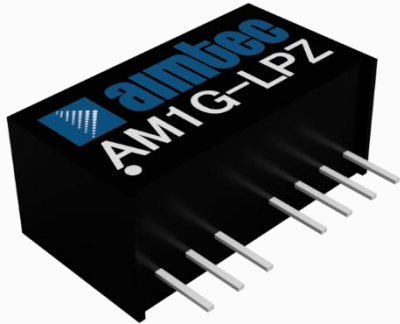


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AM1G-LPZ



SIP8 Package

The AM1G-LPZ is a 1W SIP8 DC/DC converter that offers great cost savings thanks to an improved manufacturing process. It also features excellent reliability and performance while offering a wide input voltage range of 4.5-75VDC as well as an output voltage of -15 to 24V. This compact SIP8 design will surely benefit your new system design.

This new series offers a great operating temperature range from -40 to 85°C. Also, an isolation of 1500VDC for improved reliability and system safety as well as a great 1,000,000h MTBF come standard.

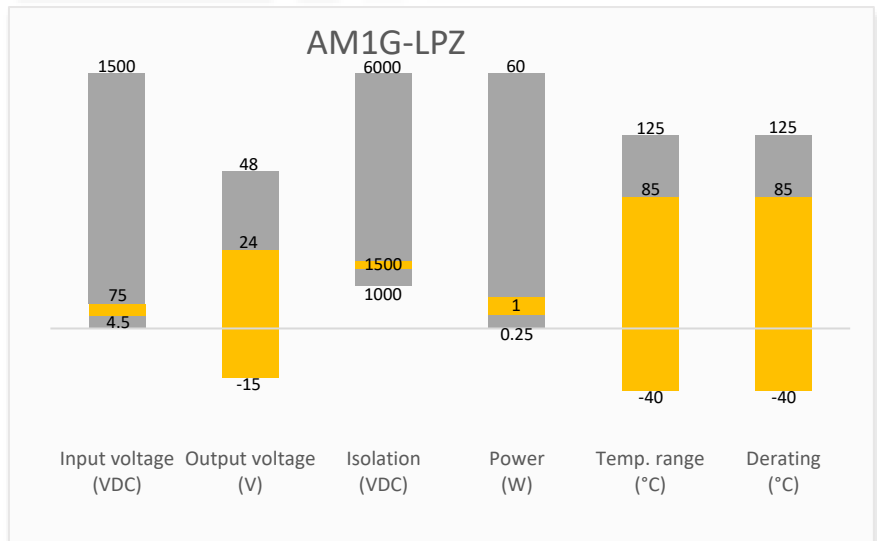
The AM1G-LPZ is suitable for many applications such as industrial systems, portable equipment, and internet of things.

Features

- High I/O Isolation of 1500VDC
- Continuous Short circuit protection
- Operating Temp: -40 °C to +85 °C
- Industry standard SIP8 pin-out
- Regulated output



Summary



Training



Product Training Video
(click to open)



Press Release

Coming Soon!

Application Notes

Applications



Industrial



Portable Equipment



IoT

Models & Specifications

Single Output						
Model	Input Voltage (VDC)	Output Voltage (VDC)	Output Current Max/Min (mA)	Isolation (VDC)	Maximum Capacitive Load (μF)	Efficiency Typ. (%)
AM1G-0503SLPZ*	5 (4.5-9)	3.3	303/15	1500	1800	71
AM1G-0505SLPZ*	5 (4.5-9)	5	200/10	1500	2200	72
AM1G-0512SLPZ*	5 (4.5-9)	12	83/4	1500	680	76
AM1G-0515SLPZ*	5 (4.5-9)	15	67/3	1500	470	75
AM1G-0524SLPZ*	5 (4.5-9)	24	42/2	1500	330	73
AM1G-1203SLPZ*	12 (9-18)	3.3	303/15	1500	2700	75
AM1G-1205SLPZ*	12 (9-18)	5	200/10	1500	2200	77
AM1G-1209SLPZ*	12 (9-18)	9	111/6	1500	1000	79
AM1G-1212SLPZ*	12 (9-18)	12	83/4	1500	680	78
AM1G-1215SLPZ*	12 (9-18)	15	67/3	1500	470	80
AM1G-1224SLPZ*	12 (9-18)	24	42/2	1500	330	76
AM1G-2403SLPZ*	24 (18-36)	3.3	303/15	1500	2700	75
AM1G-2405SLPZ*	24 (18-36)	5	200/10	1500	2200	77
AM1G-2412SLPZ*	24 (18-36)	12	83/4	1500	680	78
AM1G-2415SLPZ*	24 (18-36)	15	67/3	1500	470	78
AM1G-2424SLPZ*	24 (18-36)	24	42/2	1500	330	77
AM1G-4803SLPZ	48 (36-75)	3.3	303/15	1500	2700	75
AM1G-4805SLPZ	48 (36-75)	5	200/10	1500	2200	76
AM1G-4812SLPZ	48 (36-75)	12	83/4	1500	680	80
AM1G-4815SLPZ	48 (36-75)	15	67/3	1500	470	79

Dual Output						
Model	Input Voltage (VDC)	Output Voltage (VDC)	Output Current Max/Min (mA)	Isolation (VDC)	Maximum Capacitive Load (μF)	Efficiency Typ. (%)
AM1G-0505DLPZ*	5 (4.5-9)	±5	±100/±5	1500	±1000	73
AM1G-0512DLPZ*	5 (4.5-9)	±12	±42/±2	1500	±470	76
AM1G-0515DLPZ*	5 (4.5-9)	±15	±33/±2	1500	±330	75
AM1G-1205DLPZ*	12 (9-18)	±5	±100/±5	1500	±1000	77
AM1G-1212DLPZ*	12 (9-18)	±12	±42/±2	1500	±470	81
AM1G-1215DLPZ*	12 (9-18)	±15	±33/±2	1500	±330	78
AM1G-2405DLPZ*	24 (18-36)	±5	±100/±5	1500	±1000	79
AM1G-2412DLPZ*	24 (18-36)	±12	±42/±2	1500	±470	78
AM1G-2415DLPZ*	24 (18-36)	±15	±33/±2	1500	±330	78
AM1G-4805DLPZ	48 (36-75)	±5	±100/±5	1500	±1000	76
AM1G-4812DLPZ	48 (36-75)	±12	±42/±2	1500	±470	78
AM1G-4815DLPZ	48 (36-75)	±15	±33/±2	1500	±330	80

Input Specification				
Parameters	Conditions	Typical	Maximum	Units
Input current	5V _{in}	281		mA
	12V _{in}	111		mA

	24Vin	55		mA
	48Vin	27		mA
Filter	Capacitor			
Voltage Types	Vo, Io Nom		2:1	
Maximum Rating	5Vin	> -0.7	12	VDC
	12Vin	> -0.7	25	VDC
	24Vin	> -0.7	50	VDC
	48Vin	> -0.7	100	VDC
Peak Input Voltage Time			1	Sec
No load input current	5Vin	40	60	mA
	12Vin	15	30	mA
	24Vin	6	10	mA
	48Vin	4	6	mA
Startup input voltage	5Vin		4.5	VDC
	12Vin		9	VDC
	24Vin		18	VDC
	48Vin		36	VDC
Input Reflected Ripple Current	5Vin	40		mA
	12Vin	40		mA
	24Vin	55		mA
	48Vin	55		mA
On/Off Control	ON – open or logic high, positive logic	>3.5	12	VDC
	OFF – grounded or logic low, positive logic	>0	0.7	VDC
	Control pin current, positive logic	5	10	mA

Isolation Specification				
Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec, leakage ≤ 1mA, other models	1500		VDC
Resistance	500VDC	>1000		MΩ
Capacitance	100KHz, 0.1V	120		pF

Output Specification				
Parameters	Conditions	Typical	Maximum	Units
Voltage Tolerance	100% Full Load, 3.3Vout and 5Vout model	±2	±5	%
	100% Full Load, others	±1	±3	%
Line Regulation	Full load, main output	±0.2	±0.5	%
	Full load, other output	±0.5	±1	%
Load regulation	25% load step	±0.5	±1	%
Temperature coefficient		±0.02	±0.03	%/°C
Transient Recovery Time	25% load step	0.5	3	mS
Transient Response Deviation	25% load step	±2.5	±5	%
Ripple & Noise*		80	150	mV p-p

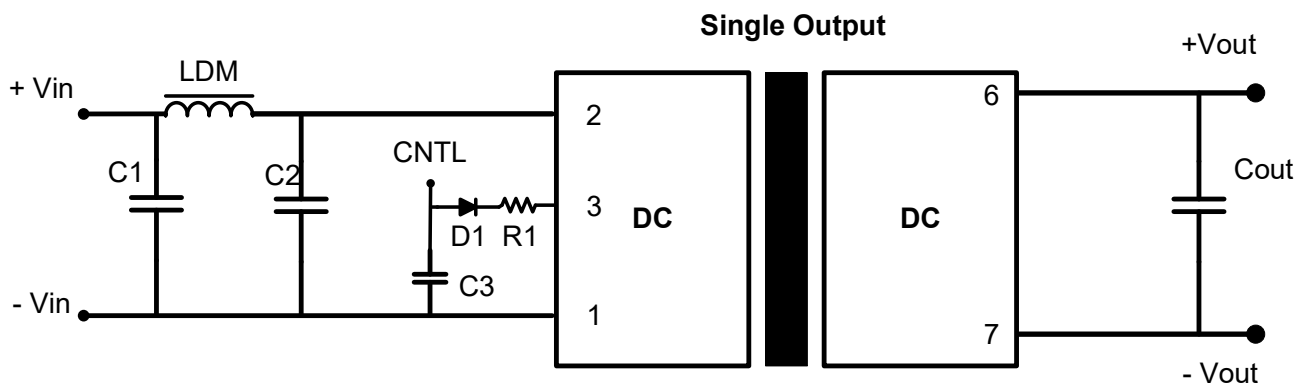
* Ripple and Noise are measured at 20MHz bandwidth. Please refer to the application note for specific details.

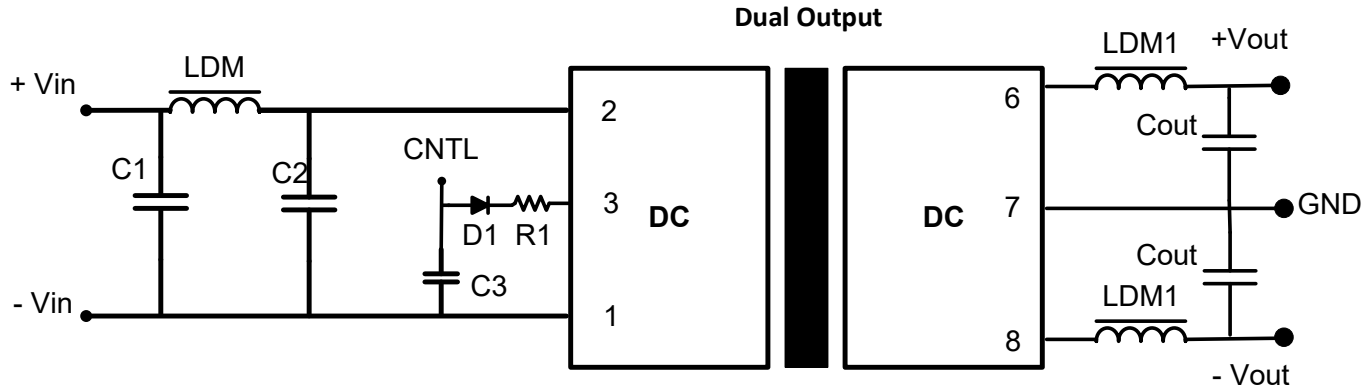
General Specifications				
Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	250		KHz
Short circuit protection	Continuous, auto-recovery			

Operating temperature	Without derating	-40 to +85		°C
Storage temperature		-55 to +125		°C
Lead Temperature	1.5mm from case for 10 seconds		300	°C
Cooling	Free air convection			
Humidity	Non-condensing	>5	95	% RH
Case material	Plastic (UL94V-0)			
Weight		4.5		g
Dimensions (L x W x H)	0.87 x 0.37 x 0.47 inches (22.00 x 9.50 x 12.00 mm)			
MTBF	1 000 000 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		
Agency Approvals	UL 62368-1 models marked with * only	
Standards	Designed to meet UL/EN/IEC 62368-1	
	EMI - Conducted and radiated emission	CISPR32/EN55032 Class B with EMI recommended circuit
	Electrostatic Discharge Immunity	IEC/EN 61000-4-2, Contact ±4KVperf. Criteria B
	RF, Electromagnetic Field Immunity	IEC/EN 61000-4-3, 10V/m, Criteria A
	Electrical Fast Transient/Burst Immunity	IEC/EN 61000-4-4, ±2KV with recommended EMC circuit, Criteria B
	Surge Immunity	IEC/EN 61000-4-5, L-L ±2KV, Criteria B
	RF, Conducted Disturbance Immunity	IEC/EN 61000-4-6, 3 Vr.m.s, Criteria A

Typical application circuit



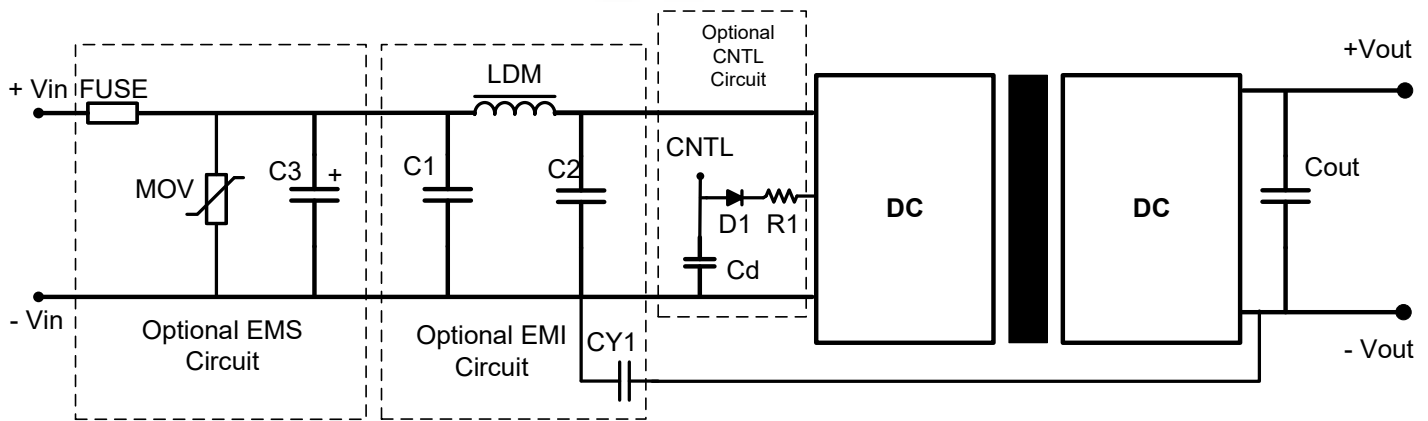


Model	C1	C2	Cout	C3	LDM	LDM1	D1	R1
5Vin	100μF	47μF	100μF	47nF/100V	4.7μH~12μH	2.2μH~10μH	60V, 1A	See formula
12Vin	100μF	47μF	100μF	47nF/100V	4.7μH~12μH	2.2μH~10μH	60V, 1A	See formula
24Vin	10μF	1μF	100μF	47nF/100V	4.7μH~12μH	2.2μH~10μH	60V, 1A	See formula
48Vin	10μF	1μF	100μF	47nF/100V	4.7μH~12μH	2.2μH~10μH	60V, 1A	See formula

*Resistor R may be calculated using following formula: $R1 = \frac{V_c - V_o - 1.0}{I_c} - 300$

*Vc is the Ctrl to GND voltage, Vd is voltage drop on D1, Ic is current flow into Ctrl.

EMI recommended circuit

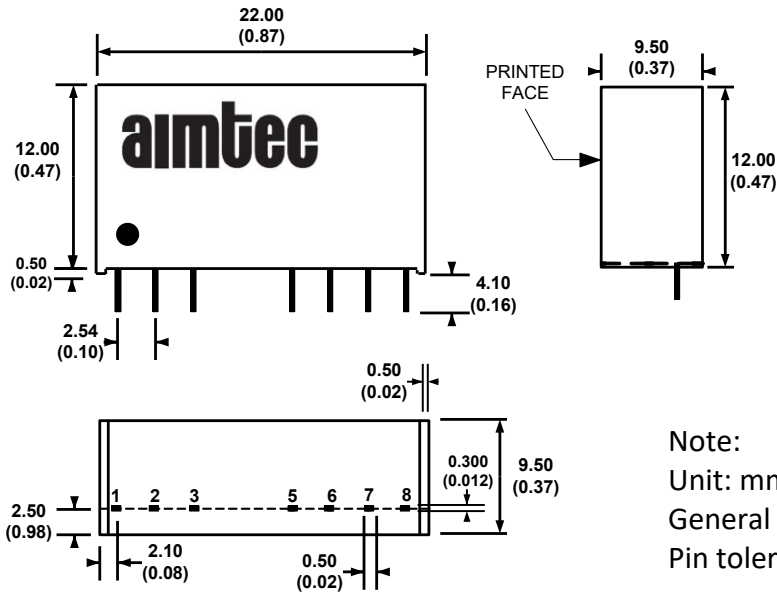


Model	C3	C1, C2	Cd	CY1	D1	LDM	MOV	R1	Cout
5Vin	1000μF, 25V	4.7μF, 50V	47nF/100V	1nF/2000V	60V, 1A	12μH	-	See formula	100μF
12Vin	1000μF, 25V	4.7μF, 50V	47nF/100V	1nF/2000V	60V, 1A	12μH	14D390K	See formula	100μF
24Vin	330μF, 50V	4.7μF, 50V	47nF/100V	1nF/2000V	60V, 1A	12μH	14D560K	See formula	100μF
48Vin	330μF, 100V	4.7μF, 100V	47nF/100V	1nF/2000V	60V, 1A	12μH	14D101K	See formula	100μF

Note: Fuse is user selectable, slow blow type

$R1 = ((V_{cd} - V_{d1} - 1.0) / I_{cntl}) - 300$

Dimensions



Pin Out Specifications		
Pin	Single output	Dual output
1	-V Input	-V Input
2	+V Input	+V Input
3	Ctrl-Control input (can be left open)	Ctrl-Control input (can be left open)
5	N.C.	N.C.
6	+V Output	+V Output
7	-V Output	Common
8	N.C.	-V Output

Note:

Unit: mm(inch)

General tolerances: $\pm 0.25(\pm 0.01)$

Pin tolerance: $\pm 0.10(\pm 0.004)$

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