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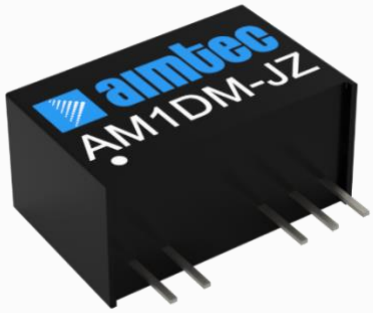
AM1DM-JZ



SIP7 Package

The AM1DM-JZ 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 12-24VDC as well as an output voltage of -15 to 24V. This compact SIP7 design will surely benefit your new system design.

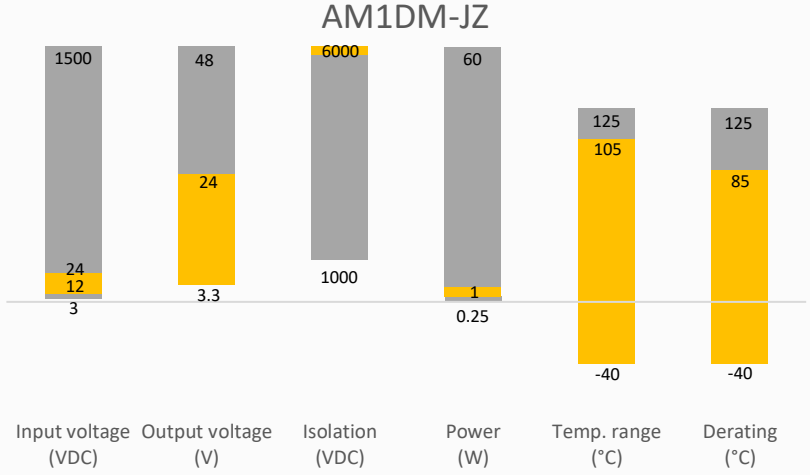
This new series offers great operating temperatures, from -40 to 105°C with full power up to 85°C. Also, an isolation of 5000VAC or 6000VDC for improved reliability and system safety as well as a great 19,360,000h MTBF come standard.

The AM1DM-JZ 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 EN60601-1, ANSI/AAMI ES60601-1 standard (1xMOPP & 2xMOOP)
- Meets IEC62368 standard

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)	Input Current Full | No load typ. (mA)	Output Current max | min (mA)*	Isolation (VDC)	Maximum capacitive Load (µF)	Efficiency Typ. (%)
AM1DM-1203SH60JZ	12 (10.8-13.2)	3.3	106 / 10	303 / 31	6000	2200	76
AM1DM-1205SH60JZ	12 (10.8-13.2)	5	106 / 10	200 / 20	6000	2200	79
AM1DM-1209SH60JZ	12 (10.8-13.2)	9	106 / 10	111 / 12	6000	680	81
AM1DM-1212SH60JZ	12 (10.8-13.2)	12	106 / 10	84 / 9	6000	470	83
AM1DM-1215SH60JZ	12 (10.8-13.2)	15	106 / 10	67 / 7	6000	470	83
AM1DM-1224SH60JZ	12 (10.8-13.2)	24	106 / 10	42 / 4	6000	220	82
AM1DM-2405SH60JZ	24 (21.6-26.4)	5	56 / 12	200 / 20	6000	2200	76
AM1DM-2409SH60JZ	24 (21.6-26.4)	9	56 / 12	111 / 12	6000	680	76
AM1DM-2412SH60JZ	24 (21.6-26.4)	12	56 / 12	84 / 9	6000	470	76
AM1DM-2415SH60JZ	24 (21.6-26.4)	15	56 / 12	67 / 7	6000	470	76
AM1DM-2424SH60JZ	24 (21.6-26.4)	24	56 / 12	42 / 4	6000	220	76

* Performance will be degraded if the load is not within the output current range.

Dual Output

Model	Input Voltage (VDC)	Output Voltage (VDC)	Input Current Full | No load typ. (mA)	Output Current max | min (mA)*	Isolation (VDC)	Maximum capacitive Load (µF)	Efficiency Typ. (%)
AM1DM-1205DH60JZ	12 (10.8-13.2)	±5	106 / 10	±100 / ±10	6000	1000	79
AM1DM-1209DH60JZ	12 (10.8-13.2)	±9	106 / 10	±56 / ±6	6000	470	79
AM1DM-1212DH60JZ	12 (10.8-13.2)	±12	106 / 10	±42 / ±5	6000	200	81
AM1DM-1215DH60JZ	12 (10.8-13.2)	±15	106 / 10	±34 / ±4	6000	200	81
AM1DM-1505DH60JZ	15 (13.5-16.5)	±5	90 / 10	±100 / ±10	6000	1000	77
AM1DM-1512DH60JZ	15 (13.5-16.5)	±12	90 / 10	±42 / ±5	6000	220	79
AM1DM-1515DH60JZ	15 (13.5-16.5)	±15	90 / 10	±34 / ±4	6000	220	79
AM1DM-2405DH60JZ	24 (21.6-26.4)	±5	56 / 12	±100 / ±10	6000	1000	75
AM1DM-2409DH60JZ	24 (21.6-26.4)	±9	56 / 12	±56 / ±6	6000	470	75
AM1DM-2412DH60JZ	24 (21.6-26.4)	±12	56 / 12	±42 / ±5	6000	220	76
AM1DM-2415DH60JZ	24 (21.6-26.4)	±15	56 / 12	±34 / ±4	6000	220	76

* Performance will be degraded if the load is not within the output current range.

Input Specification

Parameters	Conditions	Typical	Maximum	Units
Filter	Capacitor			
Absolute maximum rating	Maximum duration 1s, 12Vin	> -0.7	18	VDC
	Maximum duration 1s, 15Vin	> -0.7	21	VDC
	Maximum duration 1s, 24Vin	> -0.7	30	VDC
Input reflected ripple current		200		mA
Hot Plug		Unavailable		

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

Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		See output voltage tolerance		
Line regulation	Per 1% Vin change, 3.3Vout models		1.5	
	Per 1% Vin change, other models		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
Temperature coefficient	100% full load	±0.02		%/°C

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

General Specifications

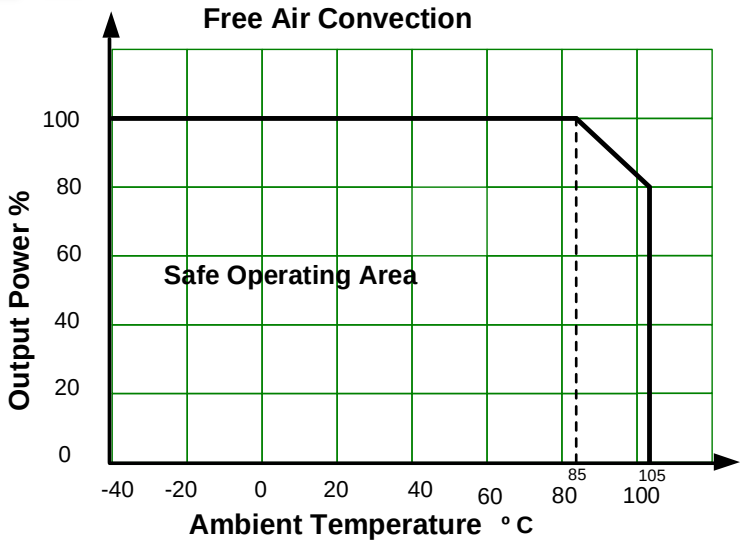
Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load, nominal input voltage	200		KHz
Short circuit protection	Continuous, Auto recovery			
Operating temperature	Derating when operating temperature ≥85°C	-40 to +105		°C
Storage temperature		-55 to +125		°C
Case temperature rise	Ta = 25°C	25		°C
Manual soldering temperature	1.5mm away from case, duration ≤ 10sec		300	°C
Cooling	Free air convection			
Humidity	Non-condensing	>5	95	% RH
Case material	Black plastic (flammability to UL 94V-0)			
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	19 360 000 hrs (MIL-HDBK -217F, t=+25°C) / Full Load			
Creepage & clearance distance	Minimum of 5 mm			

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

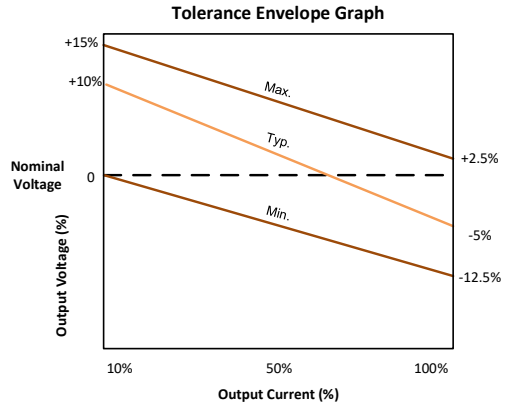
Parameters		
Agency Approvals	UL61010-1	
Standards	Information technology equipment	Designed to meet IEC/EN62368-1
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B with the recommended EMI circuit EN60601-1-2/CISPR 11 GROUP1 class B with the recommended EMI circuit
	Electrostatic Discharge Immunity	EN60601-1-2 (IEC 61000-4-2) Air ±15KV, Contact ±8KV, Criteria B

Derating

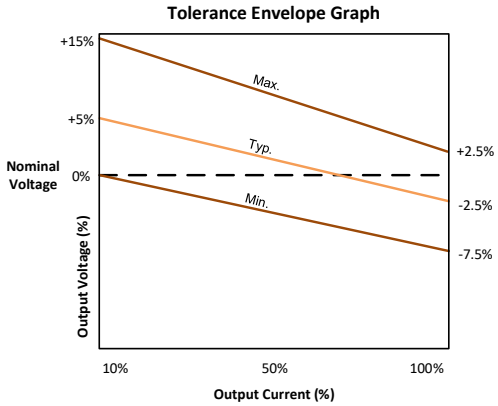


Output voltage tolerance

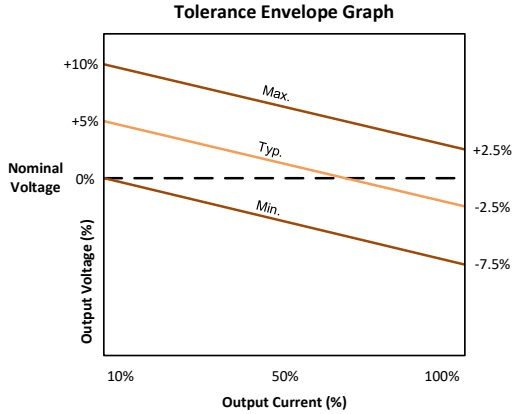
AM1DM-1203SH60JZ



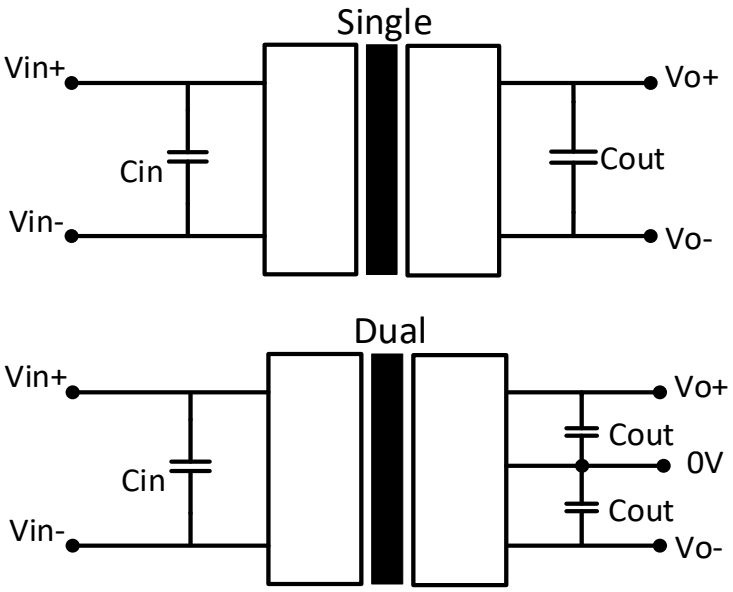
5VDC output models



Other Voltage output models



Typical application circuit



Vin	Cin
12VDC	10µF/25V
15VDC	1µF/25V
24VDC	2.2µF/50V

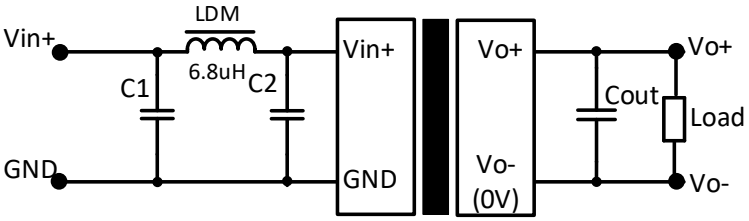
Vout	Cout
3.3/5VDC	10µF/16V
9VDC	10µF/16V
12VDC	2.2µF/25V
15VDC	1µF/25V
24VDC	0.47µF/50V

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

Table 1

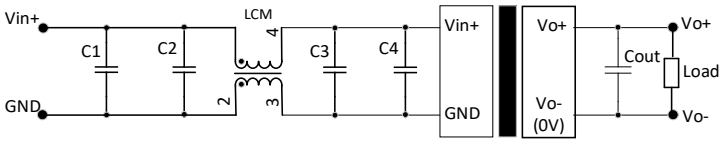
Recommended EMI circuit

12V/15V input



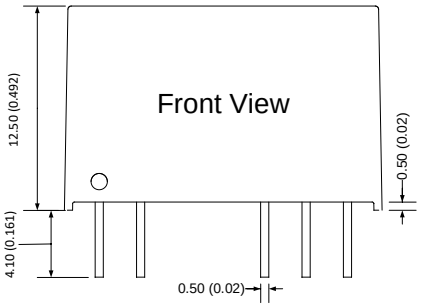
Input Voltage		12/15 VDC
Emissions	C1/C2	4.7µF/25V
	Cout	Reference Cout in Table 1
	LDM	22µH

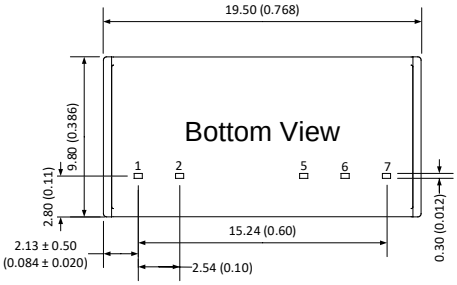
24V input

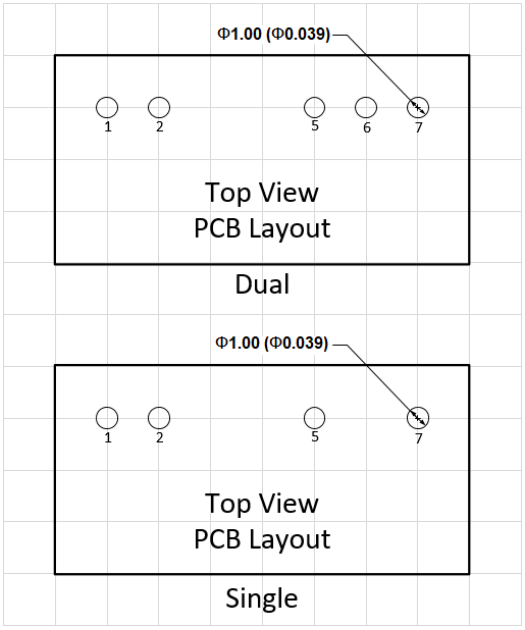


Input Voltage			24 VDC
Emissions	C1/C2		4.7µF/50V
	C3	AM1DM-24_DH60JZ	100µF/50V
		Other output	4.7µF/50V
	C4	AM1DM-24_DH60JZ	--
		Other output	4.7µF/50V
	Cout		Reference Cout in Table 1
	LCM		22µH (Nickel zinc inductance)

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: ±0.50(±0.020)

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