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AM3A-Z



SIP6 Package

Aimtec is pleased to introduce its first ever 3-Watt single and dual output DC/DC converter in a compact SIP6 package. With a 4:1 ultra-wide input range, from 4.5-75VDC, the AM3A-Z comes with 1600VDC isolation and a regulated output. This is the smallest regulated and isolated 3-Watt converter ever designed by Aimtec!

This compact design comes with a high efficiency up to 82%, no minimum load requirement and continuous short circuit protection. Furthermore, the ambient operating temperature is from -40°C to +76°C with full power up to 71°C.

This truly innovative series can be used for applications that have limited board space such as mobile phone chargers, portable electronics, IoT and wireless applications.

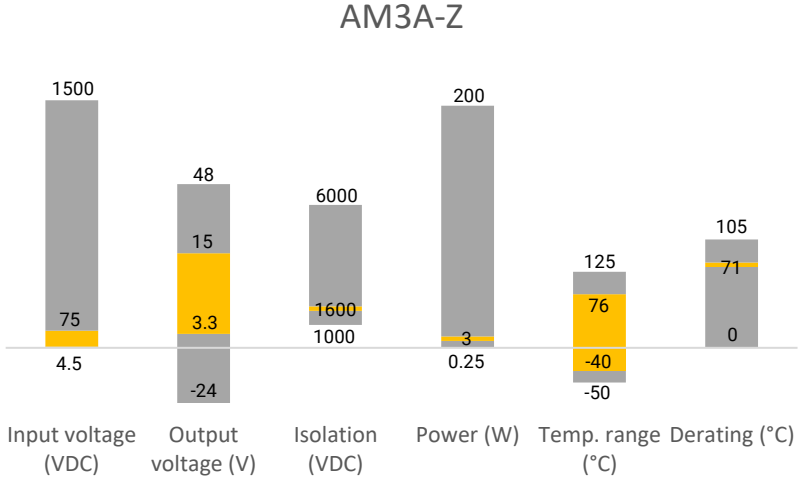
Features

- I/O Isolation 1600VDC
- Continuous Short circuit protection
- Operating Temp: -40 °C to +76 °C
- Compact Footprint and high-power Density
- 4:1 Input Voltage Range
- Compact SIP6
- ON/OFF Control
- Efficiency up to 82%

RoHS

3yr Warranty

Summary



Training



Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications

IoT

Industrial

Telecom

Portable Equipment

Models & Specifications

Single Output							
Model	Input Voltage (VDC)	Output Voltage (VDC)	Input Current max (mA)	Output Current max (mA)	Isolation (VDC)	Maximum capacitive Load (µF)	Efficiency (%)
AM3A-1203SZ	12 (4.5 - 18)	3.3	264	700	1600	3300	73
AM3A-1205SZ	12 (4.5 - 18)	5	316	600	1600	1680	79
AM3A-1212SZ	12 (4.5 - 18)	12	309	250	1600	820	81
AM3A-1215SZ	12 (4.5 - 18)	15	309	200	1600	680	81
AM3A-2403SZ	24 (9 - 36)	3.3	132	700	1600	3300	73
AM3A-2405SZ	24 (9 - 36)	5	156	600	1600	1680	80
AM3A-2412SZ	24 (9 - 36)	12	152	250	1600	820	82
AM3A-2415SZ	24 (9 - 36)	15	154	200	1600	680	81
AM3A-4803SZ	48 (18 - 75)	3.3	69	700	1600	3300	70
AM3A-4805SZ	48 (18 - 75)	5	80	600	1600	1680	78
AM3A-4812SZ	48 (18 - 75)	12	79	250	1600	820	79
AM3A-4815SZ	48 (18 - 75)	15	79	200	1600	680	79

Dual Output							
Model	Input Voltage (VDC)	Output Voltage (VDC)	Input Current max (mA)	Output Current max (mA)	Isolation (VAC)	Maximum capacitive Load (µF)	Efficiency (%)
AM3A-1205DZ	12 (4.5 - 18)	±5	321	±300	1600	±1000	78
AM3A-1212DZ	12 (4.5 - 18)	±12	313	±125	1600	±470	80
AM3A-1215DZ	12 (4.5 - 18)	±15	309	±100	1600	±330	81
AM3A-2405DZ	24 (9 - 36)	±5	160	±300	1600	±1000	78
AM3A-2412DZ	24 (9 - 36)	±12	156	±125	1600	±470	80
AM3A-2415DZ	24 (9 - 36)	±15	156	±100	1600	±330	80
AM3A-4805DZ	48 (18 - 75)	±5	82	±300	1600	±1000	76
AM3A-4812DZ	48 (18 - 75)	±12	78	±125	1600	±470	80
AM3A-4815DZ	48 (18 - 75)	±15	82	±100	1600	±330	76

Input Specification				
Parameters	Conditions	Typical	Maximum	Units
Voltage range	12V 24V 48V	4.5 – 18 9 – 36 18 - 75		VDC
Filter	Capacitor			
Startup time	Nominal input and resistive load	0.03		S
Absolute maximum rating	12V models 24V models 48V models		25 50 100	VDC
Input reflected ripple current			20	mA pk-pk
On/Off Control	ON – high impedance or open; OFF – 2-4mA input current through 1KΩ (standby 2.5mA max)			

Isolation Specification

Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	3 sec	1600		VDC
Resistance		>1000		MOhm
Capacitance			40	pF

Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±1		%
Cross regulation (Dual)	25% load on one output, 100% load on second output	±5		%
Line regulation	Full load, main input range		±0.2	%
Load regulation	0-100% load		±1	%
Short circuit protection	Continuous, Auto recovery			
Temperature coefficient		±0.02		%/ °C
Ripple & Noise*	Single Output		150	mV pk-pk
	Dual Output		100	mV pk-pk
Transient recovery time	100%-25% load, 25% load step change	250		uS
Transient response deviation	100%-25% load, 25% load step change, single output 3.3/5Vout	±5		%
	100%-25% load, 25% load step change, others	±3		%

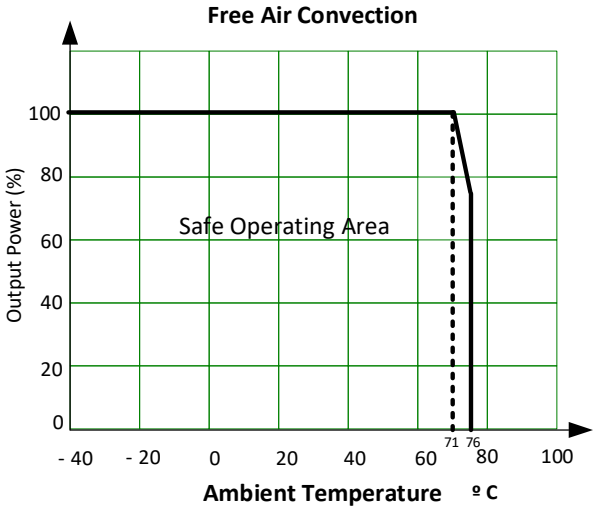
* 20MHz bandwidth with a 0.1uF CC and a 10uF EC

General Specifications

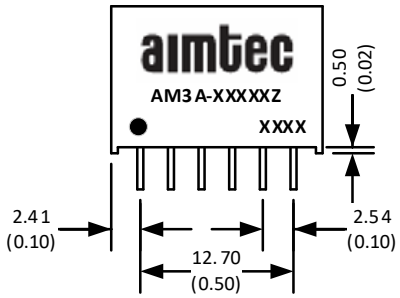
Parameters	Conditions	Typical	Maximum	Units
Switching frequency	Full load	100		KHz
Operating temperature	With derating at 71	-40 to +76		°C
Storage temperature		-55 to +125		°C
Maximum Case temperature			100	°C
Cooling	Free air convection			
Humidity	Non-condensing		95	% RH
Case material	Black plastic (flammability to UL 94V-0)			
Weight		3.85		g
Dimensions (L x W x H)	0.69 x 0.40 x 0.48 inches 17.52 x 10.02 x 12.20 mm			
MTBF	956 000 hrs (MIL-HDBK -217F, t=+25°C) / Full Load			

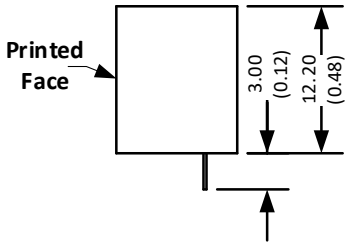
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

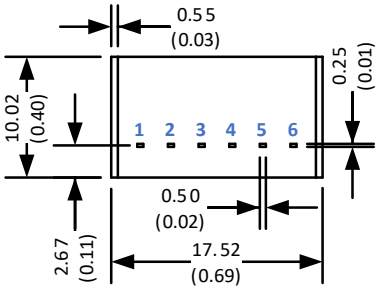
Derating



Dimensions







Note:
Unit: mm (inch)
1. **Pin dimension tolerance: ±0.05 (±0.002)**
2. **Pin pitch and length tolerance: ±0.35 (±0.014)**
3. **Pin to case tolerance: ±0.5 (±0.02)**
4. **Case Tolerance: ±0.5 (±0.02)**

Pin Out Specifications		
Pin	Single	Dual
1	-Input	-Input
2	+Input	+Input
3	ON/OFF ctrl	No pin
4	No pin	+V Output
5	+V Output	Common
6	-V Output	-V Output

NOTE: 1. Datasheets are updated as needed and as such, specifications are subject to change without notice. Once printed or downloaded, datasheets are no longer controlled by Aimtec; refer to www.aimtec.com for the most current product specifications. **2.** Product labels shown, including safety agency certifications on labels, may vary based on the date manufactured. **3.** Mechanical drawings and specifications are for reference only. **4.** All specifications are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified. **5.** Aimtec may not have conducted destructive testing or chemical analysis on all internal components and chemicals at the time of publishing this document. CAS numbers and other limited information are considered proprietary and may not be available for release. **6.** This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet. **7.** Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.