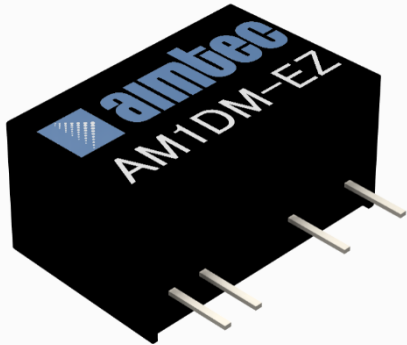


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AM1DM-EZ



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.

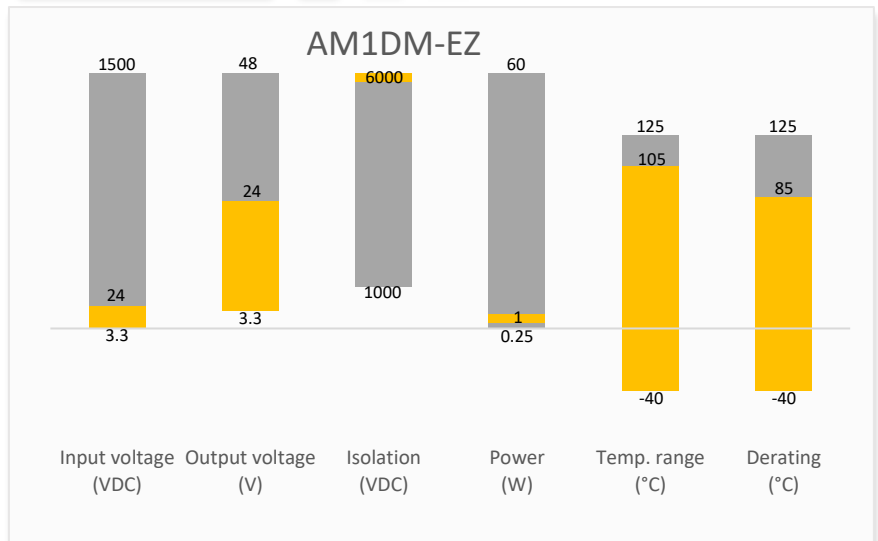
This new series offers great operating temperatures, from -40 to 105°C with full power up to 85°C. Also, an isolation of 5000VAC or 6000VDC for improved reliability and system safety as well as a great 3,500,000h MTBF come standard.

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

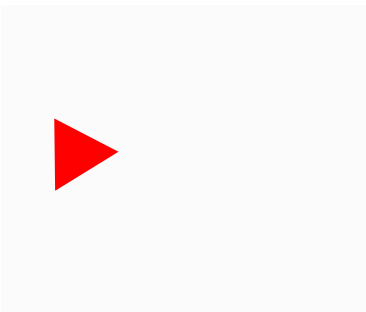
Features

- 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

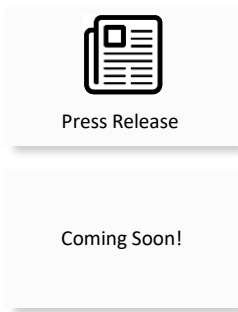
Summary



Training



Product Training Video
(click to open)



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 (μ F)	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 (μ F)	Efficiency Typ. (%)
AM1DM-0303DH60EZ	3.3 (3.0-3.6)	\pm 3.3	\pm 151	5000/6000	\pm 1200	75
AM1DM-0305DH60EZ	3.3 (3.0-3.6)	\pm 5	\pm 100	5000/6000	\pm 1200	80
AM1DM-0309DH60EZ	3.3 (3.0-3.6)	\pm 9	\pm 56	5000/6000	\pm 470	80
AM1DM-0312DH60EZ	3.3 (3.0-3.6)	\pm 12	\pm 42	5000/6000	\pm 220	81
AM1DM-0315DH60EZ	3.3 (3.0-3.6)	\pm 15	\pm 34	5000/6000	\pm 220	81
AM1DM-0324DH60EZ	3.3 (3.0-3.6)	\pm 24	\pm 21	5000/6000	\pm 47	81
AM1DM-0503DH60EZ	5 (4.5-5.5)	\pm 3.3	\pm 151	5000/6000	\pm 1200	75
AM1DM-0505DH60EZ	5 (4.5-5.5)	\pm 5	\pm 100	5000/6000	\pm 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	$V_o, I_o \text{ Nom}$	±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% V_{in} 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.

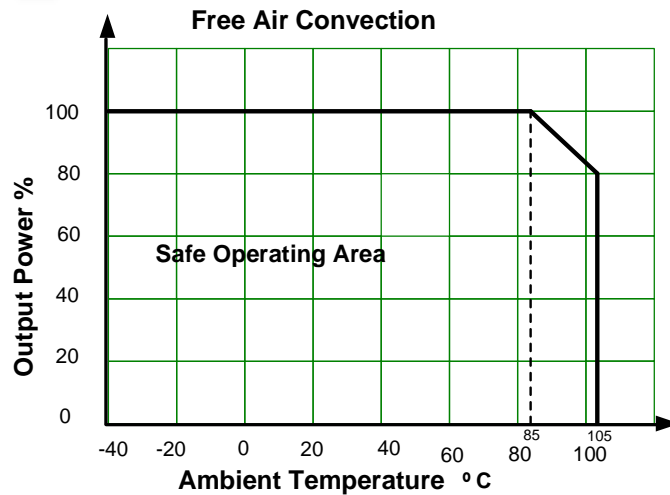
General Specifications

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

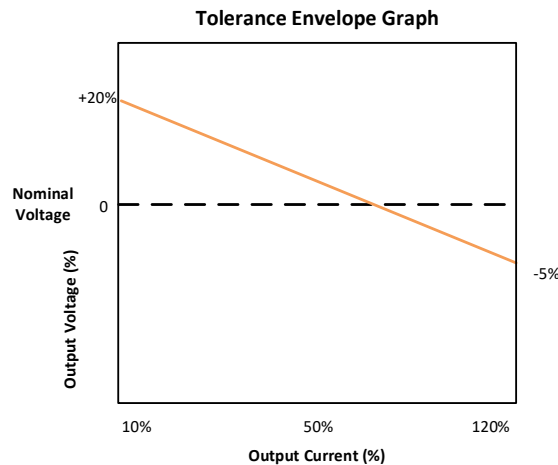
Temperature coefficient	100% load	±0.02		%/°C
Cooling	Free air convection			
Humidity	Non-condensing	>5	95	% RH
Case material	Black plastic (flammability to UL 94V-0)			
Weight		4.0		g
Dimensions (L x W x H)	0.77 x 0.39 x 0.49 inches (19.50 x 9.80 x 12.50 mm)			
MTBF	3 500 000 hrs (MIL-HDBK -217F, t=+25°C) / 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

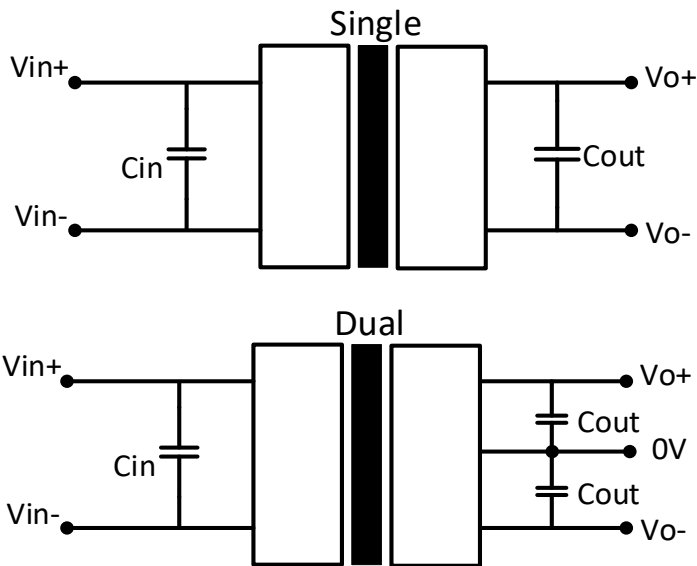
Derating



Output voltage tolerance



Typical application circuit



V_{in}	C_{in}
3.3VDC	4.7 μ F/25V
5VDC	4.7 μ F/25V
12VDC	2.2 μ F/25V
15VDC	2.2 μ F/25V
24VDC	1 μ F/50V

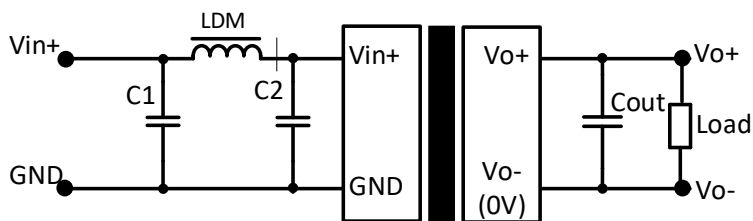
Single V_{out}	C_{out}
3.3VDC	10 μ F/16V
5VDC	10 μ F/16V
9VDC	2.2 μ F/16V
12VDC	2.2 μ F/25V
15VDC	1 μ F/25V
24VDC	1 μ F/50V

Dual V_{out}	C_{out}
\pm 3.3VDC	\pm 4.7 μ F/16V
\pm 5VDC	\pm 4.7 μ F/16V
\pm 9VDC	\pm 1 μ F/16V
\pm 12VDC	\pm 1 μ F/25V
\pm 15VDC	\pm 1 μ F/25V
\pm 24VDC	\pm 1 μ F/50V

Table 1

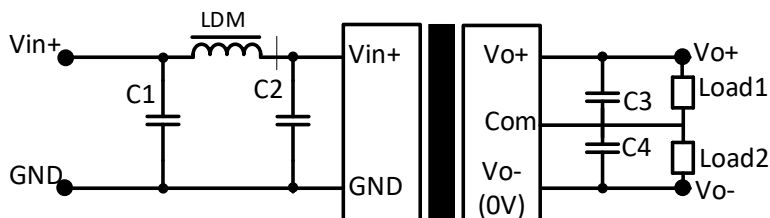
Recommended EMI circuit

Single



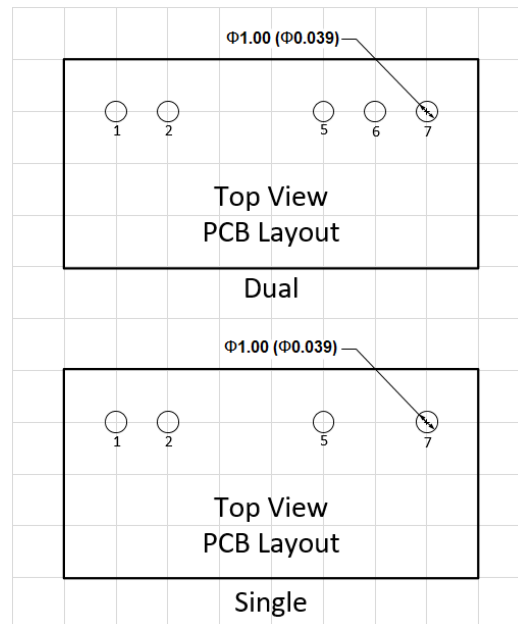
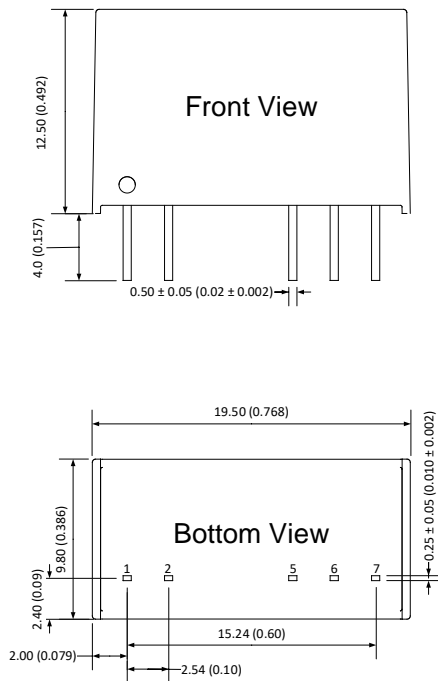
Input Voltage		Single
Emissions	C1/C2	22 μ F/50V
	C_{out}	Reference C_{out} in Table 1
	LDM	22 μ H

Dual



Input Voltage		Dual
Emissions	C1/C2	22 μ F/50V
	C3	Reference C_{out} in Table 1
	C4	Reference C_{out} in Table 1
	LDM	22 μ H

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: $\pm 0.10(\pm 0.004)$
General tolerances: $\pm 0.25(\pm 0.010)$

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.