AM1DR-EZ

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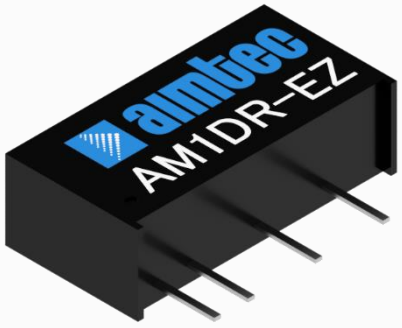


SIP7 Package

The AM1DR-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 5-24VDC as well as an output voltage of 3.3-12V. This compact SIP7 design will surely benefit your new system design.

This new series offers great operating temperatures, from -40 to 85°C with full power up to 70°C. Also, an isolation of 1500 or 3000VDC improves reliability and system safety and a 1,500,000h MTBF comes standard.

The AM1DR-EZ is suitable for instrumentation, industrial controls, industrial applications, communication and IoT applications.

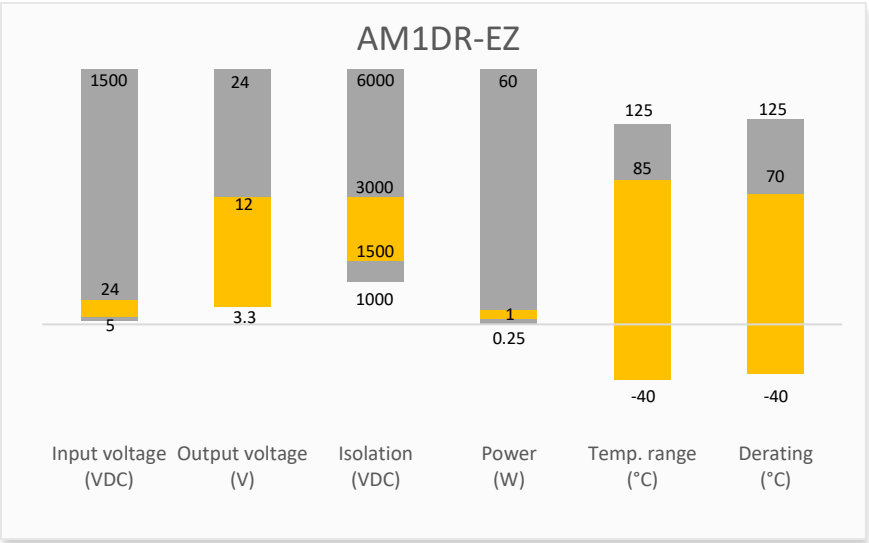
Features

- High I/O Isolation of 1500/3000VDC
- Continuous Short circuit protection
- Operating Temp: -40 °C to +85 °C
- Industry standard SIP7 pin-out
- Efficiency up to 73%
- Regulated output

RoHS

3yr Warranty

Summary



Training

Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications

IoT | Industrial | Telecom | Portable Equipment

Models & Specifications

Single Output						
Model	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Isolation (VDC)	Maximum capacitive Load (µF)	Efficiency Typ. (%)
AM1DR-0503SEZ	5 (4.75-5.25)	3.3	250	1500	2400	67
AM1DR-0505SEZ	5 (4.75-5.25)	5	200	1500	2400	70
AM1DR-0509SEZ	5 (4.75-5.25)	9	111	1500	1000	71
AM1DR-0512SEZ	5 (4.75-5.25)	12	84	1500	560	72
AM1DR-1203SEZ	12 (11.4-12.6)	3.3	250	1500	2400	67
AM1DR-1205SEZ	12 (11.4-12.6)	5	200	1500	2400	70
AM1DR-1209SEZ	12 (11.4-12.6)	9	111	1500	1000	73
AM1DR-1212SEZ	12 (11.4-12.6)	12	84	1500	560	73
AM1DR-1503SEZ	15 (14.25-15.75)	3.3	250	1500	2400	69
AM1DR-1505SEZ	15 (14.25-15.75)	5	200	1500	2400	72
AM1DR-1509SEZ	15 (14.25-15.75)	9	111	1500	1000	73
AM1DR-1512SEZ	15 (14.25-15.75)	12	84	1500	560	73
AM1DR-2403SEZ	24 (22.8-25.2)	3.3	250	1500	2400	70
AM1DR-2405SEZ	24 (22.8-25.2)	5	200	1500	2400	72
AM1DR-2409SEZ	24 (22.8-25.2)	9	111	1500	1000	73
AM1DR-2412SEZ	24 (22.8-25.2)	12	84	1500	560	73
AM1DR-0503SH30EZ	5 (4.75-5.25)	3.3	250	3000	2400	67
AM1DR-0505SH30EZ	5 (4.75-5.25)	5	200	3000	2400	70
AM1DR-0509SH30EZ	5 (4.75-5.25)	9	111	3000	1000	71
AM1DR-0512SH30EZ	5 (4.75-5.25)	12	84	3000	560	72
AM1DR-1203SH30EZ	12 (11.4-12.6)	3.3	250	3000	2400	67
AM1DR-1205SH30EZ	12 (11.4-12.6)	5	200	3000	2400	70
AM1DR-1209SH30EZ	12 (11.4-12.6)	9	111	3000	1000	73
AM1DR-1212SH30EZ	12 (11.4-12.6)	12	84	3000	560	73
AM1DR-1503SH30EZ	15 (14.25-15.75)	3.3	250	3000	2400	69
AM1DR-1505SH30EZ	15 (14.25-15.75)	5	200	3000	2400	72
AM1DR-1509SH30EZ	15 (14.25-15.75)	9	111	3000	1000	73
AM1DR-1512SH30EZ	15 (14.25-15.75)	12	84	3000	560	73
AM1DR-2403SH30EZ	24 (22.8-25.2)	3.3	250	3000	2400	70
AM1DR-2405SH30EZ	24 (22.8-25.2)	5	200	3000	2400	72
AM1DR-2409SH30EZ	24 (22.8-25.2)	9	111	3000	1000	73
AM1DR-2412SH30EZ	24 (22.8-25.2)	12	84	3000	560	73

Input Specification				
Parameters	Conditions	Typical	Maximum	Units
Filter	Capacitor			
Voltage rating	Vo, Io Nom		±5%	VDC

Isolation Specification

Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec / 0.5mA, SEZ models	>1500		VDC
	60 sec / 0.5mA, SH30EZ models	>3000		VDC
Resistance	500VDC	>1000		MΩ

Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	100% full load		±3	%
Line regulation	Per 1% Vin change		0.25	%
Load regulation	10-100% load		2	%
Ripple & Noise*			75	mV pk-pk
Transient response setting time	50% load step change	350		us

* Ripple and Noise are measured at 20MHz bandwidth. Please refer to Typical test circuit.

General Specifications

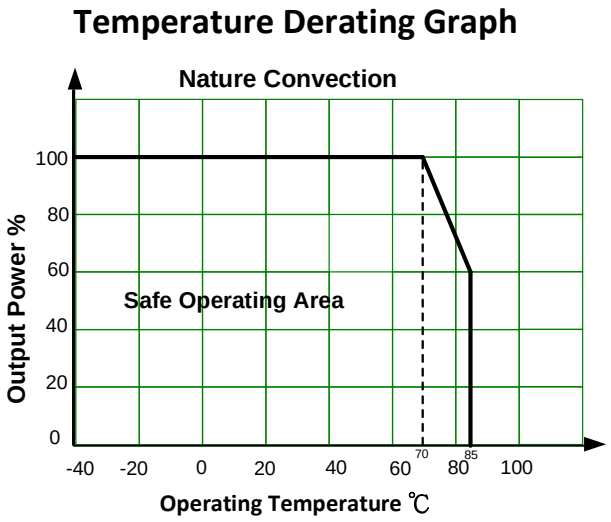
Parameters	Conditions	Typical	Maximum	Units
Switching frequency	Full load, nominal input, @5V Vin models	370		KHz
	Full load, nominal input, other Vin models	250		KHz
Short circuit protection	Continuous			
Operating temperature	With derating	-40 to +85		°C
Storage temperature		-55 to +125		°C
Cooling	Free air convection			
Humidity	Non-condensing		95	% RH
Case material	DAP			
Weight		2.1		g
Dimensions (L x W x H)	0.77 x 0.24 x 0.39 inches (19.50 x 6.00 x 10 mm)			
MTBF	1 500 000 hrs (MIL-HDBK -217F, 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.

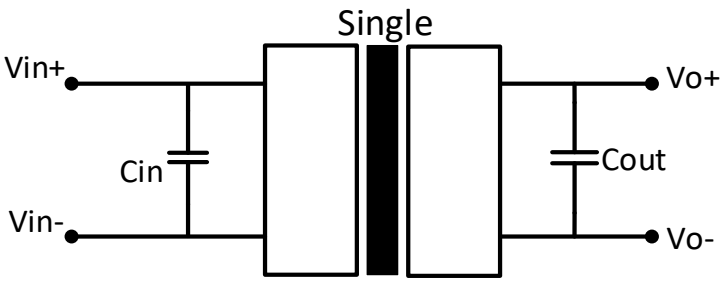
Safety Specifications

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

Derating



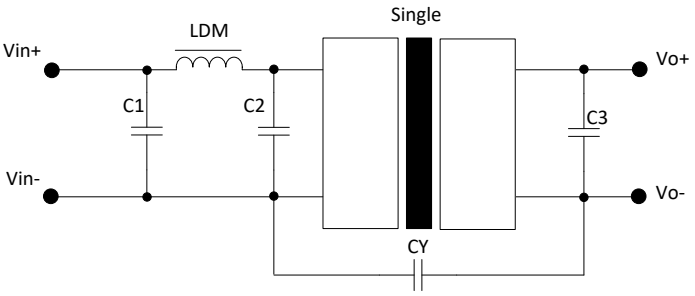
Typical test circuit



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

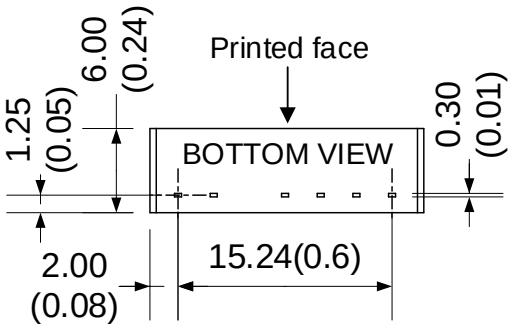
Single Vout	Cout
3.3VDC	10μF/16V
5VDC	10μF/16V
9VDC	2.2μF/16V
12VDC	2.2μF/25V

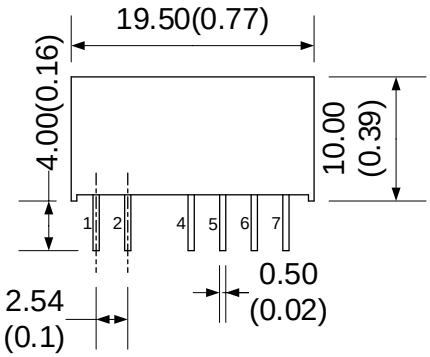
Recommended EMC circuit



EMC recommended circuit value table	
C1	4.7μF/50V
C2	4.7μF/50V
C3	Refer Typical test circuit
LDM	6.8μH
CY	1nF/4kV

Dimensions





Pin Out Specifications	
Pin	Single
1	+V Input
2	-V Input
3	No Pin
4	-V Output
5	No Pin
6	+V Output
7	No Pin

Note:
Unit: mm(inch)
General tolerances: ±0.25(±0.010)