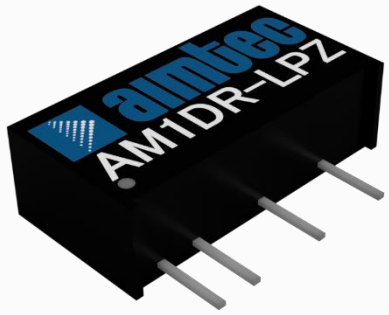
Click to ORDER samples

AM1DR-LPZ



SIP7 Package

The AM1DR-LPZ 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 3.3-24V. 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 71°C. Also, an isolation of 1500 or 3000VDC improves reliability and system safety and a 3,500,000h MTBF comes standard.

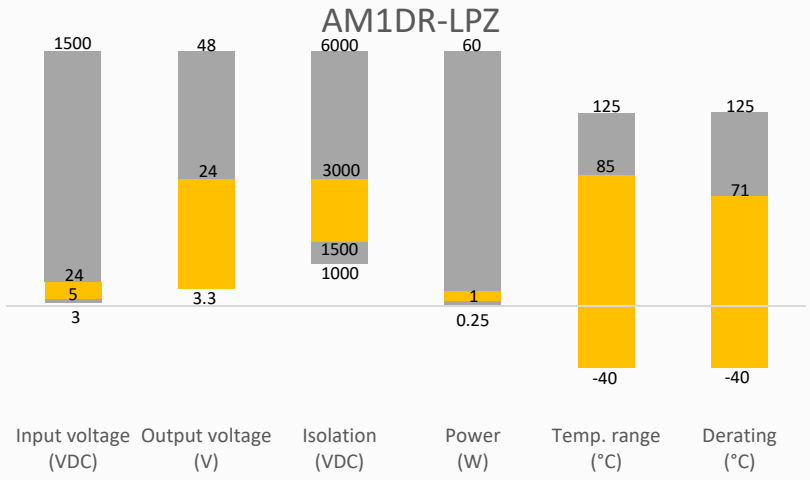
The AM1DR-LPZ is suitable for instrumentation, industrial controls, industrial applications, communication and IoT applications.

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 72%
- Regulated output

RoHS · 3yr Warranty · CE · UKCA

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)	Input Current Full | No load typ. (mA)	Output Current max | min (mA)	Isolation (VDC)	Maximum capacitive Load (µF)	Efficiency Typ. (%)
AM1DR-0503SLPZ	5 (4.75-5.25)	3.3	260 / 15	250 / 25	1500	2400	69
AM1DR-0505SLPZ	5 (4.75-5.25)	5	260 / 15	200 / 20	1500	2400	69
AM1DR-0509SLPZ	5 (4.75-5.25)	9	260 / 15	111 / 12	1500	1000	69
AM1DR-0512SLPZ	5 (4.75-5.25)	12	260 / 15	84 / 9	1500	560	69
AM1DR-0515SLPZ	5 (4.75-5.25)	15	260 / 15	67 / 7	1500	560	69
AM1DR-0524SLPZ	5 (4.75-5.25)	24	260 / 15	41 / 4	1500	100	69
AM1DR-1203SLPZ	12 (11.4-12.6)	3.3	110 / 8	250 / 25	1500	2400	69
AM1DR-1205SLPZ	12 (11.4-12.6)	5	110 / 8	200 / 20	1500	2400	72
AM1DR-1209SLPZ	12 (11.4-12.6)	9	110 / 8	111 / 12	1500	1000	72
AM1DR-1212SLPZ	12 (11.4-12.6)	12	110 / 8	84 / 9	1500	560	72
AM1DR-1215SLPZ	12 (11.4-12.6)	15	110 / 8	67 / 7	1500	560	72
AM1DR-2403SLPZ	24 (22.8-25.2)	3.3	57 / 4	250 / 25	1500	2400	69
AM1DR-2405SLPZ	24 (22.8-25.2)	5	57 / 4	200 / 20	1500	2400	72
AM1DR-2409SLPZ	24 (22.8-25.2)	9	57 / 4	111 / 12	1500	1000	72
AM1DR-2412SLPZ	24 (22.8-25.2)	12	57 / 4	83 / 9	1500	560	72
AM1DR-2415SLPZ	24 (22.8-25.2)	15	57 / 4	67 / 7	1500	560	72
AM1DR-0503SH30LPZ	5 (4.75-5.25)	3.3	260 / 15	250 / 25	3000	2400	69
AM1DR-0505SH30LPZ	5 (4.75-5.25)	5	260 / 15	200 / 20	3000	2400	69
AM1DR-0509SH30LPZ	5 (4.75-5.25)	9	260 / 15	111 / 12	3000	1000	69
AM1DR-0512SH30LPZ	5 (4.75-5.25)	12	260 / 15	84 / 9	3000	560	69
AM1DR-0515SH30LPZ	5 (4.75-5.25)	15	260 / 15	67 / 7	3000	560	69
AM1DR-0524SH30LPZ	5 (4.75-5.25)	24	260 / 15	41 / 4	3000	100	69
AM1DR-1203SH30LPZ	12 (11.4-12.6)	3.3	110 / 8	250 / 25	3000	2400	69
AM1DR-1205SH30LPZ	12 (11.4-12.6)	5	110 / 8	200 / 20	3000	2400	72
AM1DR-1209SH30LPZ	12 (11.4-12.6)	9	110 / 8	111 / 12	3000	1000	72
AM1DR-1212SH30LPZ	12 (11.4-12.6)	12	110 / 8	84 / 9	3000	560	72
AM1DR-1215SH30LPZ	12 (11.4-12.6)	15	110 / 8	67 / 7	3000	560	72
AM1DR-2403SH30LPZ	24 (22.8-25.2)	3.3	57 / 4	250 / 25	3000	2400	69
AM1DR-2405SH30LPZ	24 (22.8-25.2)	5	57 / 4	200 / 20	3000	2400	72
AM1DR-2409SH30LPZ	24 (22.8-25.2)	9	57 / 4	111 / 12	3000	1000	72
AM1DR-2412SH30LPZ	24 (22.8-25.2)	12	57 / 4	83 / 9	3000	560	72
AM1DR-2415SH30LPZ	24 (22.8-25.2)	15	57 / 4	67 / 7	3000	560	72

Input Specification				
Parameters	Conditions	Typical	Maximum	Units
Filter	Capacitor			
Input reflected ripple current		15		mA

Isolation Specification				
Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec, leakage ≤ 1mA	>1500		VDC

	60 sec, leakage ≤ 1mA for H30 models	>3000		VDC
Resistance	500VDC	>1000		MΩ
Capacitance	100kHz/0.1V	20		pF

Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy			±3	%
Line regulation	Per 1% Vin change		±0.25	%
Load regulation	10-100% load, 3.3Vout		±3	%
	10-100% load, others		±2	%
Ripple & Noise*	3.3/5/9/12Vout models	50	100	mV pk-pk
	15/24Vout models	80	150	mV pk-pk
Temperature coefficient		±0.02		%/°C

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

General Specifications

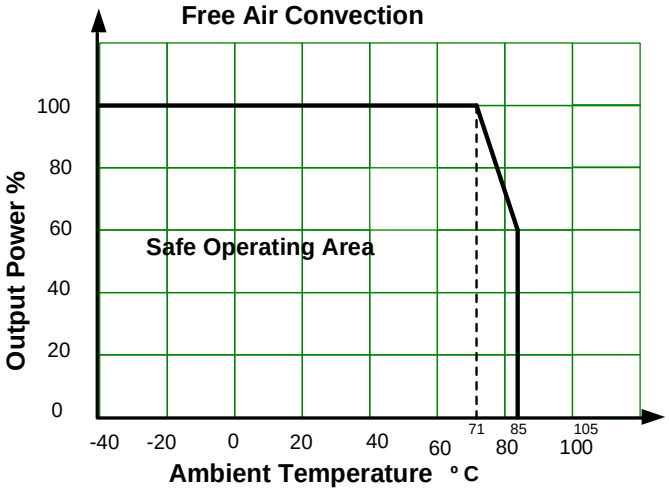
Parameters	Conditions	Typical	Maximum	Units
Switching frequency	Full load, nominal input	250		KHz
Short circuit protection	Continuous, Auto recovery			
Operating temperature	With derating at 71°C	-40 to +85		°C
Storage temperature		-55 to +125		°C
Case temperature rise	Ambient temperature at 25°C	25		°C
Manual soldering temperature	1.5mm away from case, duration ≤ 10sec		300	°C
Cooling	Free air convection			
Humidity	Non-condensing	>5	95	% RH
Vibration	10-150Hz, 5G, 0.75mm along all axis			
Case material	Black plastic (flammability to UL 94V-0)			
Weight		2.1		g
Dimensions (L x W x H)		0.77 x 0.24 x 0.40 inches (19.65 x 6.00 x 10.16 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.

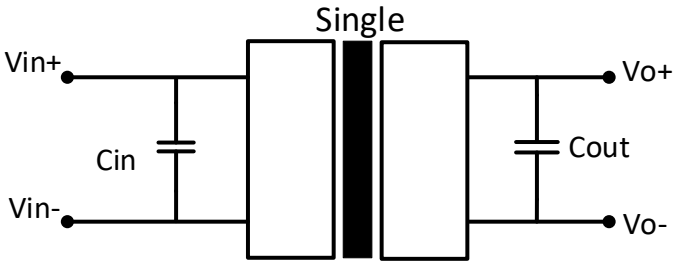
Safety Specifications

Parameters		
Standards	Information technology Equipment	Design to meet UL/EN/IEC 62368-1
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B with the recommended EMI circuit
	Electrostatic Discharge Immunity	IEC 61000-4-2 Air ±8KV, Contact ±4KV, Criteria B

Derating

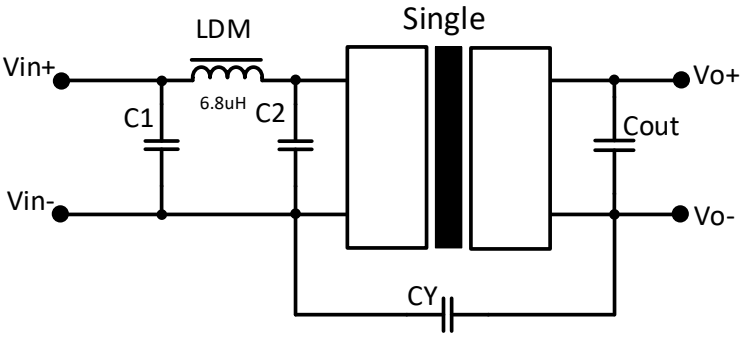


Typical application circuit



Vin	Cin	Vout	Cout
5V	4.7µF, 16V	3.3/5V	10µF/16V
12V	2.2µF/25V	9V/12V	2.2µF/25V
24V	1µF/50V	15V/24V	1µF/50V

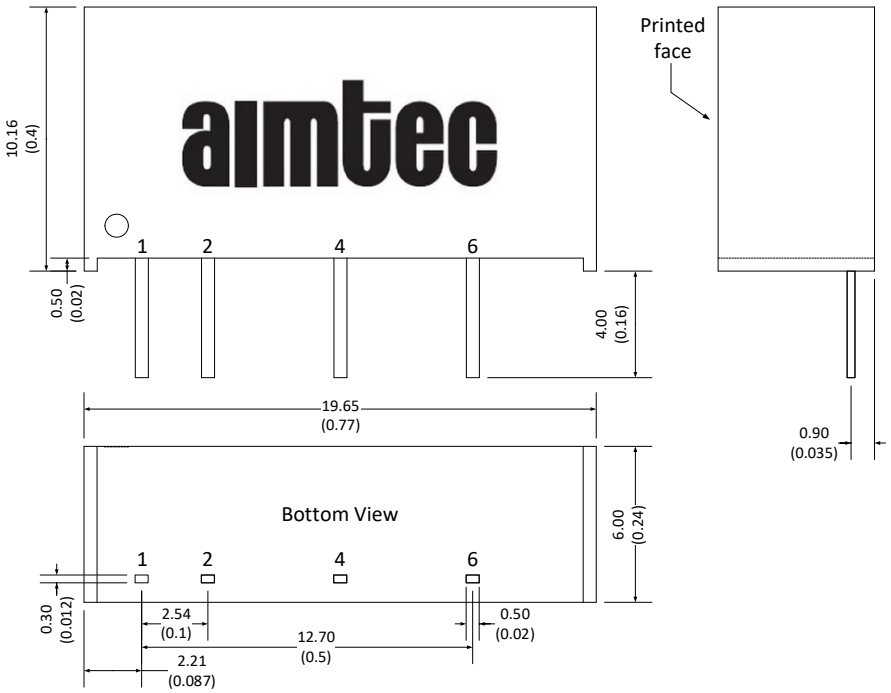
Recommended EMI circuit

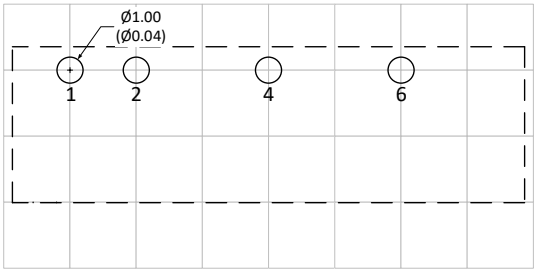


1500VDC isolation models		
Vin	C1/C2	CY
5V	4.7µF/25V	1nF/2kVdc
12/24V	4.7µF/50V	270pF/2kVdc

3000VDC isolation models		
Vin	C1/C2	CY
5V	4.7µF/25V	1nF/4kVdc
12/24V	4.7µF/50V	270pF/3kVdc

Dimensions





Grid size: 2.54*2.54mm

Note:
Unit: mm(inch)
General tolerance: ±0.50 (0.02)
Pin tolerance: ±0.1 (0.004)

Pin Out Specifications	
Pin	Single
1	+V Input
2	-V Input
4	-V Output
6	+V Output

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.