ON Semiconductor

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MOSFET – Power, N-Channel, **Ultrafet**

100 V, 56 A, 25 m Ω

HUF75639G3, HUF75639P3, HUF75639S3S, HUF75639S3

These N-Channel power MOSFETs are manufactured using the innovative Ultrafet process. This advanced process technology achieves the lowest possible on- resistance per silicon area, resulting in outstanding performance. This device is capable of withstanding high energy in the avalanche mode and the diode exhibits very low reverse recovery time and stored charge. It was designed for use in applications where power efficiency is important, such as switching regulators, switching converters, motor drivers, relay drivers, low-voltage bus switches, and power management in portable and battery- operated products.

Formerly developmental type TA75639.

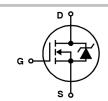
Features

- 56 A, 100 V
- Simulation Models
 - ◆ Temperature Compensated PSPICE[®] and SABER™ Electrical
 - Spice and Saber Thermal Impedance Models
 - www.onsemi.com
- Peak Current vs Pulse Width Curve
- UIS Rating Curve
- Related Literature
 - TB334, "Guidelines for Soldering Surface Mount Components to
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant



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TO-247-3LD CASE 340CK

TO-220-3LD CASE 340AT

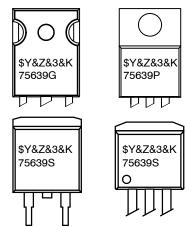




D2PAK-3 CASE 418AJ

12ΡΔΚ CASE 418AV

MARKING DIAGRAMS



&Y = ON Semiconductor Logo &Z = Assembly Plant Code = 3-Digit Date Code &3

= 2-Digit Lot Traceability Code &K 75639x = Specific Device Code

= G/P/S

ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

ORDERING INFORMATION

PART NUMBER	PACKAGE	BRAND
HUF75639G3	TO-247	75639G
HUF75639P3	TO-220AB	75639P
HUF75639S3ST	TO-263AB	756398
HUF75639S3	TO-262AA	75639S

PACKAGING

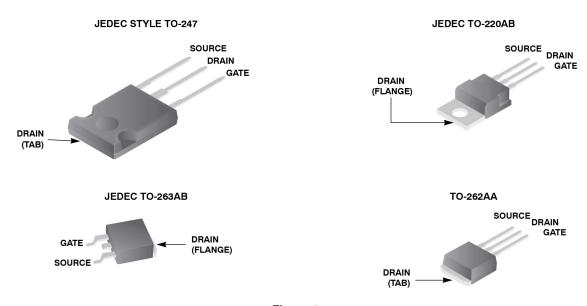


Figure 1.

ABSOLUTE MAXIMUM RATINGS $T_C = 25^{\circ}C$ unless otherwise specified

Description	Symbol	Ratings	Units
Drain to Source Voltage (Note 1)	V _{DSS}	100 V	V
Drain to Gate Voltage (R_{GS} = 20 k Ω) (Note 1)	V_{DGR}	100 V	V
Gate to Source Voltage	V_{GS}	±20 V	V
Drain Current Continuous (Figure 2) Pulsed Drain Current	I _D I _{DM}	56 Figure 4	А
Pulsed Avalanche Rating	E _{AS}	Figures 6, 14, 15	
Power Dissipation Derate Above 25°C	P _D	200 1.35	W W/°C
Operating and Storage Temperature	T _J , T _{STG}	−55 to 175°C	°C
Maximum Temperature for Soldering Leads at 0.063in (1.6 mm) from Case for 10s Package Body for 10 s, See Techbrief 334	T _L T _{pkg}	300 260	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected. 1. $TJ = 25^{\circ}C$ to $150^{\circ}C$.

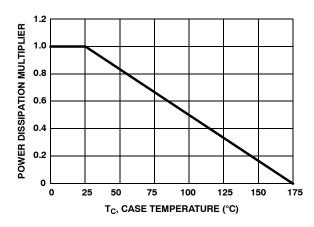
ELECTRICAL SPECIFICATION T_{.I} = 25 °C unless otherwise specified

SYMBOL	PARAMETER	TEST CONDITIONS		MIN	TYP	MAX	UNITS
OFF STATE	SPECIFICATIONS	•					
BV _{DSS}	Drain to Source Breakdown Voltage	I _D = 250 μA, V _{GS} = 0 V (Figure 11)		100	-	-	V
I _{DSS} Zero Gate Voltage Drain Current		V _{DS} = 95 V, V _{GS} = 0 V		-	-	1	μΑ
		V _{DS} = 90 V, V _{GS} = 0	V, T _C = 150°C	-	-	250	μΑ
I _{GSS}	Gate to Source Leakage Current	V _{GS} = ±20 V		-	-	±100	nA
ON STATE	SPECIFICATIONS	•					
V _{GS(TH)}	Gate to Source Threshold Voltage	$V_{GS} = V_{DS}, I_D = 250$	μΑ (Figure 10)	2	_	4	V
r _{DS(ON)}	Drain to Source On Resistance	I _D = 56 A, V _{GS} = 10 \	/ (Figure 9)	-	0.021	0.025	mΩ
THERMAL	SPECIFICATIONS	•					
$R_{\theta JC}$	Thermal Resistance Junction to Case	(Figure 3)		-	-	0.74	°C/W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	TO-247		-	-	30	°C/W
	TO-220, TO-263, TO-262		D-262	_	-	62	°C/W
SWITCHING	G SPECIFICATIONS (V _{GS} = 10 V)						
t _{ON}	Turn-On Time	V_{DD} = 50 V, I_D \cong 56 A, R_L = 0.89 Ω , V_{GS} = 10 V, R_{GS} = 5.1 Ω		-	-	110	ns
t _{d(ON)}	Turn-On Delay Time			_	15	-	ns
t _r	Rise Time			-	60	-	ns
td _(OFF)	Turn-Off Delay Time			-	20	-	ns
t _f	Fall Time			-	25	-	ns
t _{OFF}	Turn-Off Time			-	-	70	ns
GATE CHA	RGE SPECIFICATIONS						
$Q_{g(TOT)}$	Total Gate Charge	V _{GS} = 0 V to 20 V	$V_{DD} = 50 \text{ V}, I_{D} \cong 56 \text{ A},$ $R_{L} = 0.89 \Omega$	i	110	130	nC
Q _{g(10)}	Gate Charge at 10 V	V _{GS} = 0 V to 10 V	$I_{g(REF)} = 1.0 \text{ mA}$	-	57	75	nC
$Q_{g(TH)}$	Threshold Gate Charge	V _{GS} = 0 V to 2 V	(Figure 13)	-	3.7	4.5	nC
Q _{gs}	Gate to Source Gate Charge				9.8	-	nC
Q_{gd}	Gate to Drain "Miller" Charge	<u> </u>		-	24	-	nC
CAPACITAI	NCE SPECIFICATIONS						
C _{ISS}	Input Capacitance	V _{DS} = 25 V, V _{GS} = 0 V, f = 1 MHz (Figure 12)		-	2000	-	pF
C _{OSS}	Output Capacitance			-	500	-	pF
C _{RSS}	Reverse Transfer Capacitance			-	65	_	pF

SOURCE TO DRAIN DIODE SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Source to Drain Diode Voltage	V_{SD}	I _{SD} = 56 A	1	İ	1.25	V
Reverse Recovery Time	t _{rr}	$I_{SD} = 56 \text{ A}, dI_{SD}/dt = 100 \text{ A}/\mu\text{s}$	ı	İ	110	ns
Reverse Recovered Charge	Q_{RR}	$I_{SD} = 56 \text{ A}, dI_{SD}/dt = 100 \text{ A}/\mu\text{s}$	-	-	320	nC

TYPICAL PERFORMANCE CURVES



60 (F) 50 EN 30 Figure 1. NORMALIZED POWER DISSIPATION vs CASE TEMPERATURE

Figure 2. MAXIMUM CONTINUOUS DRAIN CURRENT vs CASE TEMPERATURE

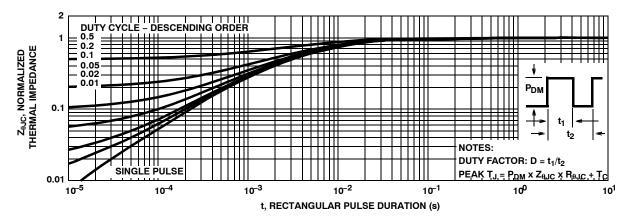


Figure 3. NORMALIZED MAXIMUM TRANSIENT THERMAL IMPEDANCE

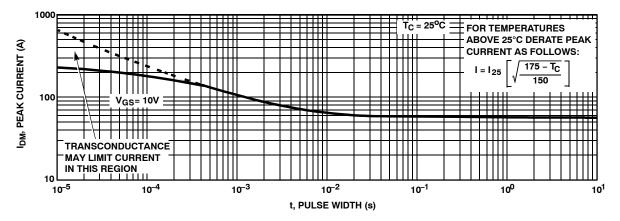
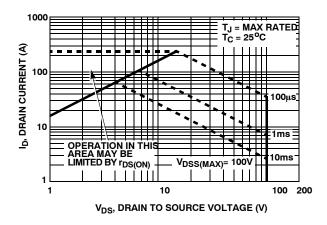


Figure 4. PEAK CURRENT CAPABILITY

TYPICAL PERFORMANCE CHARACTERISTICS (continued)



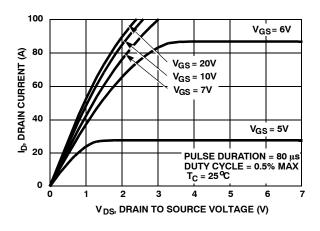
300 If R = 0
tAV = (L)(IAS)/(1.3×RATED BVDSS - VDD)
TI R = 0
tAV = (L)(IAS)/(1.3×RATED BVDSS - VDD) +1]

100
STARTING T_J = 150°C
STARTING T_J = 25°C

100
0.001
0.01
1
t_{AV}, TIME IN AVALANCHE (ms)

Figure 5. FORWARD BIAS SAFE OPERATING AREA

Figure 6. UNCLAMPED INDUCTIVE SWITCHING CAPABILITY



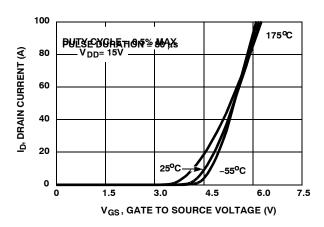
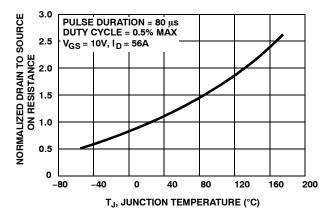


Figure 7. SATURATION CHARACTERISTICS

Figure 8. TRANSFER CHARACTERISTICS



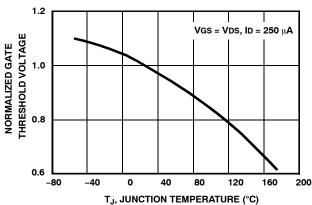
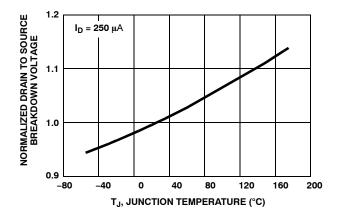


Figure 9. NORMALIZED DRAIN TO SOURCE ON RESISTANCE vs JUNCTION TEMPERATURE

Figure 10. NORMALIZED GATE THRESHOLD VOLTAGE vs JUNCTION TEMPERATURE

TYPICAL PERFORMANCE CHARACTERISTICS (continued)



3000 VGS = 0 V, f = 1 MHz CISS = CGS + CGD 2500 CRSS = CGD CAPACITANCE (pF) Coss = CDs + CGD 2000 CISS 1500 1000 coss 500 CRSS 0 0 10 30 40 50 60 V_{DS} , DRAIN TO SOURCE VOLTAGE (V)

Figure 11. NORMALIZED DRAIN TO SOURCE BREAKDOWN VOLTAGE vs JUNCTION TEMPERATURE

Figure 12. CAPACITANCE vs DRAIN TO SOURCE VOLTAGE

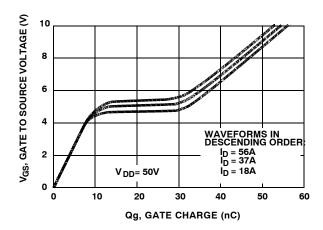
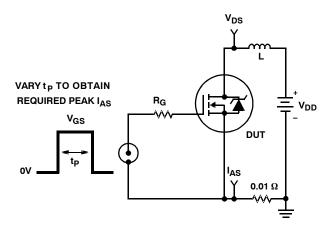


Figure 13. GATE CHARGE WAVEFORMS FOR CONSTANT GATE CURRENT

TEST CIRCUITS AND WAVEFORMS



Description of the state of the

Figure 14. UNCLAMPED ENERGY TEST CIRCUIT

Figure 15. UNCLAMPED ENERGY WAVEFORMS

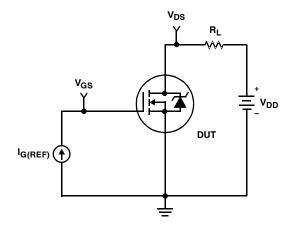


Figure 16. GATE CHARGE TEST CIRCUIT

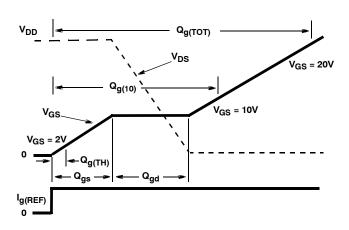


Figure 17. GATE CHARGE WAVEFORM

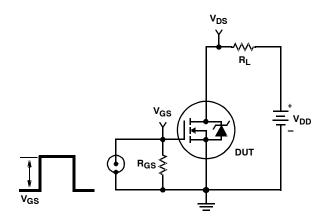


Figure 18. SWITCHING TIME TEST CIRCUIT

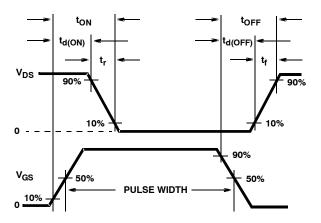


Figure 19. RESISTIVE SWITCHING WAVEFORMS

PSPICE Electrical Model

```
SUBCKT HUF75639 2 1 3;
                           rev Oct. 98
CA 12 8 2.8e-9
CB 15 14 2.65e-9
CIN 6 8 1.9e-9
                                                                                                    LDRAIN
                                                          DPLCAP
                                                                    5
                                                                                                              DRAIN
DBODY 7 5 DBODYMOD
                                                                                                              -02
DBREAK 5 11 DBREAKMOD
                                                       10
DPLCAP 10 5 DPLCAPMOD
                                                                                                    RLDRAIN
                                                                      RSLC1
                                                                                   DBREAK 1
EBREAK 11 7 17 18 110
                                                                     51
                                                        RSLC2
EDS 14 8 5 8 1
                                                                    <u>5</u>
51
EGS 13 8 6 8 1
                                                                        ESLC
                                                                                          11
ESG 6 10 6 8 1
EVTHRES 6 21 19 8 1
                                                                      50
EVTEMP 20 6 18 22 1
                                                                                                ■ DBODY
                                                                      RDRAIN
                                                     8
                                                                                 EBREAK
                                               ESG
IT 8 17 1
                                                           EVTHRES
                                                                         16
                                                                      21
                                                             19
8
LDRAIN 2 5 2e-9
                                                                                    MWEAK
                              I GATE
                                              FVTFMF
LGATE 1 9 1e-9
                      GATE
                                       RGATE
LSOURCE 3 7 0.47e-9
                                                                           -MMFD
                                                22
                                      9
                                             20
                                                                    MSTRO
RLGATE 1910
                             RLGATE
BI DRAIN 2 5 20
                                                                                                   LSOURCE
                                                                CIN
                                                                                                             SOURCE
RLSOURCE 3 7 4.69
                                                                         8
MMED 16688 MMEDMOD
                                                                                    RSOURCE
                                                                                                   RLSOURCE
MSTRO 16 6 8 8 MSTROMOD
MWEAK 16 21 8 8 MWEAKMOD
                                               S1A
                                                         S2A
                                                                                        RBREAK
                                            12 F
                                                  13
                                                        <u>14</u>
13
                                                               15
                                                                                    17
RBREAK 17 18 RBREAKMOD 1
                                                                                                 18
                                                  8
RDRAIN 50 16 RDRAINMOD 1.3e-2
                                              S1B
                                                        o S2B
                                                                                                 RVTEMP
RGATE 9 20 0.7
RSLC1 5 51 RSLCMOD 1e-6
                                                     13
                                                                СВ
                                                                                                 19
                                         CA
                                                                                  IT
RSLC2 5 50 1e3
                                                                     14
RSOURCE 8 7 RSOURCEMOD 4.5e-3
                                                                                                   VBAT
                                                                   5
RVTHRES 22 8 RVTHRESMOD 1
                                                 EGS
                                                             EDS
                                                        8
RVTEMP 18 19 RVTEMPMOD 1
                                                                                8
S1A 6 12 13 8 S1AMOD
                                                                                       RVTHRES
S1B 13 12 13 8 S1BMOD
S2A 6 15 14 13 S2AMOD
S2B 13 15 14 13 S2BMOD
VBAT 22 19 DC 1
ESLC 51 50 VALUE = {(V(5,51)/ABS(V (5,51)))*(PWR(V(5,51)/(1e-6*115),4))}
.MODEL DBODYMOD D (IS = 1.4e-12 RS = 3.3e-3 XTI = 4.7 TRS1 = 2e-3 TRS2 = 0.1e-5 CJO = 3.3e-9 TT = 6.1e-8 M = 0.7)
.MODEL DBREAKMOD D (RS = 3.5e- 1TRS1 = 1e- 3TRS2 = 1e-6)
.MODEL DPLCAPMOD D (CJO = 2.2e- 9IS = 1e-3 0N = 10 M = 0.95 vj = 1.0)
.MODEL MMEDMOD NMOS (VTO = 3.5 KP = 4.8 IS = 1e-30 N = 10 TOX = 1 L = 1u W = 1u Rg = 0.7)
.MODEL MSTROMOD NMOS (VTO = 3.97 KP = 56.5 IS = 1e-30 N = 10 TOX = 1 L = 1u W = 1u)
.MODEL MWEAKMOD NMOS (VTO =3.11 KP = 0.085 IS = 1e-3 N = 10 TOX = 1 L = 1u W = 1u RG = 7 RS = 0.1)
.MODEL RBREAKMOD RES (TC1 = 0.8e- 3TC2 = 1e-6)
.MODEL RDRAINMOD RES (TC1 = 1e-2 TC2 = 1.75e-5)
.MODEL RSLCMOD RES (TC1 = 2.8e-3 TC2 = 14e-6)
.MODEL RSOURCEMOD RES (TC1 = 0 TC2 = 0)
.MODEL RVTHRESMOD RES (TC = -2.0e-3 TC2 = -1.75e-5)
.MODEL RVTEMPMOD RES (\dot{T}C1 = -2.75e - 3TC2 = 0.05e - 9)
.MODEL S1AMOD VSWITCH (RON = 1e-5 ROFF = 0.1 VON = -6.0 VOFF = -3.5)
.MODEL S1BMOD VSWITCH (RON = 1e-5 ROFF = 0.1 VON = -3.5 VOFF = -6.0)
.MODEL S2AMOD VSWITCH (RON = 1e-5 ROFF = 0.1 VON = -2.5 VOFF = 4.95)
.MODEL S2AMOD VSWITCH (RON = 1e-5 ROFF = 0.1 VON = 4.95 VOFF = -2.5)
.ENDS
```

NOTE: For further discussion of the PSPICE model, consult A New PSPICE Sub-Circuit for the Power MOSFET Featuring Global
Temperature Options; IEEE Power Electronics Specialist Conference Records, 1991, written by William J. Hepp and C. Frank Wheatley.

SABER Electrical Model

```
nom temp=25 deg c 100v Ultrafet
```

```
REV Oct. 98
template huf75639 n2,n1,n3
electrical n2,n1,n3
                                                                                                                     LDRAIN
var i iscl
                                                                         DPLCAP
                                                                                                                               DRAIN
d..model dbodymod = (is=1.4e-12, xti=4.7, cjo=33e-10,tt=6.1e-8, m=0.7)
d..model dbreakmod = ()
                                                                      10
d..model dplcapmod = (cjo=22e-10,is=1e-30,n=10,m=0.95, vj=1.0)
                                                                                                                     RLDRAIN
m..model mmedmod = (type=_n,vto=3.5,kp=4.8,is=1e-30, tox=1)
                                                                                      RSLC1
                                                                                                 RDBREAK
m..model mstrongmod = (type= n,vto=3.97,kp=56.5,is=1e-30, tox=1)
                                                                                     51
m..model mweakmod = (type=_n, vto=3.11, kp=0.085, is=1e-30, tox=1)
                                                                       RSLC2 ≨
                                                                                                         72
                                                                                                                     RDBODY
sw_vcsp..model s1amod = (ron=1e-5,roff=0.1,von=-6.0,voff=-3.5)
                                                                                        ISCI
sw_vcsp..model s1bmod = (ron=1e-5,roff=0.1,von=-3.5,voff=-6.0)
sw vcsp..model s2amod = (ron=1e-5,roff=0.1,von=-2.5,voff=4.95)
                                                                                                   DBREAK
sw_vcsp..model s2bmod = (ron=1e-5,roff=0.1,von=4.95,voff=-2.5)
                                                                                                                    71
                                                                                      RDRAIN
                                                              ESG
                                                                                                           11
c.ca n12 n8 = 28.5e-10
                                                                          EVTHRES
c.cb n15 n14 = 26.5e-10
                                                                                         16
                                                                                     21
                                                                             19
8
c.cin n6 n8 = 19e-10
                                                                                                     MWEAK
                                            LGATE
                                                             EVTEMP
                                                                                                                     DBODY
                                                     RGATE
                                   GATE
d.dbody n7 n71 = model=dbodymod
                                                                                                     EBREAK
                                                                                            MMED
                                                               22
d.dbreak n72 n11 = model=dbreakmod
                                                           20
                                              V۸۸
                                                                                    MSTR
d.dplcap n10 n5 = model=dplcapmod
                                           RLGATE
                                                                                                            18
                                                                                                                    LSOURCE
                                                                                CIN
i.it n8 n17 = 1
                                                                                                                              SOURCE
                                                                                         8
I.ldrain n2 n5 = 2.0e-9
                                                                                                    RSOURCE
                                                                                                                    RLSOURCE
I.lgate n1 n9 = 1e-9
                                                                       o S2A
I.Isource n3 n7 = 4.69e-10
                                                             S1A
                                                                                                        RBREAK
                                                                 <u>13</u>
8
                                                                       <u>14</u>
13
                                                                               15
                                                                                                                   18
m.mmed n16 n6 n8 n8 = model=mmedmod, l=1u, w=1u
m.mstrong n16 n6 n8 n8 = model=mstrongmod, l=1u, w=1u
                                                                                                                   RVTEMP
m.mweak n16 n21 n8 n8 = model=mweakmod, l=1u, w=1u
                                                                        S2B
                                                                               СВ
                                                                                                                   19
                                                       CA
res.rbreak n17 n18 = 1, tc1=0.8e-3,tc2=-1e-6
                                                                                                  IT
                                                                                     14
res.rdbody n71 n5 = 3.3e-3, tc1=2.0e-3, tc2=0.1e-5
                                                                                                                    VBAT
res.rdbreak n72 n5 = 3.5e-1, tc1=1e-3, tc2=1e-6
                                                                       8
                                                                                   <u>5</u>
                                                                EGS
                                                                            EDS
res.rdrain n50 n16 = 13e-3, tc1=1e-2,tc2=1.75e-5
                                                                                                 8
res.rgate n9 n20 = 0.7
res.rldrain n2 n5 = 20
                                                                                                        RVTHRES
res.rlgate n1 n9 = 10
res.rlsource n3 n7 = 4.69
res.rslc1 n5 n51 = 1e-6, tc1=2.8e-3,tc2=14e-6
res.rslc2 n5 n50 = 1e3
res.rsource n8 n7 = 4.5e-3, tc1=0,tc2=0
res.rvtemp n18 n19 = 1, tc1=-2.75e-3,tc2=0.05e-9
res.rvthres n22 n8 = 1. tc1=-2e-3.tc2=-1.75e-5
spe.ebreak n11 n7 n17 n18 = 110
spe.eds n14 n8 n5 n8 = 1
spe.egs n13 n8 n6 n8 = 1
spe.esg n6 n10 n6 n8 = 1
spe.evtemp n20 n6 n18 n22 = 1
spe.evthres n6 n21 n19 n8 = 1
sw vcsp.s1a n6 n12 n13 n8 = model=s1amod
sw vcsp.s1b n13 n12 n13 n8 = model=s1bmod
sw vcsp.s2a n6 n15 n14 n13 = model=s2amod
sw_vcsp.s2b n13 n15 n14 n13 = model=s2bmod
v.vbat n22 n19 = dc=1
equations {
(v(n51,n50) = ((v(n5,n51)/(1e-9+abs(v(n5,n51))))*((abs(v(n5,n51)*1e6/115))**4))
```

Spice Thermal Model

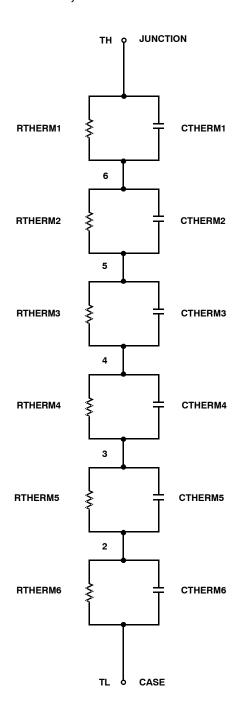
REV APRIL 1998

HUF75639

CTHERM1 TH 6 2.8e-3
CTHERM2 6 5 4.6e-3
CTHERM3 5 4 5.5e-3
CTHERM4 4 3 9.2e-3
CTHERM5 3 2 1.7e-2
CTHERM6 2 TL 4.3e-2
RTHERM1 TH 6 5.0e-4
RTHERM2 6 5 1.5e-3
RTHERM3 5 4 2.0e-2
RTHERM4 4 3 9.0e-2
RTHERM5 3 2 1.9e-1
RTHERM6 2 TL 2.9e-1

Saber Thermal Model

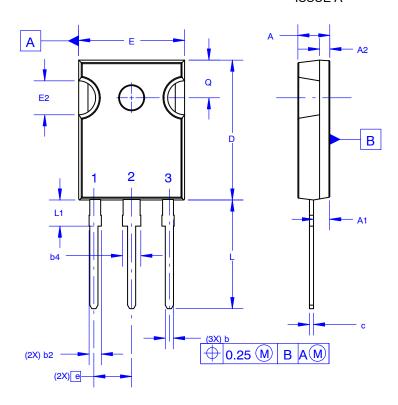
Saber thermal model HUF75639



PSPICE is a trademark of MicroSim Corporation. Saber is a registered trademark of Sabremark Limited Partnership.

PACKAGE DIMENSIONS

TO-247-3LD SHORT LEAD CASE 340CK ISSUE A



NOTES: UNLESS OTHERWISE SPECIFIED.

- A. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.
- B. ALL DIMENSIONS ARE IN MILLIMETERS.
- C. DRAWING CONFORMS TO ASME Y14.5 2009.
- D. DIMENSION A1 TO BE MEASURED IN THE REGION DEFINED BY L1.
- E. LEAD FINISH IS UNCONTROLLED IN THE REGION DEFINED BY L1.

GENERIC MARKING DIAGRAM*



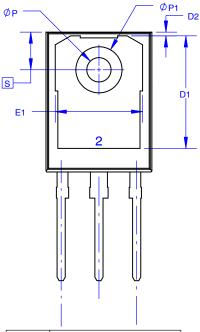
XXXX = Specific Device Code

A = Assembly Location

Y = Year WW = Work Week

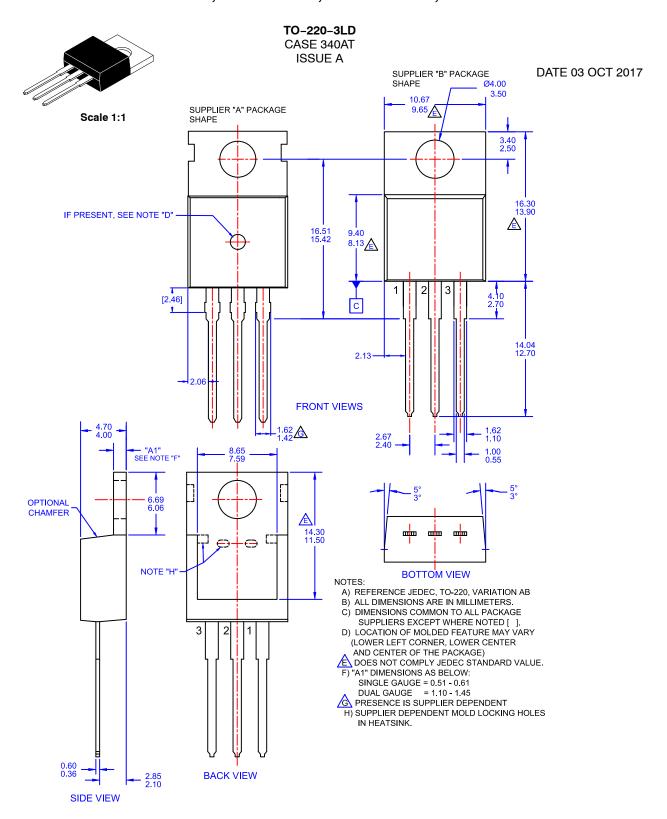
ZZ = Assembly Lot Code

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "•", may or may not be present. Some products may not follow the Generic Marking.



DATE 31 JAN 2019

DIM	MILLIMETERS				
DIIVI	MIN	NOM	MAX		
Α	4.58	4.70	4.82		
A 1	2.20	2.40	2.60		
A2	1.40	1.50	1.60		
b	1.17	1.26	1.35		
b2	1.53	1.65	1.77		
b4	2.42	2.54	2.66		
С	0.51	0.61	0.71		
D	20.32	20.57	20.82		
D1	13.08	?	~		
D2	0.51	0.93	1.35		
E	15.37	15.62	15.87		
E1	12.81	?	~		
E2	4.96	5.08	5.20		
е	~ 5		~		
L	15.75	16.00	16.25		
L1	3.69	3.81	3.93		
ØΡ	3.51	3.58	3.65		
ØP1	6.60	6.80	7.00		
Q	5.34	5.46	5.58		
S	5.34	5.46	5.58		



SCALE 1:1

D²PAK-3 (TO-263, 3-LEAD) CASE 418AJ

ISSUE E

DATE 25 OCT 2019

-0.436 0.366 0.653 0.169

RECOMMENDED MOUNTING FOOTPRINT

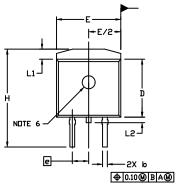
2x 0.063

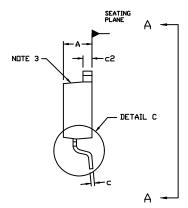
0.100 PITCH

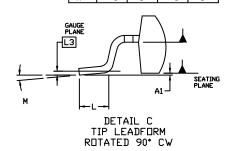
NOTES

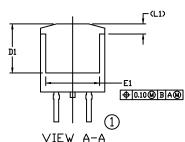
- 1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009.
- CONTROLLING DIMENSION: INCHES
- CHAMFER OPTIONAL.
- DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED 0.005 PER SIDE. THESE DIMENSIONS ARE MEASURED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY AT DATUM H.
- 5. THERMAL PAD CONTOUR IS OPTIONAL WITHIN DIMENSIONS E, L1, D1, AND E1.
- 6. OPTIONAL MOLD FEATURE.
- 7. ①,② ... OPTIONAL CONSTRUCTION FEATURE CALL DUTS.

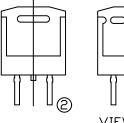
	INCHES		MILLIN	ETERS		
DIM	MIN.	MAX.	MIN.	MAX.		
Α	0.160	0.190	4.06	4.83		
A1	0.000	0.010	0.00	0.25		
b	0.020	0.039	0.51	0.99		
c	0.012	0.029	0.30	0.74		
c2	0.045	0.065	1.14	1.65		
D	0.330	0.380	8.38	9.65		
D1	0.260		6.60			
Ε	0.380	0.420	9.65	10.67		
E1	0.245		6.22			
e	0.100	BSC	2.54	BSC		
Н	0.575	0.625	14.60	15.88		
L	0.070	0.110	1.78	2.79		
L1		0.066	-	1.68		
L2		0.070		1.78		
L3	0.010	0.010 BSC		BZC		
м	_0+	0+	_0+	0*		

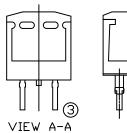


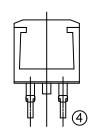






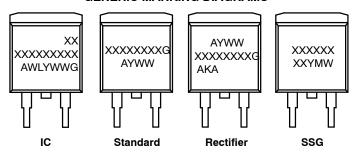






OPTIONAL CONSTRUCTIONS

GENERIC MARKING DIAGRAMS*



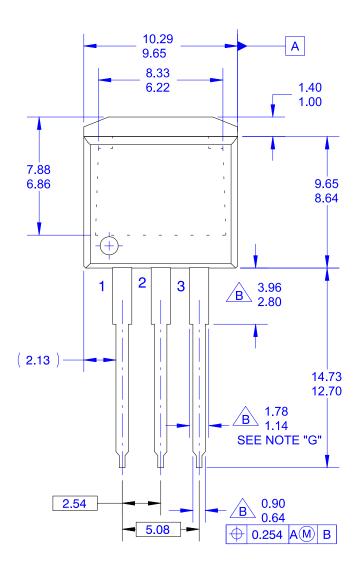
XXXXXX = Specific Device Code

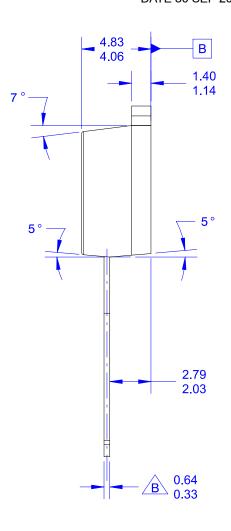
= Assembly Location = Wafer Lot WL = Year ww = Work Week W = Week Code (SSG) Μ = Month Code (SSG) = Pb-Free Package G = Polarity Indicator

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot " •", may or may not be present. Some products may not follow the Generic Marking.

12PAK (TO-262 3 LD) CASE 418AV ISSUE O

DATE 30 SEP 2016





NOTES:

- A. EXCEPT WHERE NOTED CONFORMS TO
 TO262 JEDEC VARIATION AA.

 B DOES NOT COMPLY JEDEC STD. VALUE.
 C. ALL DIMENSIONS ARE IN MILLIMETERS.
 D. DIMENSIONS ARE EXCLUSIVE OF BURRS,
 MOLD FLASH AND TIE BAR PROTRUSIONS.
 E. DIMENSION AND TOLERANCE AS PER ANSI
 Y14 5-1994

- Y14,5-1994.

 F. LOCATION OF PIN HOLE MAY VARY

 (LOWER LEFT CORNER, LOWER CENTER

 AND CENTER OF PACKAGE)

 G. MAXIMUM WIDTH FOR F102 DEVICE = 1.35 MAX.

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