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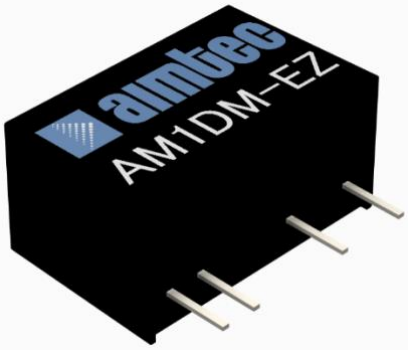
AM1DM-EZ



SIP7 Package

The AM1DM-EZ is a 1W SIP7 DC/DC converter that offers great cost savings thanks to an improved manufacturing process. It also features excellent reliability and performance while offering a standard input voltage range of 3.3-24VDC as well as an output voltage of -24 to 24V. This compact SIP7 design will surely benefit your new system design.

This new series offers great operating temperatures, from -40 to 105°C with full power up to 85°C. Also, an isolation of 5000VAC or 6000VDC for improved reliability and system safety as well as a great 3,500,000h MTBF come standard.

The AM1DM-EZ is suitable for many applications such as medical collection isolation, high voltage collection circuits, and IGBT drive circuits.

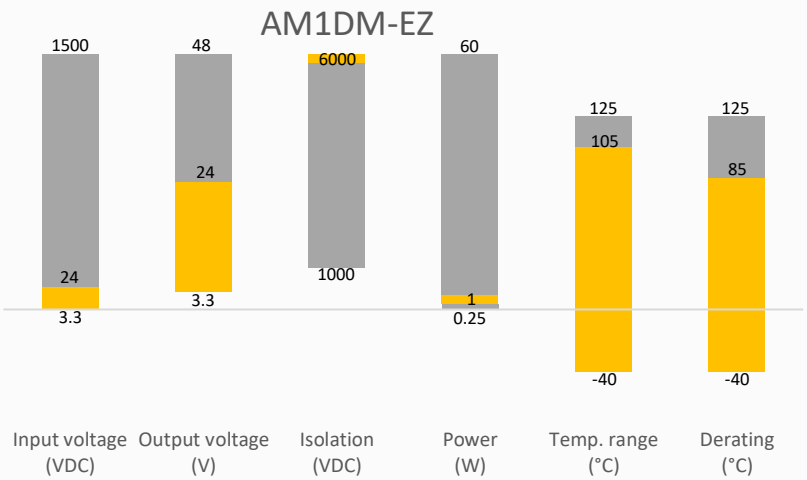
Features

- High I/O Isolation of 5000VAC or 6000VDC
- Continuous Short circuit protection
- Operating Temp: -40 °C to +105 °C
- Industry standard SIP7 pin-out
- Efficiency up to 83%
- Unregulated output
- Leakage current < 2µA
- Meets IEC60601-1
- Made in Taiwan

RoHS

3yr Warranty

Summary



Training

Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications

Industrial

Portable Equipment

Medical

IoT

Models & Specifications

Single Output						
Model	Input Voltage (VDC)	Output Voltage (VDC)	Output Current max (mA)*	Isolation (VAC/VDC)	Maximum capacitive Load (µF)	Efficiency Typ. (%)
AM1DM-0303SH60EZ	3.3 (3.0-3.6)	3.3	303	5000/6000	2200	75
AM1DM-0305SH60EZ	3.3 (3.0-3.6)	5	200	5000/6000	2200	80
AM1DM-0309SH60EZ	3.3 (3.0-3.6)	9	112	5000/6000	1000	80
AM1DM-0312SH60EZ	3.3 (3.0-3.6)	12	84	5000/6000	470	81
AM1DM-0315SH60EZ	3.3 (3.0-3.6)	15	67	5000/6000	330	81
AM1DM-0324SH60EZ	3.3 (3.0-3.6)	24	42	5000/6000	100	81
AM1DM-0503SH60EZ	5 (4.5-5.5)	3.3	303	5000/6000	2200	75
AM1DM-0505SH60EZ	5 (4.5-5.5)	5	200	5000/6000	2200	80
AM1DM-0509SH60EZ	5 (4.5-5.5)	9	112	5000/6000	1000	80
AM1DM-0512SH60EZ	5 (4.5-5.5)	12	84	5000/6000	470	81
AM1DM-0515SH60EZ	5 (4.5-5.5)	15	67	5000/6000	330	81
AM1DM-0524SH60EZ	5 (4.5-5.5)	24	42	5000/6000	100	81
AM1DM-1203SH60EZ	12 (10.8-13.2)	3.3	303	5000/6000	2200	75
AM1DM-1205SH60EZ	12 (10.8-13.2)	5	200	5000/6000	2200	80
AM1DM-1209SH60EZ	12 (10.8-13.2)	9	112	5000/6000	1000	80
AM1DM-1212SH60EZ	12 (10.8-13.2)	12	84	5000/6000	680	83
AM1DM-1215SH60EZ	12 (10.8-13.2)	15	67	5000/6000	330	83
AM1DM-1224SH60EZ	12 (10.8-13.2)	24	42	5000/6000	220	82
AM1DM-1503SH60EZ	15 (13.5-16.5)	3.3	303	5000/6000	2200	75
AM1DM-1505SH60EZ	15 (13.5-16.5)	5	200	5000/6000	2200	80
AM1DM-1509SH60EZ	15 (13.5-16.5)	9	112	5000/6000	1000	80
AM1DM-1512SH60EZ	15 (13.5-16.5)	12	84	5000/6000	680	83
AM1DM-1515SH60EZ	15 (13.5-16.5)	15	67	5000/6000	330	83
AM1DM-1524SH60EZ	15 (13.5-16.5)	24	42	5000/6000	220	82
AM1DM-2403SH60EZ	24 (21.6-26.4)	3.3	303	5000/6000	2200	75
AM1DM-2405SH60EZ	24 (21.6-26.4)	5	200	5000/6000	2200	80
AM1DM-2409SH60EZ	24 (21.6-26.4)	9	112	5000/6000	1000	80
AM1DM-2412SH60EZ	24 (21.6-26.4)	12	84	5000/6000	680	83
AM1DM-2415SH60EZ	24 (21.6-26.4)	15	67	5000/6000	330	83
AM1DM-2424SH60EZ	24 (21.6-26.4)	24	42	5000/6000	220	82

Dual Output						
Model	Input Voltage (VDC)	Output Voltage (VDC)	Output Current max (mA)*	Isolation (VAC/VDC)	Maximum capacitive Load (µF)	Efficiency Typ. (%)
AM1DM-0303DH60EZ	3.3 (3.0-3.6)	±3.3	±151	5000/6000	±1200	75
AM1DM-0305DH60EZ	3.3 (3.0-3.6)	±5	±100	5000/6000	±1200	80
AM1DM-0309DH60EZ	3.3 (3.0-3.6)	±9	±56	5000/6000	±470	80
AM1DM-0312DH60EZ	3.3 (3.0-3.6)	±12	±42	5000/6000	±220	81
AM1DM-0315DH60EZ	3.3 (3.0-3.6)	±15	±34	5000/6000	±220	81
AM1DM-0324DH60EZ	3.3 (3.0-3.6)	±24	±21	5000/6000	±47	81
AM1DM-0503DH60EZ	5 (4.5-5.5)	±3.3	±151	5000/6000	±1200	75
AM1DM-0505DH60EZ	5 (4.5-5.5)	±5	±100	5000/6000	±1200	80

AM1DM-0509DH60EZ	5 (4.5-5.5)	±9	±56	5000/6000	±470	80
AM1DM-0512DH60EZ	5 (4.5-5.5)	±12	±42	5000/6000	±220	81
AM1DM-0515DH60EZ	5 (4.5-5.5)	±15	±34	5000/6000	±220	81
AM1DM-0524DH60EZ	5 (4.5-5.5)	±24	±21	5000/6000	±47	81
AM1DM-1203DH60EZ	12 (10.8-13.2)	±3.3	±151	5000/6000	±1200	75
AM1DM-1205DH60EZ	12 (10.8-13.2)	±5	±100	5000/6000	±1200	80
AM1DM-1209DH60EZ	12 (10.8-13.2)	±9	±56	5000/6000	±680	80
AM1DM-1212DH60EZ	12 (10.8-13.2)	±12	±42	5000/6000	±330	83
AM1DM-1215DH60EZ	12 (10.8-13.2)	±15	±34	5000/6000	±220	83
AM1DM-1224DH60EZ	12 (10.8-13.2)	±24	±21	5000/6000	±100	81
AM1DM-2403DH60EZ	24 (21.6-26.4)	±3.3	±151	5000/6000	±1200	75
AM1DM-2405DH60EZ	24 (21.6-26.4)	±5	±100	5000/6000	±1200	80
AM1DM-2409DH60EZ	24 (21.6-26.4)	±9	±56	5000/6000	±680	80
AM1DM-2412DH60EZ	24 (21.6-26.4)	±12	±42	5000/6000	±330	83
AM1DM-2415DH60EZ	24 (21.6-26.4)	±15	±34	5000/6000	±220	83
AM1DM-2424DH60EZ	24 (21.6-26.4)	±24	±21	5000/6000	±100	81

Input Specification

Parameters	Conditions	Typical	Maximum	Units
Filter	Capacitor			
Voltage Tolerance	Vo, Io Nom	±10		%

Isolation Specification

Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec, leakage ≤ 1mA	5000		VAC
		6000		VDC
Patient leakage current	250VAC, 50/60Hz		2	µA
Resistance	500VDC	>1000		MΩ
Capacitance	100kHz/0.1V	4		pF
Creepage & clearance distance		>5		mm

Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage Tolerance	100% Full Load		±5	%
Line Regulation	Per 1% Vin change		1.2	
Load regulation	10-100% load, 3.3V/5V output models		20	%
	10-100% load, other output models		15	%
Ripple & Noise*	3.3V output models	100	150	mV p-p
	Other output models	80	120	mV p-p

* Ripple and Noise are measured at 20MHz bandwidth. Please refer to the application note for specific details.

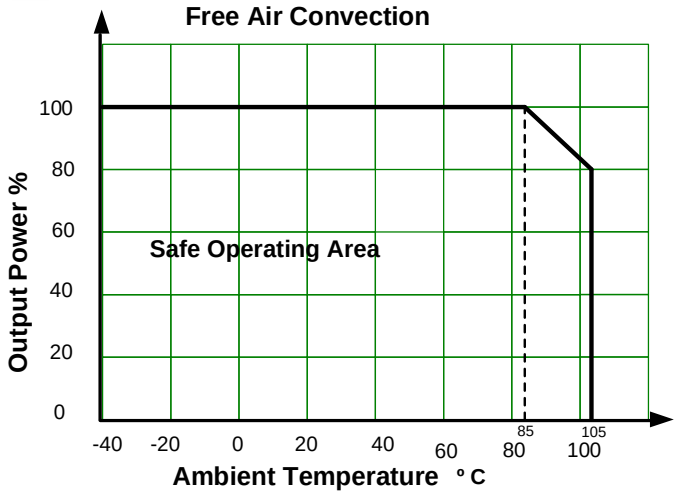
General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load, nominal input voltage 3.3V, 5V Vin	215/370		KHz
	100% load, nominal input voltage other Vin	250		KHz
Short circuit protection	Continuous			
Operating temperature	Derating when operating temperature ≥85°C	-40 to +105		°C
Storage temperature		-55 to +125		°C

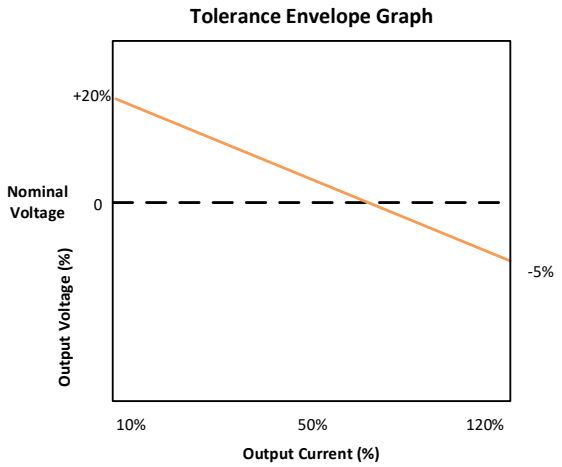
Temperature coefficient	100% load	±0.02		%/°C
Cooling	Free air convection			
Humidity	Non-condensing	>5	95	% RH
Case material	DAP			
Weight		4.0		g
Dimensions (L x W x H)	0.77 x 0.39 x 0.49 inches (19.50 x 9.80 x 12.50 mm)			
MTBF	3 500 000 hrs (MIL-HDBK -217F, t=+25°C) / Full Load			
NOTE: All specifications 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.				

Safety Specifications		
Parameters		
Standards	EMC – Conducted and radiated emission	CISPR32 / EN55032, class B with the recommended EMI circuit
	Electrostatic Discharge Immunity	IEC/EN 61000-4-2 Air ±8KV, Contact ±6kV perf. Criteria B

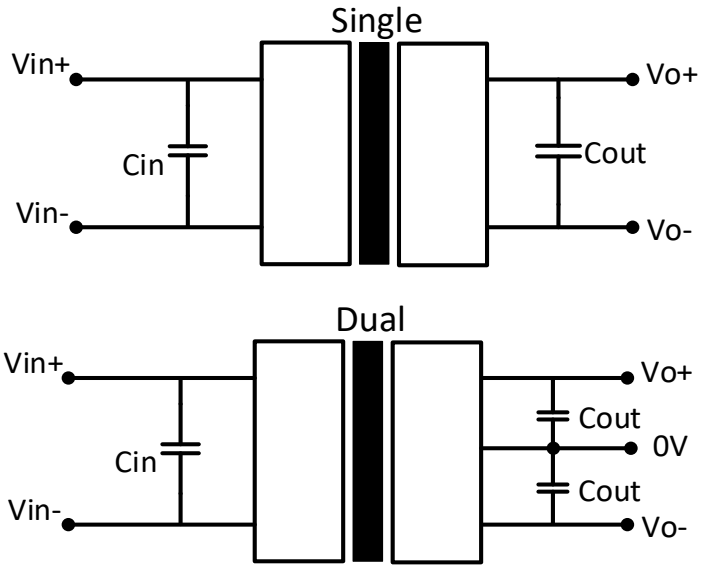
Derating



Output voltage tolerance



Typical application circuit



Vin	Cin
3.3VDC	4.7µF/25V
5VDC	4.7µF/25V
12VDC	2.2µF/25V
15VDC	2.2µF/25V
24VDC	1µF/50V

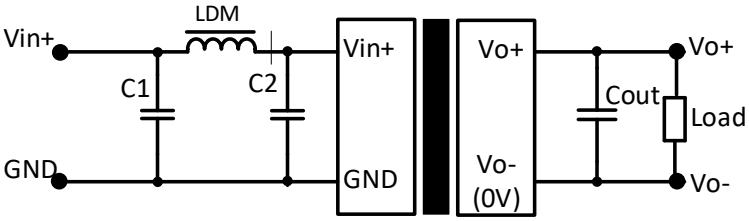
Single Vout	Cout
3.3VDC	10µF/16V
5VDC	10µF/16V
9VDC	2.2µF/16V
12VDC	2.2µF/25V
15VDC	1µF/25V
24VDC	1µF/50V

Dual Vout	Cout
±3.3VDC	±4.7µF/16V
±5VDC	±4.7µF/16V
±9VDC	±1µF/16V
±12VDC	±1µF /25V
±15VDC	±1µF /25V
±24VDC	±1µF /50V

Table 1

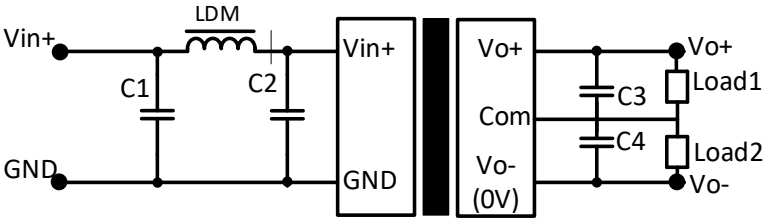
Recommended EMI circuit

Single



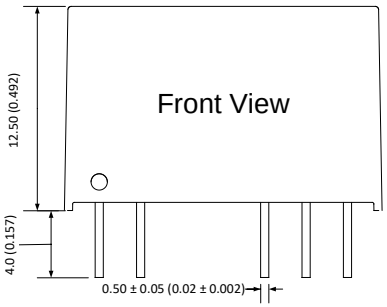
Input Voltage		Single
Emissions	C1/C2	22µF/50V
	Cout	Reference Cout in Table 1
	LDM	22µH

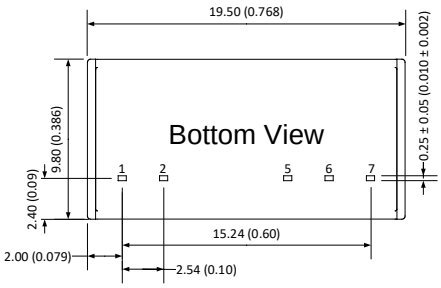
Dual

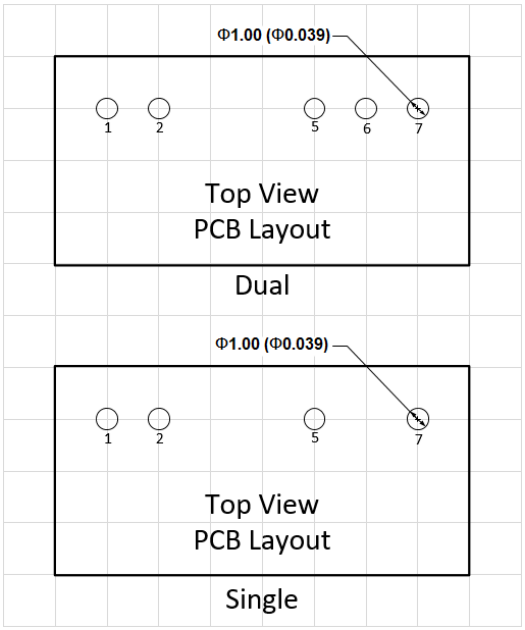


Input Voltage		Dual
Emissions	C1/C2	22µF/50V
	C3	Reference Cout in Table 1
	C4	Reference Cout in Table 1
	LDM	22µH

Dimensions







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

Note:
Grid 2.54 x 2.54mm
Unit: mm(inch)
Pin section tolerances: ±0.10(±0.004)
General tolerances: ±0.25(±0.010)

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