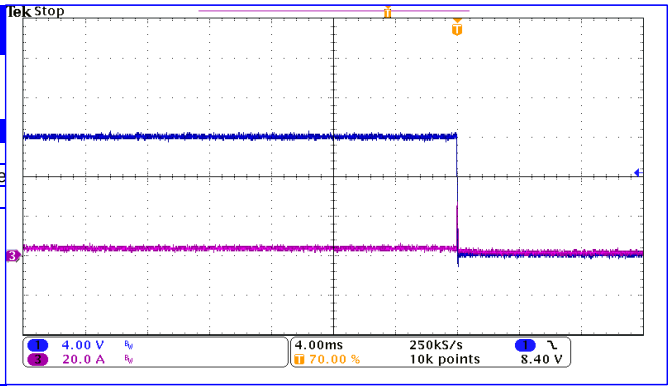
| ***Measured:*** | ***Vo1 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=Vo1
CH2=no use
CH3=Io1
CH4=no use



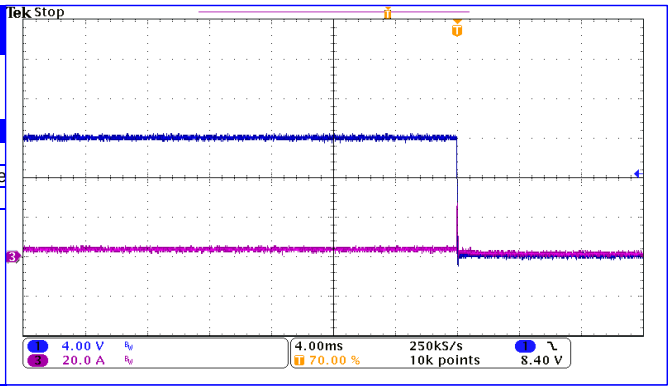

| ***Measured:*** | ***Vo1 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=Vo1
CH2=no use
CH3=Io1
CH4=no use




| ***Measured:*** | ***Vo1 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

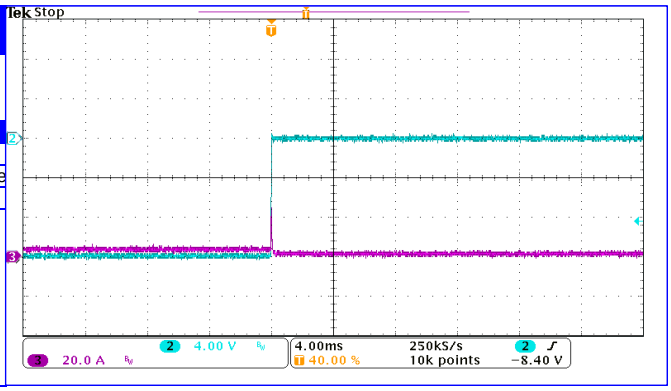
CH1=Vo1
CH2=no use
CH3=Io1
CH4=no use



## Short test (continued)

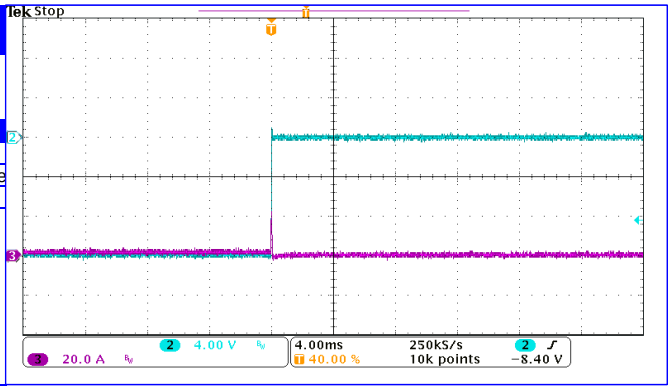
| ***Measured:*** | ***Vo2 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use



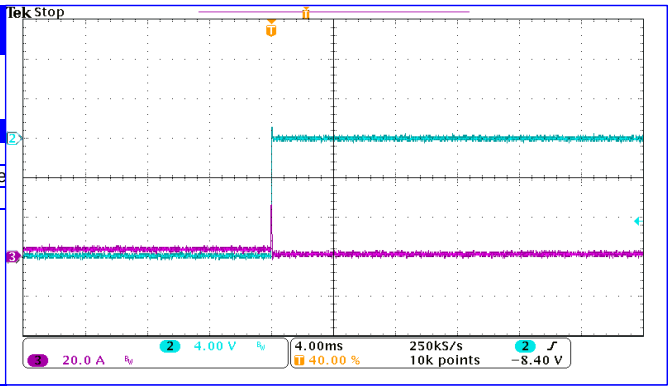

| ***Measured:*** | ***Vo2 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use




| ***Measured:*** | ***Vo2 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 191 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

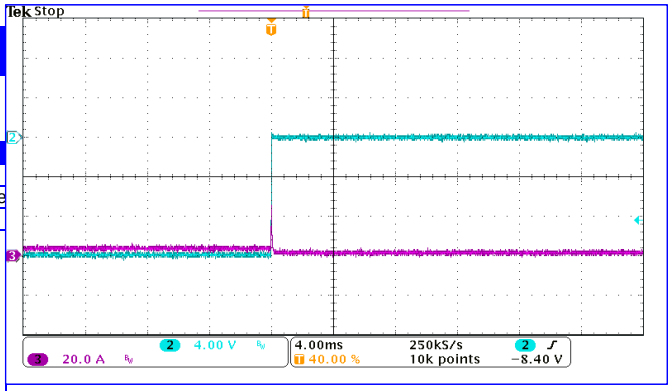
CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use



## Short test (continued)

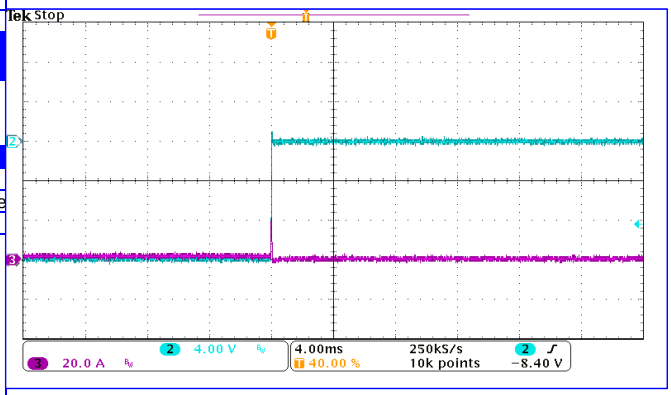
| ***Measured:*** | ***Vo2 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use



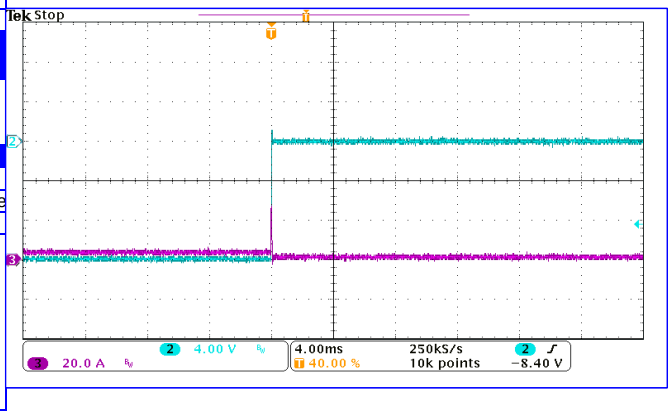

| ***Measured:*** | ***Vo2 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use




| ***Measured:*** | ***Vo2 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 220 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

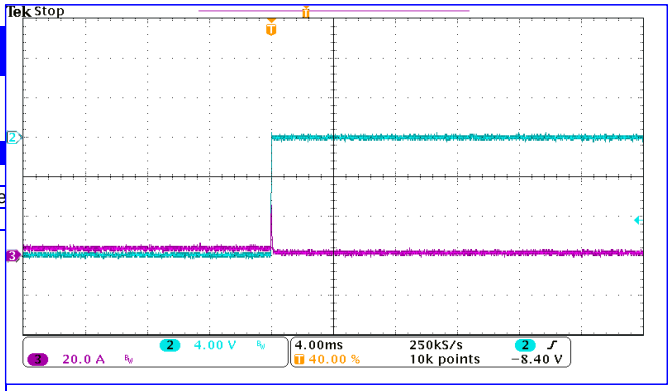
CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use



## Short test (continued)

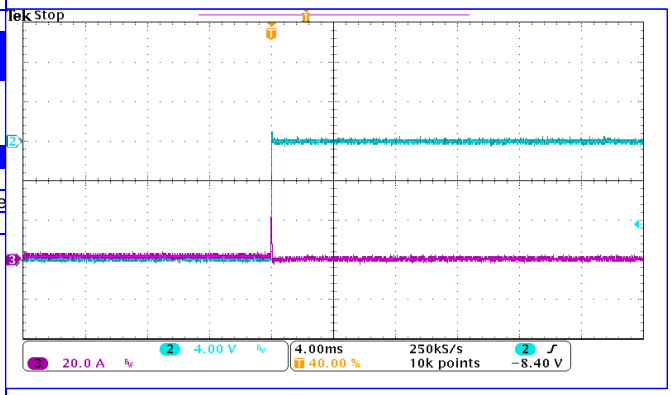
| ***Measured:*** | ***Vo2 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 0 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use



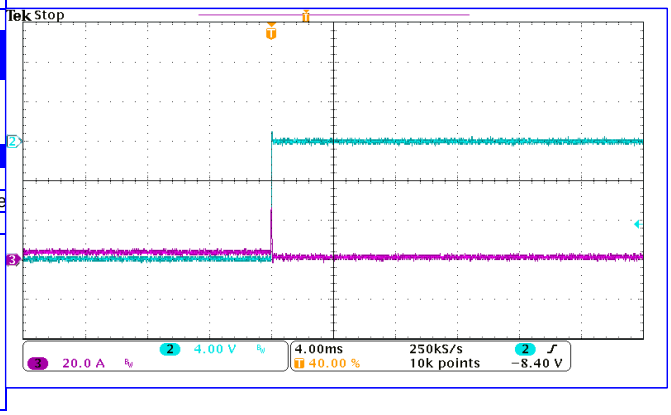

| ***Measured:*** | ***Vo2 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 25 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use




| ***Measured:*** | ***Vo2 Short*** | | |
|---|---|---|---|
| ***Test conditions:*** | | | |
| Input Voltage: | Vi = 242 V | | |
| Output Current: | Full Load | | |
| Temperature: | Ta = 50 °C | | |
| ***Test Result:*** | | | |
| | Meas. | Limit | |
| | | | Reference |
| | | | |

CH1=no use
CH2=Vo2
CH3=Io2
CH4=no use



This report was generated fully automatically by an automatic test equipment designed at Bel Power Solutions.
The system consists of following hardware:

| Type | Manufacturer | Serial-Number |
|---|---|---|
| ***AC Power Source:*** | | |
| 6560 | Chroma, Taiwan | 656038001421 |
| ***Power Analyzer:*** | | |
| WT310HC | Yokogawa,Japan | C3RH26005E |
| Electronic Load: | | |
| 6314A | Chroma,Taiwan | 6314A0000618 |
| Digital Multi Meter: | | |
| 34970 | Agilent,USA | MY44049369 |
| Oscilloscope: | | |
| DPO3014 | Tektronix,USA | C012742 |
| Computer: | | |
| Deskpro | EVOC,China | |
| Temperature Chamber: | | |
| VT7021 | Votsch,German | 58566143790010 |