

Series AM1DE-Z

1 Watt | DC-DC Converter



FEATURES:

- Operating Temperature -40°C to +105°C
- High efficiency up to 81%
- Low Profile Plastic Package
- 7 pin SIP package
- Low Ripple and Noise
- Continuous Short Circuit Protection
- Pin Compatible with Multiple Manufacturers
- Input / Output Isolation 1500, and 3000 VDC



Models

Single output

Model	Input Voltage (V)	Output Voltage (V)	Output Current Max (mA)	Isolation (VDC)	Input Current Full Load No Load (mA)		Max Capacitive Load (uF)	Efficiency %
AM1DE-0505SZ	4.5 - 5.5	5	200	1500	253	30	220	80
AM1DE-0512SZ	4.5 - 5.5	12	83.3	1500	253	30	100	80
AM1DE-0515SZ	4.5 - 5.5	15	66.7	1500	253	30	100	80
AM1DE-1205SZ	10.8 - 13.2	5	200	1500	106	15	220	80
AM1DE-1212SZ	10.8 - 13.2	12	83.3	1500	106	15	100	80
AM1DE-1215SZ	10.8 - 13.2	15	66.7	1500	104	15	100	81
AM1DE-2405SZ	21.6 - 26.4	5	200	1500	53	7	220	80
AM1DE-2412SZ	21.6 - 26.4	12	83.3	1500	53	7	100	80
AM1DE-2415SZ	21.6 - 26.4	15	66.7	1500	53	7	100	80
AM1DE-0505SH30Z	4.5 - 5.5	5	200	3000	253	30	220	80
AM1DE-0512SH30Z	4.5 - 5.5	12	83.3	3000	253	30	100	80
AM1DE-0515SH30Z	4.5 - 5.5	15	66.7	3000	253	30	100	80
AM1DE-1205SH30Z	10.8 - 13.2	5	200	3000	106	15	220	80
AM1DE-1212SH30Z	10.8 - 13.2	12	83.3	3000	106	15	100	80
AM1DE-1215SH30Z	10.8 - 13.2	15	66.7	3000	104	15	100	81
AM1DE-2405SH30Z	21.6 - 26.4	5	200	3000	53	7	220	80
AM1DE-2412SH30Z	21.6 - 26.4	12	83.3	3000	53	7	100	80
AM1DE-2415SH30Z	21.6 - 26.4	15	66.7	3000	53	7	100	80

Models

Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current Max (mA)	Isolation (VDC)	Input Current Full Load No Load (mA)		Max Capacitive Load (uF)	Efficiency (%)
AM1DE-0505DZ	4.5 - 5.5	±5	±100	1500	253	30	±100	80
AM1DE-0512DZ	4.5 - 5.5	±12	±41.67	1500	253	30	±47	80
AM1DE-0515DZ	4.5 - 5.5	±15	±33.33	1500	253	30	±47	81
AM1DE-1205DZ	10.8 - 13.2	±5	±100	1500	106	15	±100	80
AM1DE-1212DZ	10.8 - 13.2	±12	±41.67	1500	106	15	±47	80
AM1DE-1215DZ	10.8 - 13.2	±15	±33.33	1500	104	15	±47	80
AM1DE-2405DZ	21.6 - 26.4	±5	±100	1500	53	7	±100	80
AM1DE-2412DZ	21.6 - 26.4	±12	±41.67	1500	53	7	±47	80
AM1DE-2415DZ	21.6 - 26.4	±15	±33.33	1500	53	7	±47	80
AM1DE-0505DH30Z	4.5 - 5.5	±5	±100	3000	253	30	±100	80
AM1DE-0512DH30Z	4.5 - 5.5	±12	±41.67	3000	253	30	±47	80
AM1DE-0515DH30Z	4.5 - 5.5	±15	±33.33	3000	253	30	±47	81
AM1DE-1205DH30Z	10.8 - 13.2	±5	±100	3000	106	15	±100	80
AM1DE-1212DH30Z	10.8 - 13.2	±12	±41.67	3000	106	15	±47	80
AM1DE-1215DH30Z	10.8 - 13.2	±15	±33.33	3000	104	15	±47	80
AM1DE-2405DH30Z	21.6 - 26.4	±5	±100	3000	53	7	±100	80
AM1DE-2412DH30Z	21.6 - 26.4	±12	±41.67	3000	53	7	±47	80
AM1DE-2415DH30Z	21.6 - 26.4	±15	±33.33	3000	53	7	±47	80

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.

Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage Range	5	4.5 - 5.5		VDC
	12	10.8 - 13.2		
	24	21.6 - 26.4		
Filter	Capacitor			
Input Reflected Ripple Current	With reference circuit	15		mA p-p
Absolute Maximum Rating (1 Sec Max)	5 Vin	0-9		VDC
	12 Vin	0-18		
	24 Vin	0-30		

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec		1500 or 3000	VDC
Resistance		> 1000		MOhm
Capacitance		50		pF

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage Accuracy		-7.5 ~ +2.5		%
Short Circuit Protection	Continuous with Auto Recovery			
Line Voltage Regulation	For 1.0% of Vin	±1.2		%
Load Voltage Regulation	Load 10~100%	5V Vin models	±10	%
		Others	±7.5	
Temperature Coefficient		±0.02		%/°C
Ripple & Noise*	At 20MHz Bandwidth	75		mV p-p

* measured with 0.1 µF ceramic capacitor

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching Frequency	Variable	50		KHz
Operating Temperature	Derating above 95°C	-40 to +105		°C
Storage Temperature		-55 to +125		°C
Cooling	Free air convection			
Humidity			95	%
Case Material	Non-conductive black plastic UL 94 V-0			
Weight		2.4		g
Dimensions (L x W x H)		0.76 x 0.24 x 0.39 inch	19.50 x 6.00 x 10.00 mm	
MTBF		>3 600 000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C)		

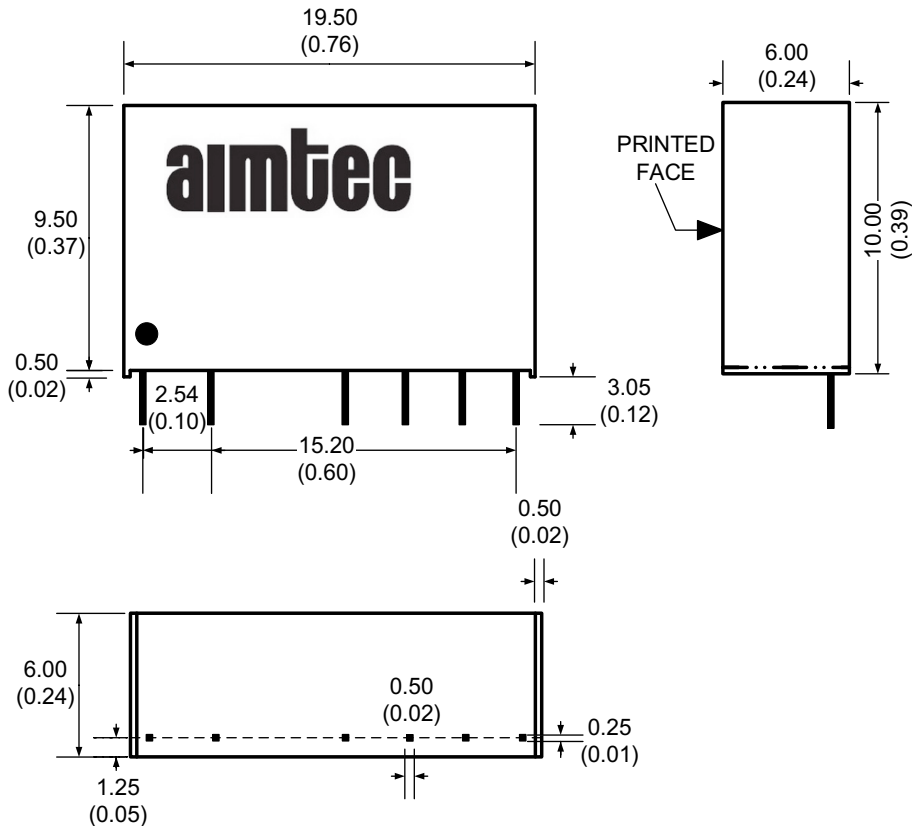
Safety Specifications

Parameters	
Agency Approval	CE
Standards	EN 55032 , Class B (with external reference circuit below) IEC 61000-4-2: 2008 IEC 61000-4-3: 2010 IEC 61000-4-4: 2012 IEC 61000-4-5: 2014 IEC 61000-4-6: 2013 IEC 61000-4-8: 2009 Designed to meet IEC60950-1

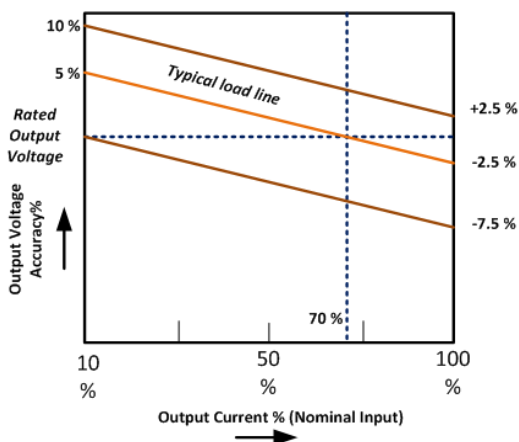
Pin Out Specifications

Pin	Single 1500 VDC	Dual 1500 VDC	Single 3000 VDC	Dual 3000 VDC
1	+ V Input	+ V Input	+ V Input	+ V Input
2	- V Input	- V Input	- V Input	- V Input
4	- V Output	- V Output	No pin	No pin
5	No pin	Common	- V Output	- V Output
6	+ V Output	+ V Output	No pin	Common
7	No pin	No pin	+ V Output	+ V Output

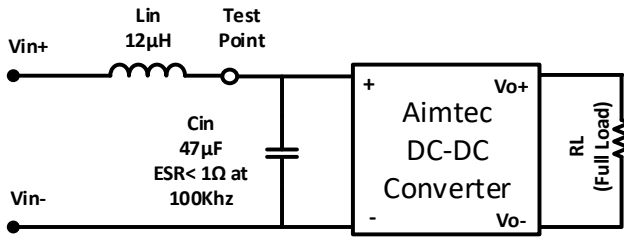
Dimensions



Load Accuracy Tolerance Graph

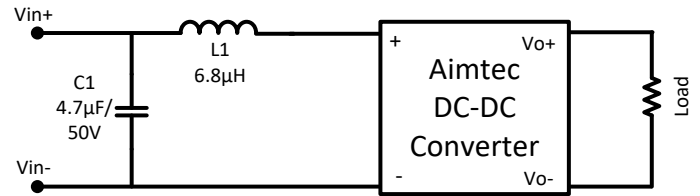


Input Reflected Ripple Test Circuit

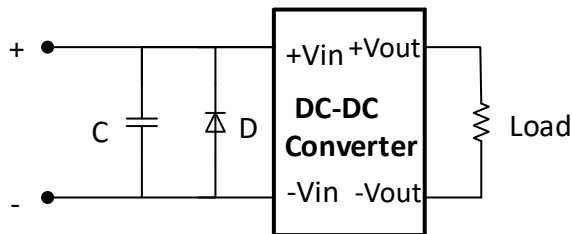


* Tested at full load, and nominal input

Conducted Emissions Circuit, class B

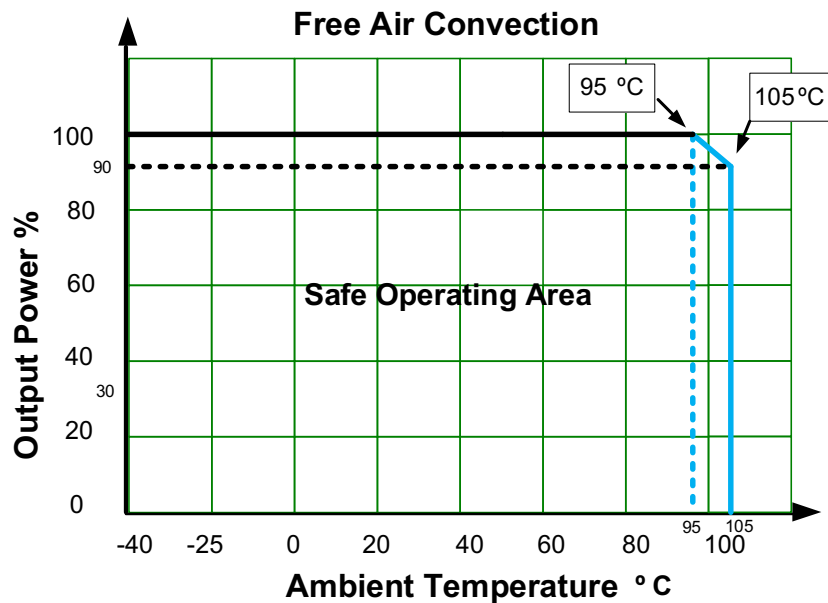


Surge Immunity test circuit



Models	C	D
AM1DE-05xx	1000uF/35V	9V
AM1DE-12xx	1000uF/35V	18V
AM1DE-24xx	330uF/50V	28V

Derating



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 than the ones listed in this datasheet. 7. Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.