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AM1PS-LPZ

DIP8 Package

The AM1PS-LPZ is a 1W DIP8 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 5-12VDC as well as an output voltage of 3.3-24V. This compact DIP8 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 1500VDC for improved reliability and system safety as well as a great 3,500,000h MTBF come standard.

The AM1PS-LPZ is suitable for instrumentation, industrial controls, industrial applications, communication and IoT applications.

Features

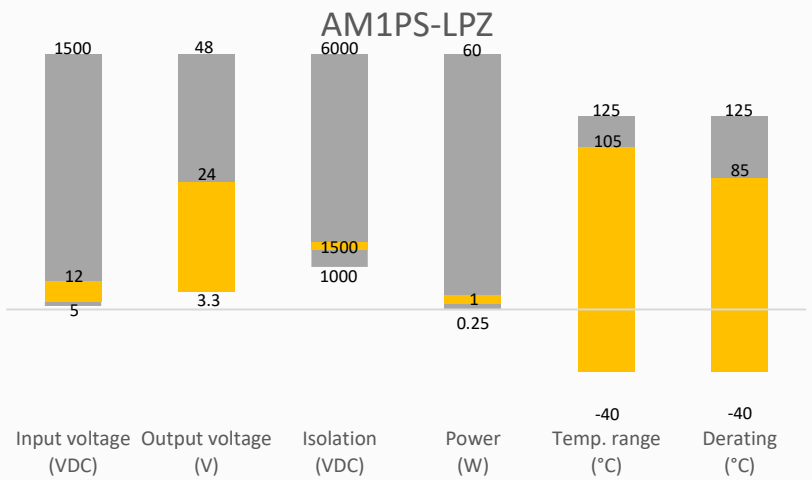
- High I/O Isolation of 1500VDC
- Continuous Short circuit protection
- Operating Temp: -40 °C to +105 °C
- Industry standard DIP8 pin-out
- Efficiency up to 89%
- Unregulated output

RoHS

3yr Warranty

CE

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. (%)
AM1PS-0503SLPZ	5 (4.5-5.5)	3.3	230 / 3	303 / 30	1500	4000	83
AM1PS-0505SLPZ	5 (4.5-5.5)	5	230 / 3	200 / 20	1500	4000	86
AM1PS-0509SLPZ	5 (4.5-5.5)	9	230 / 3	111 / 12	1500	2000	86
AM1PS-0512SLPZ	5 (4.5-5.5)	12	230 / 3	84 / 9	1500	1000	88
AM1PS-0515SLPZ	5 (4.5-5.5)	15	230 / 3	67 / 7	1500	680	88
AM1PS-0524SLPZ	5 (4.5-5.5)	24	230 / 3	42 / 4	1500	560	89
AM1PS-1203SLPZ	12 (10.8-13.2)	3.3	99 / 3	303 / 30	1500	4000	84
AM1PS-1205SLPZ	12 (10.8-13.2)	5	99 / 3	200 / 20	1500	4000	86
AM1PS-1209SLPZ	12 (10.8-13.2)	9	99 / 3	111 / 12	1500	2000	87
AM1PS-1212SLPZ	12 (10.8-13.2)	12	99 / 3	83 / 9	1500	1000	87
AM1PS-1215SLPZ	12 (10.8-13.2)	15	99 / 3	67 / 7	1500	680	88
AM1PS-1224SLPZ	12 (10.8-13.2)	24	99 / 3	42 / 5	1500	560	89

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

Input Specification

Parameters	Conditions	Typical	Maximum	Units
Filter	Capacitor			
Input Current	No-load	3	15	mA
Absolute maximum rating	Maximum duration 1s, 5Vin	> -0.7	9	VDC
	Maximum duration 1s, 12Vin	> -0.7	18	VDC
Input reflected ripple current		15		mA

Isolation Specification

Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec, leakage ≤ 1mA	>1500		VDC
Resistance	500VDC	>1000		MΩ
Capacitance	100kHz/0.1V	20		pF

Output Specification

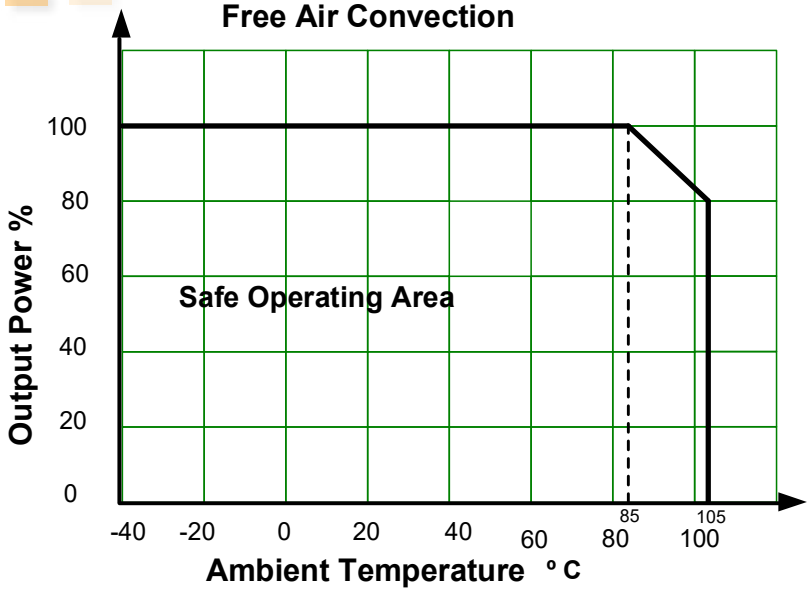
Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	See output voltage tolerance		10	%
Line regulation	Per 1% Vin change, 3.3Vout models		1.5	%
	Per 1% Vin change, other models		1.2	%
Load regulation	10-100% load, 3.3Vout models	10		%
	10-100% load, 5/9Vout models	8		%
	10-100% load, 12Vout models	8		%
	10-100% load, 15/24Vout models	6		%
Ripple & Noise*	20MHz bandwidth	45	100	mV pk-pk
Temperature coefficient	Full load	±0.03		%/°C

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

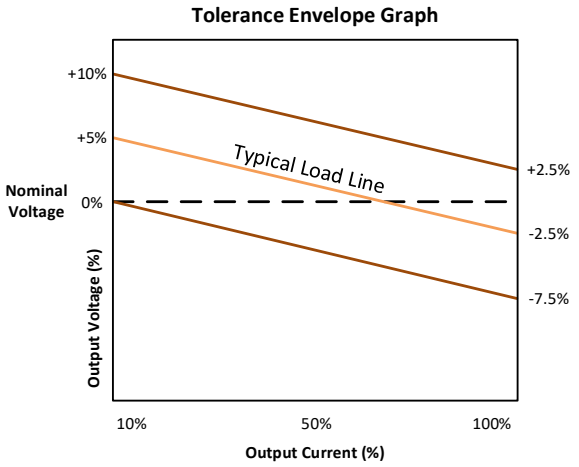
General Specifications				
Parameters	**Conditions**	**Typical**	**Maximum**	**Units**
Switching frequency	Full load, nominal input	220		KHz
Short circuit protection	Continuous, Auto recovery			
Operating temperature	With derating	-40 to +105		°C
Storage temperature		-55 to +125		°C
Case temperature rise	Ta = 25°C, Full load	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		1.6		g
Dimensions (L x W x H)	0.45 x 0.39 x 0.24 inches (11.50 x 9.80 x 6.00 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	Designed to meet UL/EN/IEC62368-1
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B with the recommended EMI circuit
	Electrostatic Discharge Immunity	IEC 61000-4-2

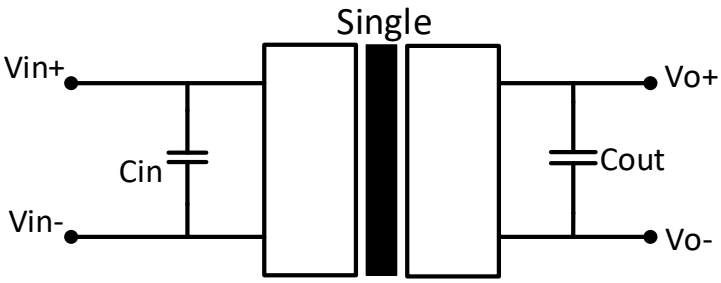
Derating



Output voltage tolerance



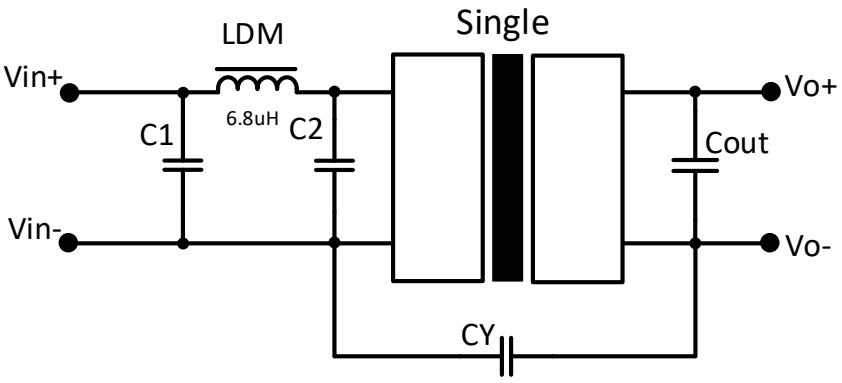
Typical application circuit



Vin	Cin
5V	4.7µF, 16V
12V	2.2µF, 25V

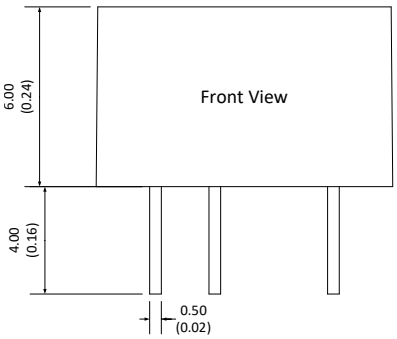
Vout	Cout
3.3V	10µF, 16V
5V	10µF, 16V
9V	4.7µF, 16V
12V	2.2µF, 25V
15V	1µF, 25V
24V	0.47µF, 50V

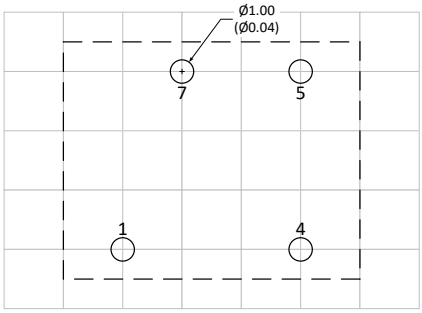
Recommended EMI circuit



Vout	C1/C2	CY	Cout
3.3V	4.7µF/50V	1nF/2kVdc	10µF, 16V
5V			10µF, 16V
9V			4.7µF, 16V
12V			2.2µF, 25V
15V			1µF, 25V
24V			0.47µF, 50V

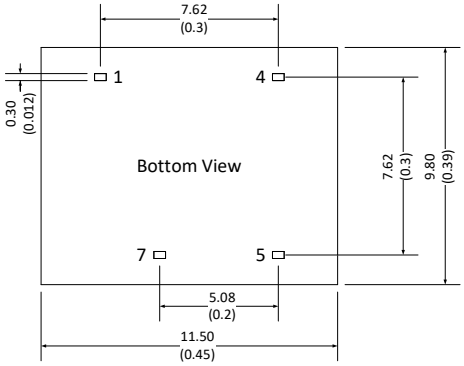
Dimensions





Grid size: 2.54*2.54mm

Pin Out Specifications	
Pin	Single output
1	-V Input
4	+V Input
5	+V Output
7	-V Output



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

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.