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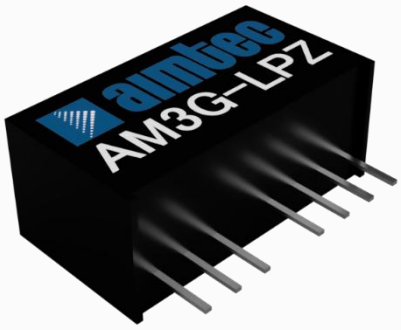
AM3G-LPZ



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.

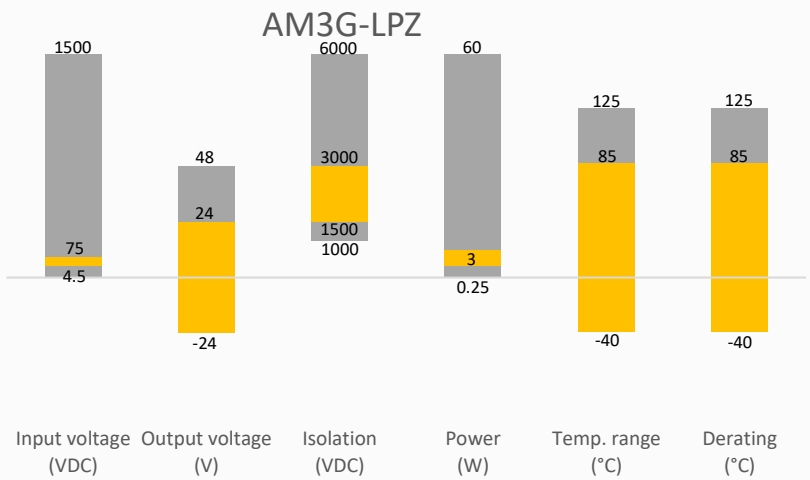
This new series offers a great operating temperature range from -40 to 85°C. Also, an isolation of 1500VDC/3000VDC for improved reliability and system safety as well as a great 1,000,000h MTBF come standard.

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

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

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

	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.				

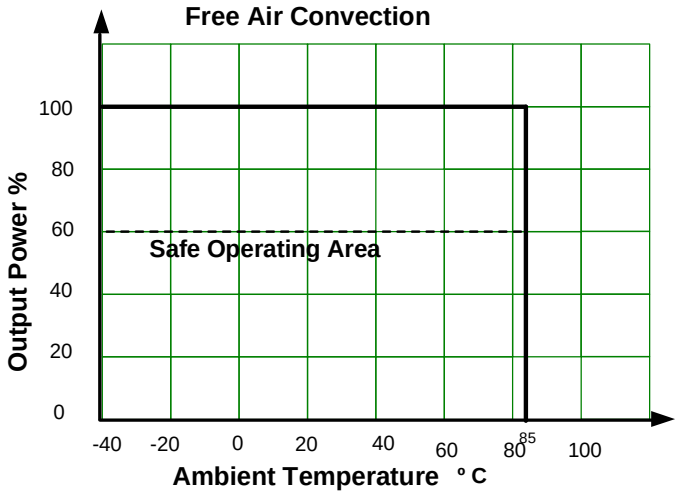
General Specifications

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			

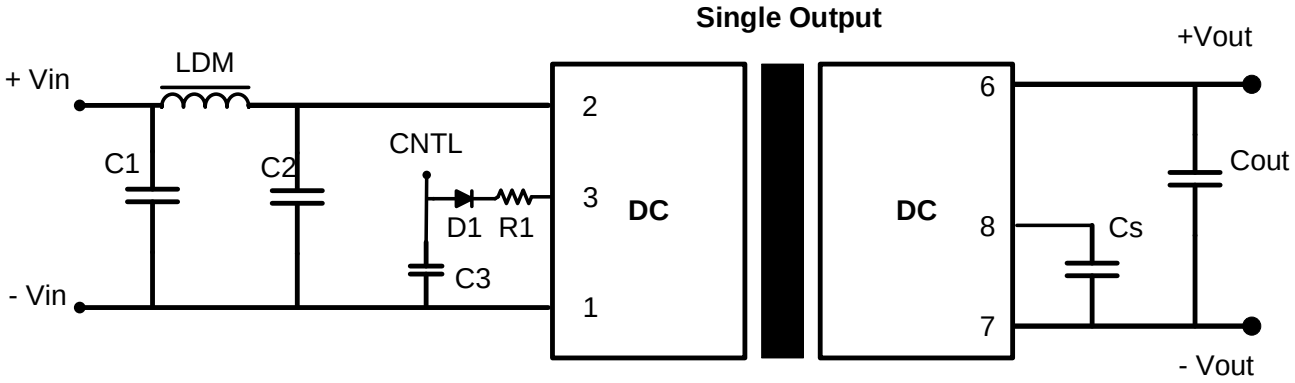
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

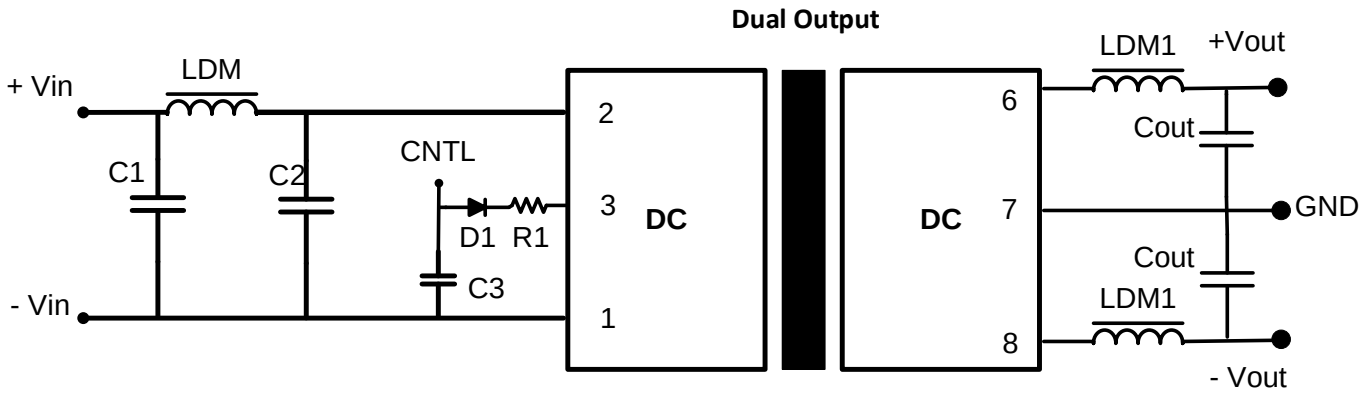
Safety Specifications		
Parameters		
Agency Approvals	UL62368-1 models marked with * only	
Standards	Designed to meet UL/EN/IEC 62368-1	
	EMI - Conducted and radiated emission	CISPR32/EN55032 Class B with EMI recommended circuit
	Electrostatic Discharge Immunity	IEC/EN 61000-4-2, Contact ±4KVperf. Criteria 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



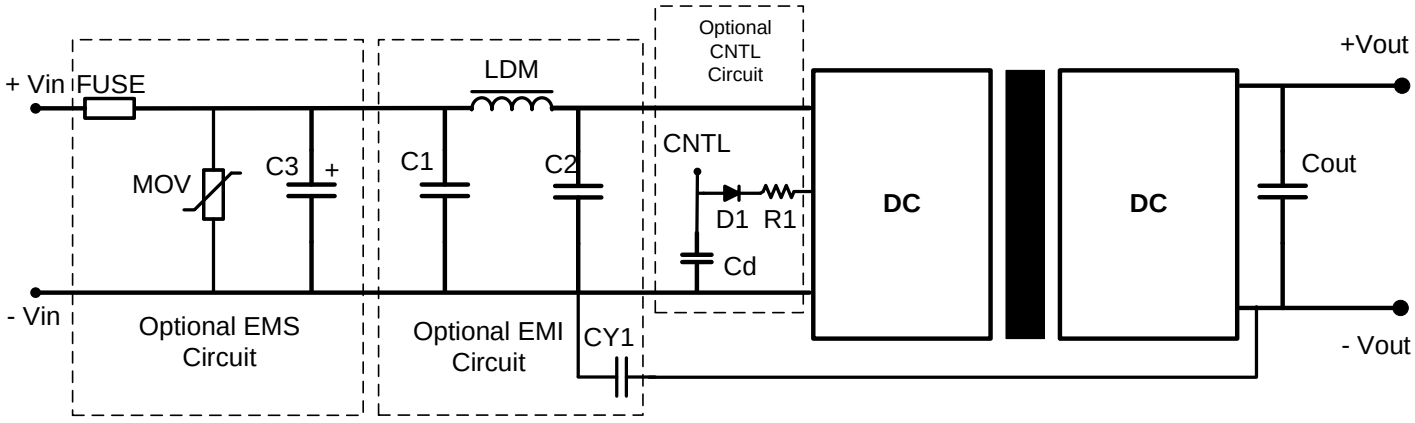
Typical application circuit





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

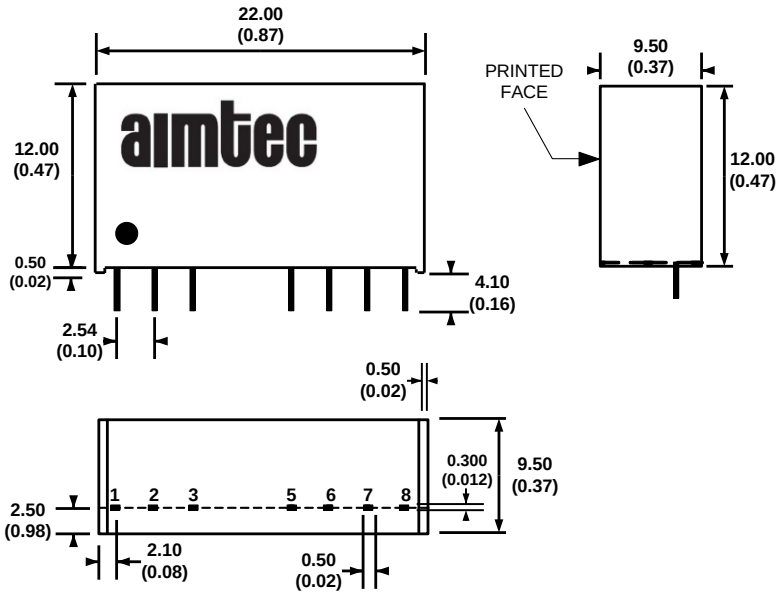
EMI recommended circuit



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

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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