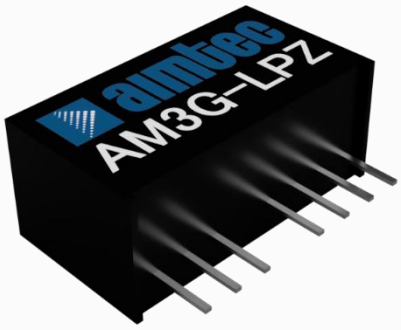
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AM3G-LPZ



SIP8 Package

The AM3G-LPZ is a 3W 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 -24 to 24V. This compact SIP8 design will surely benefit your new system design.

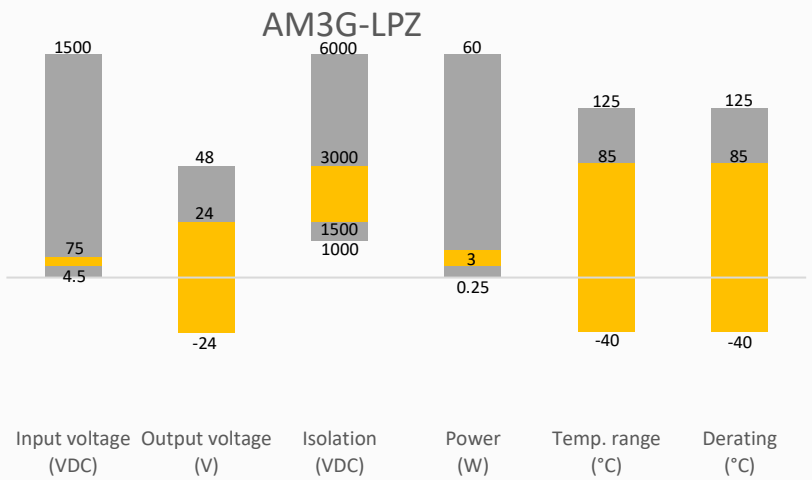
This new series offers a great operating temperature range from -40 to 85°C. Also, an isolation of 1500VDC/3000VDC for improved reliability and system safety as well as a great 1,000,000h MTBF come standard.

The AM3G-LPZ is suitable for many applications such as industrial systems, portable equipment, and internet of things.

Features

- High I/O Isolation of 1500VDC/3000VDC
- 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

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Models & Specifications

Single Output						
Model	Input Voltage (VDC)	Output Voltage (VDC)	Output Current Max/Min (mA)	Isolation (VDC)	Maximum Capacitive Load (µF)	Efficiency Typ. (%)
AM3G-0503SLPZ	5 (4.5-9)	3.3	758/38	1500	1800	68
AM3G-0505SLPZ	5 (4.5-9)	5	500/25	1500	2200	73
AM3G-0509SLPZ	5 (4.5-9)	9	278/14	1500	1000	74
AM3G-0512SLPZ	5 (4.5-9)	12	208/10	1500	680	77
AM3G-0515SLPZ	5 (4.5-9)	15	167/8	1500	470	74
AM3G-0524SLPZ	5 (4.5-9)	24	104/5	1500	330	76
AM3G-1203SLPZ*	12 (9-18)	3.3	758/38	1500	2700	75
AM3G-1205SLPZ*	12 (9-18)	5	600/30	1500	2200	76
AM3G-1209SLPZ*	12 (9-18)	9	333/17	1500	1000	79
AM3G-1212SLPZ*	12 (9-18)	12	250/13	1500	680	82
AM3G-1215SLPZ*	12 (9-18)	15	200/10	1500	470	83
AM3G-1224SLPZ*	12 (9-18)	24	125/6	1500	330	81
AM3G-2403SLPZ*	24 (18-36)	3.3	758/38	1500	2700	74
AM3G-2405SLPZ*	24 (18-36)	5	600/30	1500	2200	81
AM3G-2409SLPZ*	24 (18-36)	9	333/17	1500	2200	83
AM3G-2412SLPZ*	24 (18-36)	12	250/13	1500	1000	83
AM3G-2415SLPZ*	24 (18-36)	15	200/10	1500	680	83
AM3G-2424SLPZ*	24 (18-36)	24	125/6	1500	470	83
AM3G-4803SLPZ	48 (36-75)	3.3	758/38	1500	2700	75
AM3G-4805SLPZ	48 (36-75)	5	600/30	1500	2200	76
AM3G-4812SLPZ	48 (36-75)	12	250/13	1500	680	80
AM3G-4815SLPZ	48 (36-75)	15	200/10	1500	470	84
AM3G-4824SLPZ	48 (36-75)	24	125/6	1500	330	82
AM3G-0503SH30LPZ	5 (4.5-9)	3.3	758/38	3000	1800	68
AM3G-0505SH30LPZ	5 (4.5-9)	5	500/25	3000	2200	73
AM3G-0512SH30LPZ	5 (4.5-9)	12	208/10	3000	680	77
AM3G-0515SH30LPZ	5 (4.5-9)	15	167/8	3000	470	74
AM3G-0524SH30LPZ	5 (4.5-9)	24	104/5	3000	330	76
AM3G-1203SH30LPZ*	12 (9-18)	3.3	758/38	3000	2700	75
AM3G-1205SH30LPZ*	12 (9-18)	5	600/30	3000	2200	76
AM3G-1212SH30LPZ*	12 (9-18)	12	250/13	3000	680	82
AM3G-1215SH30LPZ*	12 (9-18)	15	200/10	3000	470	83
AM3G-1224SH30LPZ*	12 (9-18)	24	125/6	3000	330	81
AM3G-2403SH30LPZ*	24 (18-36)	3.3	758/38	3000	2700	74
AM3G-2405SH30LPZ*	24 (18-36)	5	600/30	3000	2200	81
AM3G-2409SH30LPZ*	24 (18-36)	9	333/17	3000	2200	83
AM3G-2412SH30LPZ*	24 (18-36)	12	250/13	3000	1000	83
AM3G-2415SH30LPZ*	24 (18-36)	15	200/10	3000	680	83
AM3G-2424SH30LPZ*	24 (18-36)	24	125/6	3000	470	83
AM3G-4803SH30LPZ	48 (36-75)	3.3	758/38	3000	2700	75
AM3G-4805SH30LPZ	48 (36-75)	5	600/30	3000	2200	76
AM3G-4812SH30LPZ	48 (36-75)	12	250/13	3000	680	80
AM3G-4815SH30LPZ	48 (36-75)	15	200/10	3000	470	84
AM3G-4824SH30LPZ	48 (36-75)	24	125/6	3000	330	82

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Dual Output

Model	Input Voltage (VDC)	Output Voltage (VDC)	Output Current Max/Min (mA)	Isolation (VDC)	Maximum Capacitive Load (µF)	Efficiency Typ. (%)
AM3G-0505DLPZ	5 (4.5-9)	±5	±250/±13	1500	±1000	74
AM3G-0509DLPZ	5 (4.5-9)	±9	±167/±10	1500	±680	76
AM3G-0512DLPZ	5 (4.5-9)	±12	±104/±5	1500	±470	77
AM3G-0515DLPZ	5 (4.5-9)	±15	±83/±4	1500	±330	77
AM3G-0524DLPZ	5 (4.5-9)	±24	±52/±3	1500	±220	76
AM3G-1205DLPZ	12 (9-18)	±5	±300/±15	1500	±1000	78
AM3G-1209DLPZ	12 (9-18)	±9	±167/±8	1500	±680	78
AM3G-1212DLPZ	12 (9-18)	±12	±125/±6	1500	±470	79
AM3G-1215DLPZ	12 (9-18)	±15	±100/±5	1500	±330	80
AM3G-2405DLPZ	24 (18-36)	±5	±300/±15	1500	±1000	79
AM3G-2409DLPZ	24 (18-36)	±9	±167/±8	1500	±680	81
AM3G-2412DLPZ	24 (18-36)	±12	±125/±6	1500	±470	73
AM3G-2415DLPZ	24 (18-36)	±15	±100/±5	1500	±330	73
AM3G-4805DLPZ	48 (36-75)	±5	±300/±15	1500	±1000	79
AM3G-4812DLPZ	48 (36-75)	±12	±125/±6	1500	±470	82
AM3G-4815DLPZ	48 (36-75)	±15	±100/±5	1500	±330	82
AM3G-0505DH30LPZ	5 (4.5-9)	±5	±250/±13	3000	±1000	74
AM3G-0512DH30LPZ	5 (4.5-9)	±12	±104/±5	3000	±470	77
AM3G-0515DH30LPZ	5 (4.5-9)	±15	±83/±4	3000	±330	77
AM3G-0524DH30LPZ	5 (4.5-9)	±24	±52/±3	3000	±220	76
AM3G-1205DH30LPZ	12 (9-18)	±5	±300/±15	3000	±1000	78
AM3G-1212DH30LPZ	12 (9-18)	±12	±125/±6	3000	±470	79
AM3G-1215DH30LPZ	12 (9-18)	±15	±100/±5	3000	±330	80
AM3G-2405DH30LPZ	24 (18-36)	±5	±300/±15	3000	±1000	79
AM3G-2412DH30LPZ	24 (18-36)	±12	±125/±6	3000	±470	83
AM3G-2415DH30LPZ	24 (18-36)	±15	±100/±5	3000	±330	83
AM3G-4805DH30LPZ	48 (36-75)	±5	±300/±15	3000	±1000	79
AM3G-4812DH30LPZ	48 (36-75)	±12	±125/±6	3000	±470	82
AM3G-4815DH30LPZ	48 (36-75)	±15	±100/±5	3000	±330	82

Input Specification

Parameters	Conditions	Typical	Maximum	Units
Input current	5Vin	805		mA
	12Vin	314		mA
	24Vin	154		mA
	48Vin	78		mA
Filter	Capacitor			
Voltage Types	Vo, Io Nom		2:1	
Maximum Rating	5Vin	12		VDC
	12Vin	25		VDC
	24Vin	50		VDC
	48Vin	100		VDC
Peak Input Voltage Time			1	Sec
No load input current	5Vin, 1500VDC models	40	85	mA
	5Vin, 3000VDC models	60		mA
	12Vin, 1500VDC models	30	40	mA

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	12Vin, 3000VDC models	25		mA
	24Vin, 1500VDC models	20	40	mA
	24Vin, 3000VDC models	8		mA
	48Vin, 1500VDC models	5	15	mA
	48Vin, 3000VDC models	3		mA
Input Reflected Ripple Current	5Vin	20		mA
	12Vin	20		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
	60 sec, leakage ≤ 1mA, H30 models	3000		VDC
Resistance	500VDC	>1000		MΩ
Capacitance	100KHz, 0.1V, 1500VDC models	120		pF
	100KHz, 0.1V, 3000VDC models	30		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	±0.2	±0.5	%
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*	5V, 24V output, 1500VDC models	70	100	mV p-p
	others	100	150	mV p-p
* Ripple and Noise are measured at 20MHz bandwidth. Please refer to the application note for specific details.				

General Specifications

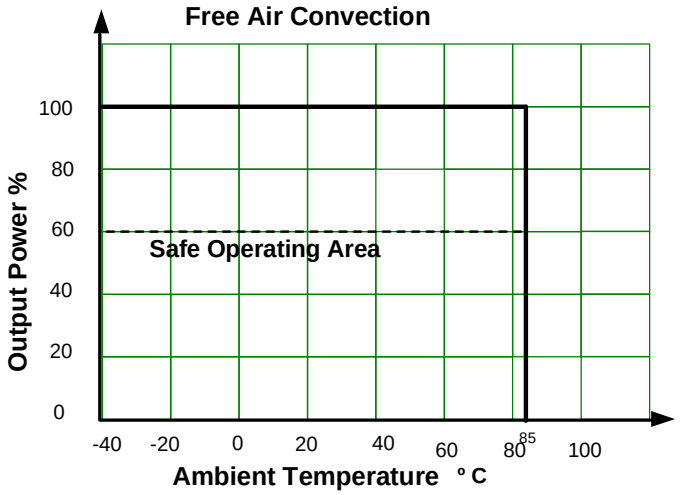
Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load, 1500VDC models	250		KHz
	100% load, 3000VDC models	200		KHz
Short circuit protection	Continuous, auto-recovery			
Operating temperature		-40 to +85		°C
Storage temperature		-55 to +125		°C
Lead Temperature	1.5mm from case for 10 seconds		300	°C
Cooling	Free air convection			
Humidity	Non-condensing	>5	95	% RH
Case material	Plastic (UL94V-0)			
Weight		4		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			

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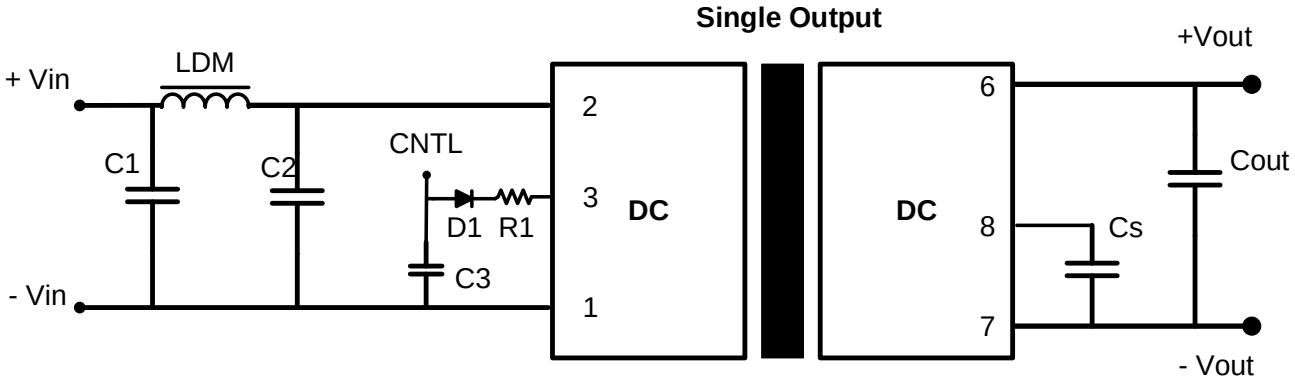
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

Safety Specifications		
Parameters		
Agency Approvals	UL62368-1 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 A, Criteria B
	Surge Immunity	IEC/EN 61000-4-5, ±2KV, Criteria B
	RF, Conducted Disturbance Immunity	IEC/EN 61000-4-6, 3 Vr.m.s, Criteria A

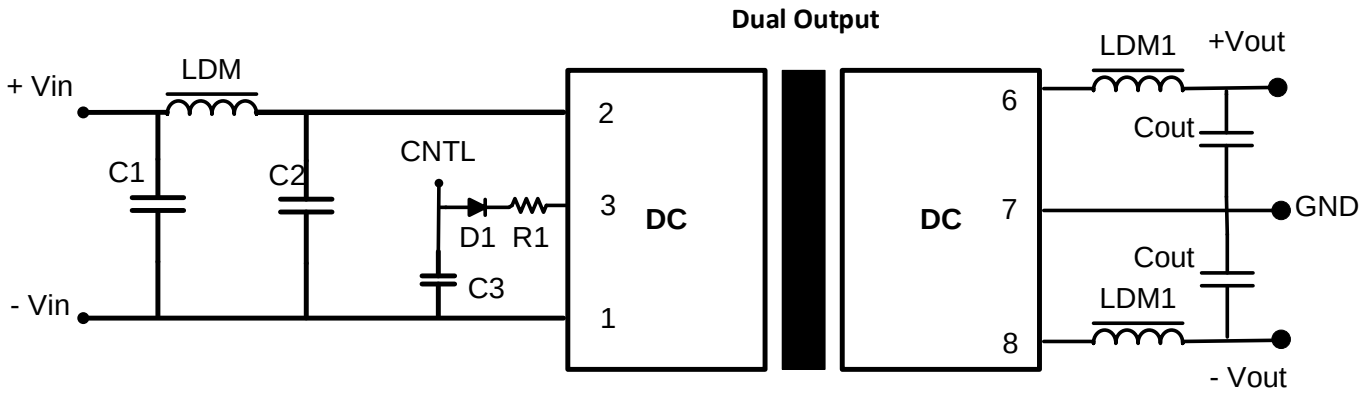
Derating



Typical application circuit

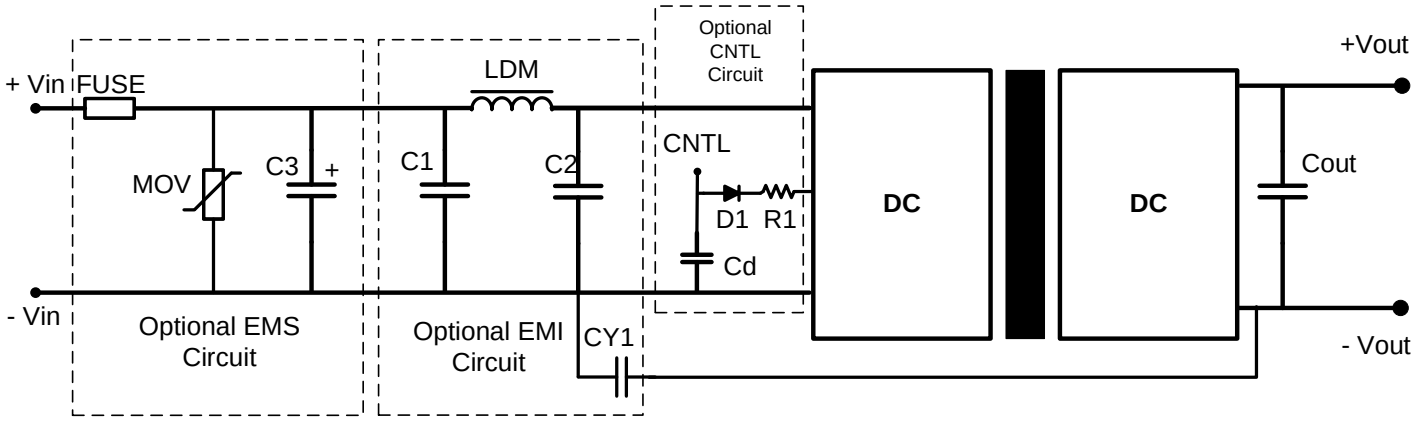


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Model	C1	C2	Cout	C3	Cs	LDM	LDM1	D1	R1
5Vin	100µF	47µF	100µF	47nF/100V	10µF~22µF	47µH~12µH	2.2µH~10µH	60V, 1A	See formula
12Vin	100µF	47µF	100µF	47nF/100V	10µF~22µF	47µH~12µH	2.2µH~10µH	60V, 1A	See formula
24Vin	10µF	1µF	100µF	47nF/100V	10µF~22µF	47µH~12µH	2.2µH~10µH	60V, 1A	See formula
48Vin	10µF	1µF	100µF	47nF/100V	10µF~22µF	47µH~12µH	2.2µH~10µH	60V, 1A	See formula

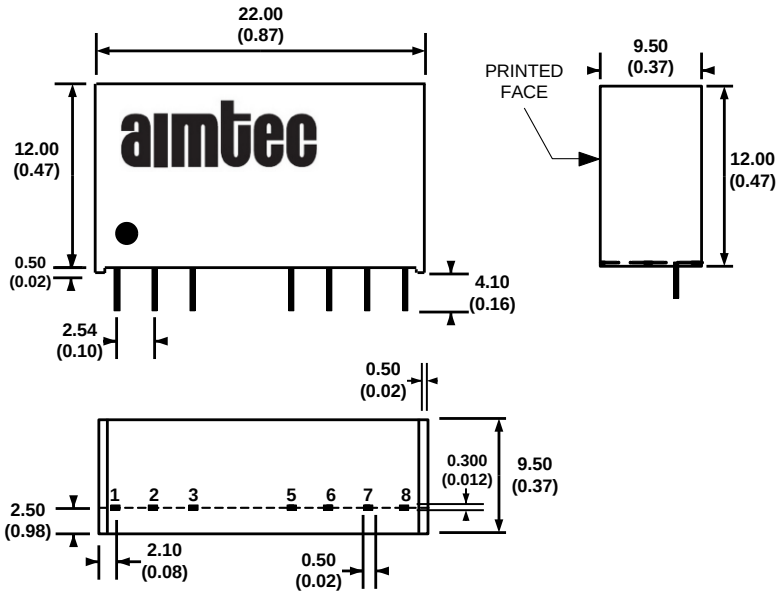
EMI recommended circuit



Model	C3	C1, C2	Cd	CY1	D1	LDM	MOV	R1	Cout
5Vin	680µF, 25V	4.7µF, 50V	47nF/100V	1nF/3000V	60V, 1A	12µH	-	See formula	100µF
12Vin	680µF, 25V	4.7µF, 50V	47nF/100V	1nF/3000V	60V, 1A	12µH	S14K20	See formula	100µF
24Vin	330µF, 50V	4.7µF, 50V	47nF/100V	1nF/3000V	60V, 1A	12µH	S14K30	See formula	100µF
48Vin	330µF, 100V	4.7µF, 100V	47nF/100V	1nF/3000V	60V, 1A	12µH	S14K60	See formula	100µF
Note: Fuse is user selectable, slow blow type R1 = ((Vcd – Vd1 – 1.0) / Icntl) - 300									

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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)
6	+V Output	+V Output
7	-V Output	Common
8	CS	-V Output

Note:
Unit: mm
General tolerances: ±0.25

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