

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	80	150	mV p-p
	Others	70	120	

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

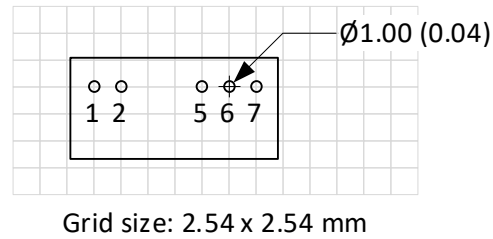
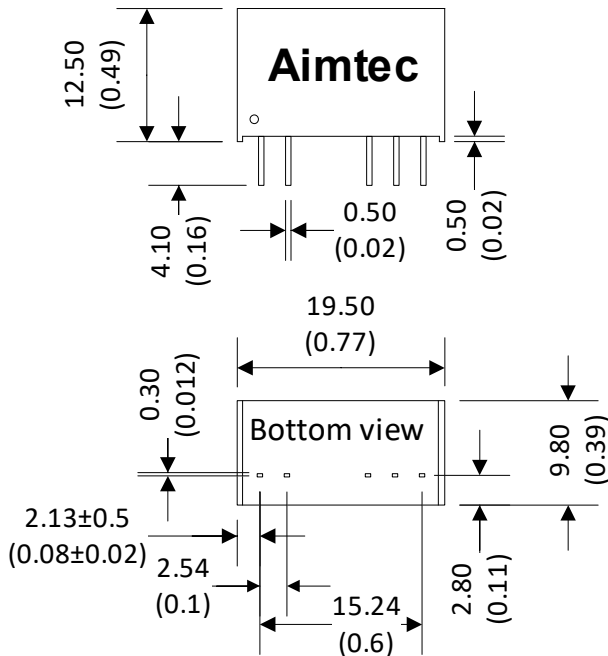
Safety Specifications

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

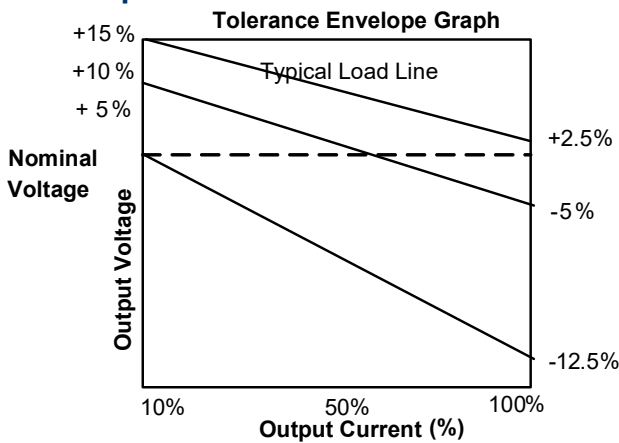
Dimensions



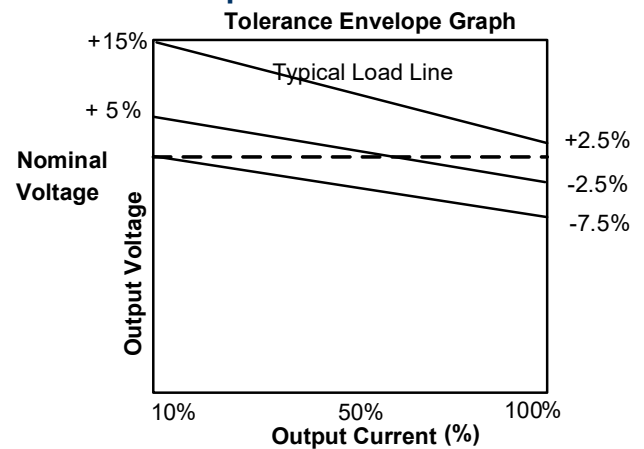
Note:
Unit: mm (inch)
General tolerance: ± 0.25 (0.01)
Pin section tolerance: ± 0.1 (0.004)

Typical Characteristics

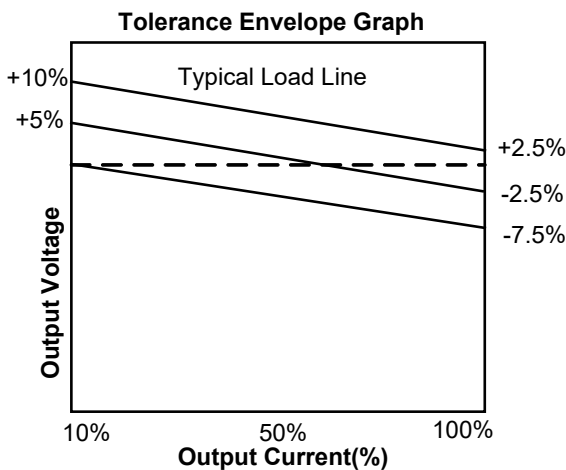
3.3V output models



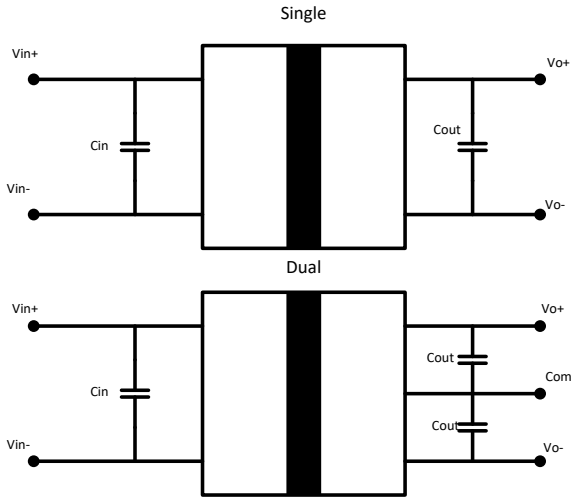
5V output models



Others



Typical application circuit



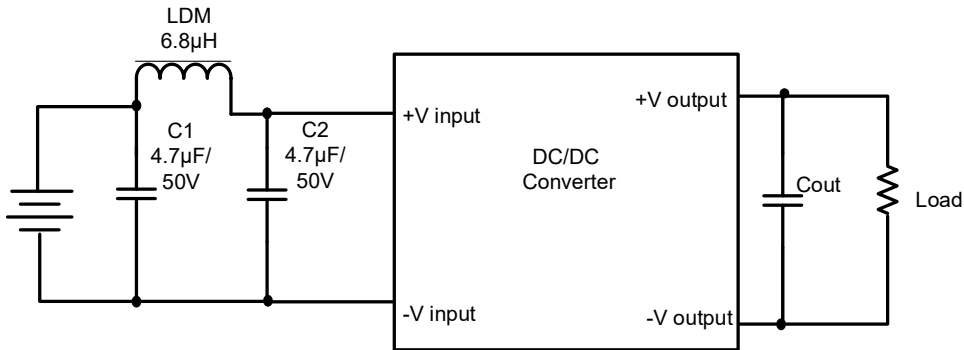
External capacitor – Single output

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.

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