

Series AM1DM-NZ

1 Watt | DC-DC Converter



FEATURES:

- 7 pin SIP package
- High efficiency up to 81%
- Reinforced insulation
- Leakage current < 2μA
- Operating temperature -40°C to + 85°C
- Isolation voltage: 4200VAC or 6000VDC
- Ultra-low Isolation capacitance of 5pF
- IEC/EN/Designed to meet UL60601-1
- 1xMOPP/2xMOOP



Models Single output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Max. Capacitive Load (μF)	Isolation (VDC)	Isolation (VAC)	Efficiency (%)
AM1DM-0305SH60-NZ	2.97-3.63	5	200	1000	6000	4200	71
AM1DM-0503SH60-NZ	4.5-5.5	3.3	303	1000	6000	4200	73
AM1DM-0505SH60-NZ	4.5-5.5	5	200	1000	6000	4200	78
AM1DM-0512SH60-NZ	4.5-5.5	12	84	470	6000	4200	76
AM1DM-0515SH60-NZ	4.5-5.5	15	67	470	6000	4200	76
AM1DM-1205SH60-NZ	10.8-13.2	5	200	1000	6000	4200	77
AM1DM-1212SH60-NZ	10.8-13.2	12	84	470	6000	4200	81
AM1DM-1215SH60-NZ	10.8-13.2	15	67	470	6000	4200	81
AM1DM-2405SH60-NZ	21.6-26.4	5	200	1000	6000	4200	76
AM1DM-2412SH60-NZ	21.6-26.4	12	84	470	6000	4200	78
AM1DM-2415SH60-NZ	21.6-26.4	15	67	470	6000	4200	78

Models Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Max. Capacitive Load (μF)	Isolation (VDC)	Isolation (VAC)	Efficiency (%)
AM1DM-0505DH60-NZ	4.5-5.5	±5	±100	470	6000	4200	78
AM1DM-0509DH60-NZ	4.5-5.5	±9	±56	470	6000	4200	80
AM1DM-0512DH60-NZ	4.5-5.5	±12	±42	220	6000	4200	74
AM1DM-0515DH60-NZ	4.5-5.5	±15	±34	220	6000	4200	76
AM1DM-1205DH60-NZ	10.8-13.2	±5	±100	470	6000	4200	77
AM1DM-1209DH60-NZ	10.8-13.2	±9	±56	470	6000	4200	80
AM1DM-1212DH60-NZ	10.8-13.2	±12	±42	220	6000	4200	73
AM1DM-1215DH60-NZ	10.8-13.2	±15	±34	220	6000	4200	75
AM1DM-1515DH60-NZ	13.5-16.5	±15	±34	220	6000	4200	72
AM1DM-2405DH60-NZ	21.6-26.4	±5	±100	470	6000	4200	75
AM1DM-2409DH60-NZ	21.6-26.4	±9	±56	470	6000	4200	79
AM1DM-2412DH60-NZ	21.6-26.4	±12	±42	220	6000	4200	76
AM1DM-2415DH60-NZ	21.6-26.4	±15	±34	220	6000	4200	76

Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage range	3.3	2.97-3.63		VDC
	5	4.5-5.5		
	12	10.8-13.2		
	15	13.5-16.5		
	24	21.6-26.4		
Absolute Max Input Voltage (1s)	3.3V		-0.7 - 7	VDC
	5V		-0.7 - 9	
	12V		-0.7 - 18	
	15V		-0.7 - 21	
	24V		-0.7 - 30	

Filter	Capacitor			
Input reflected ripple current		200		mA p-p
Input Current (no load/full load)	3.3	45/426		mA
	5	35/274		
	12	15/114		
	15	18/93		
	24	10/56		

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60sec		4200	VAC
			6000	VDC
Resistance		> 1000		MOhm
Capacitance		5		pF
Leakage current	250VAC, 50/60Hz		2	μA

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	See tolerance graph			
Short Circuit protection	Momentary (3 sec.)			
Line voltage regulation	For 1.0% of Vin, 3.3V Others		±1.5 ±1.2	% of Vout
Load voltage regulation	10~100% load, 3.3V & 5V 10~100% load, Others		20 15	%
Temperature coefficient	Full load	±0.02		%/°C
Ripple & Noise	At 20MHz Bandwidth, 3.3V Others	80 70	150 120	mV p-p

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	100		KHz
Max Case temperature			100	°C
Operating temperature	With no derating		-40 to +85	°C
Storage temperature		-55 to +125		°C
Cooling	Free air convection			
Humidity			95	%
Case material	Black flame-retardant and heat-resistant plastic (UL94V-0)			
Weight		4.2		g
Dimensions (L x W x H)		0.77 x 0.39 x 0.49 inch	19.50 x 9.80 x 12.5 mm	
MTBF	>3,500,000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C)			

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

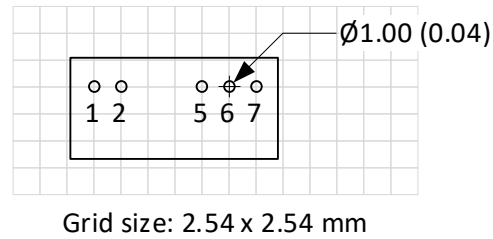
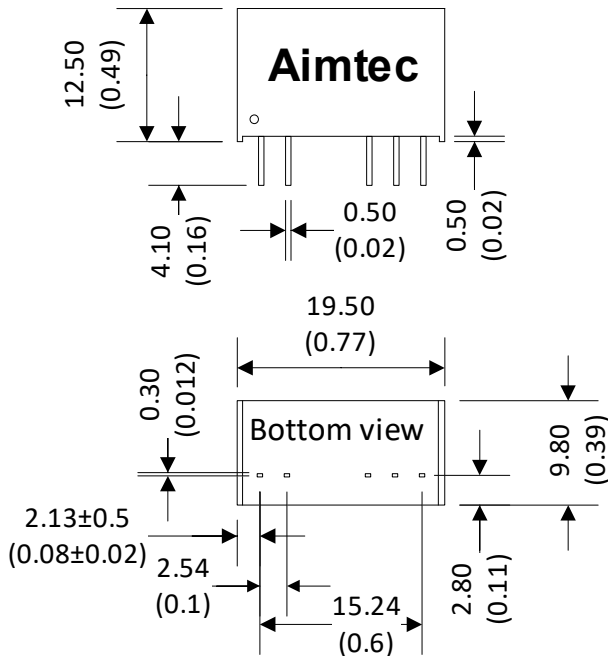
Safety Specifications

Parameters	
Standards	Designed to meet UL60601-1 (With exception of AM1DM-0305SH60-NZ)
	EN55022 Class B (see recommended circuit)
	IEC61000-4-2, Perf. Criteria B (ESD Contact +/- 8KV)

Pin Out Specifications

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

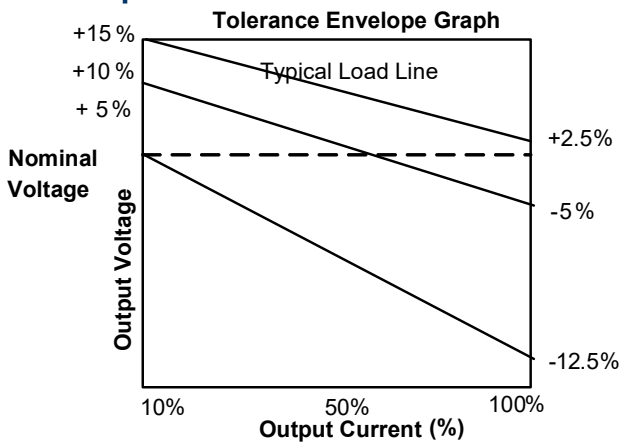
Dimensions



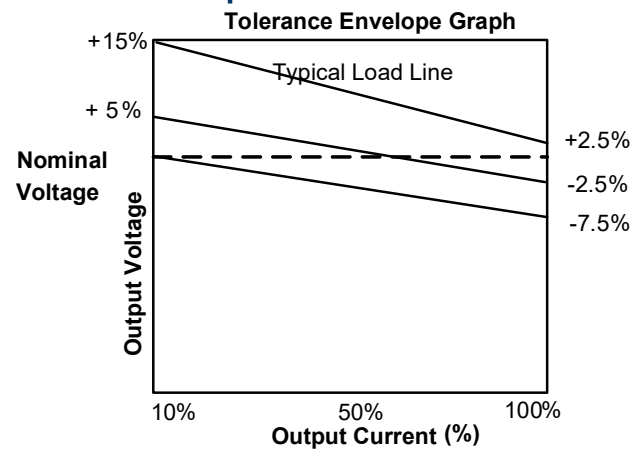
Note:
Unit: mm (inch)
General tolerance: $\pm 0.25 (0.01)$
Pin section tolerance: $\pm 0.1 (0.004)$

Typical Characteristics

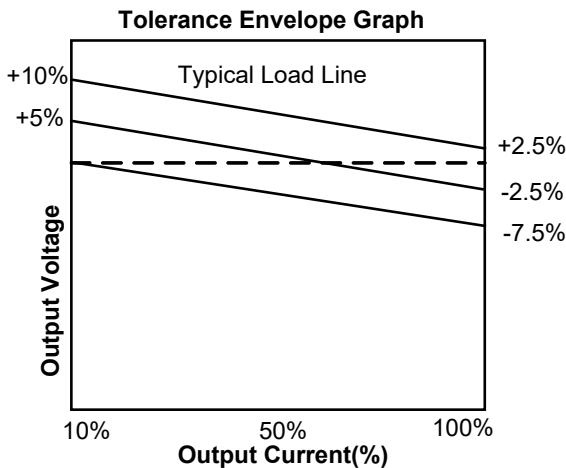
3.3V output models



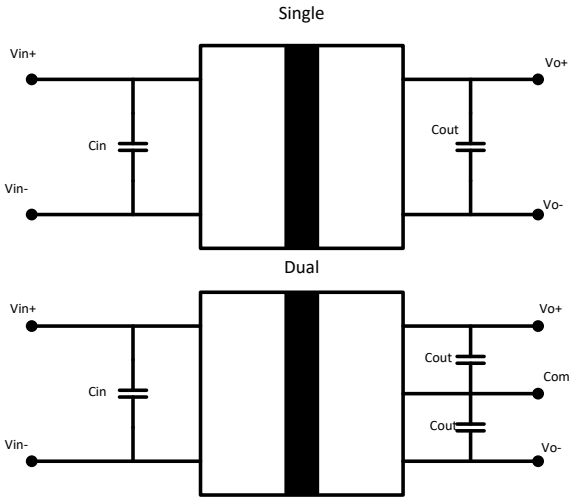
5V output models



Others



Typical application circuit



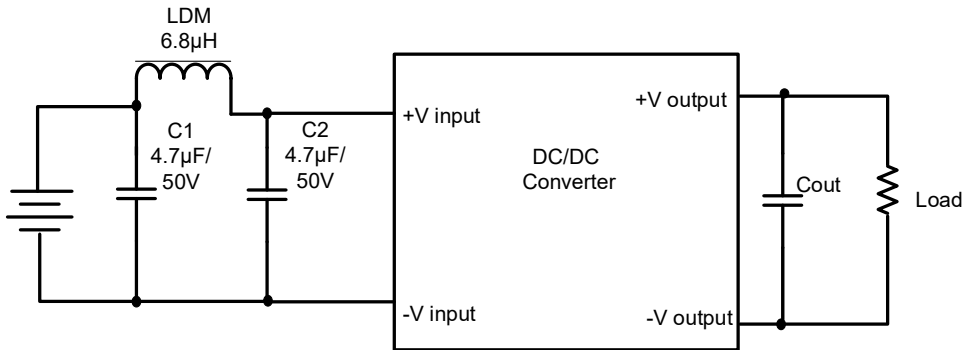
External capacitor – Single output

Vin (VDC)	Cin (μF)	Vout (VDC)	Cout (μF)
3.3 / 5	10	3.3/5	10
12	4.7	12	2.2
24	2.2	15	1

External capacitor – Dual output

Vin (VDC)	Cin (μF)	Vout (VDC)	Cout (μF)
5	10	±5	4.7
12 / 15	4.7	±9	2.2
24	2.2	±12/±15	1

EMI Recommended Circuit (Class B)



NOTE: Cout value is the same as referenced in the Application Circuit.

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.