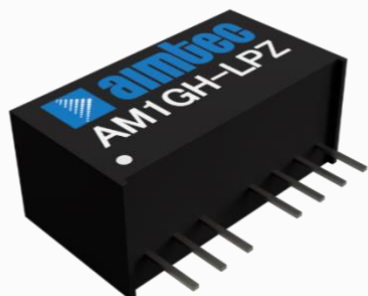


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AM1GH-LPZ



SIP8 Package

The AM1GH-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 -24 to 28V. This compact SIP8 design will surely benefit your new system design.

This new series offers a great operating temperature range from -40 to 105°C. Also, an isolation of 1600VDC or 3000VDC for improved reliability and system safety as well as a great 1,000,000h MTBF come standard.

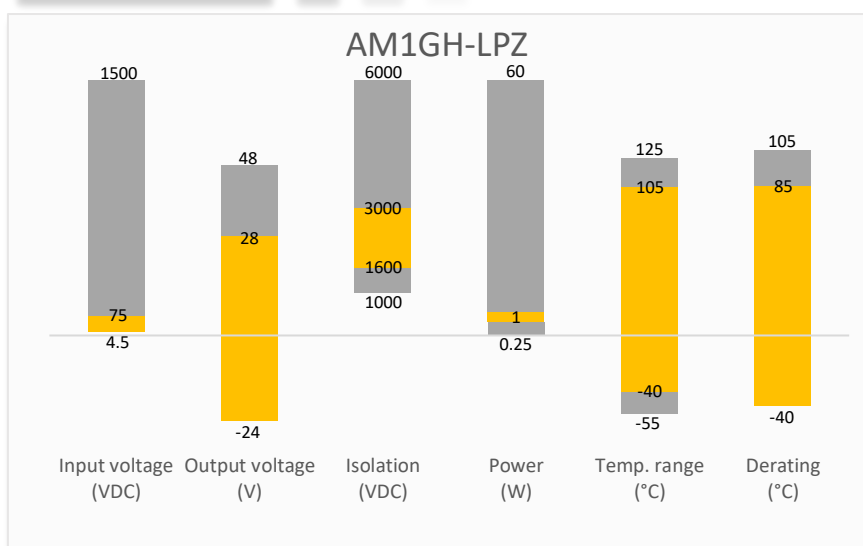
The AM1GH-LPZ is suitable for battery operated equipment, measurement equipment, telecom, wireless network, and industrial automation system.

Features

- High I/O Isolation of 1600VDC/3000VDC
- Input under voltage protection, output over current protection and short circuit protection
- Operating Temp: -40 °C to +105 °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)	Input Current Full/No load Typ. (mA)	Output Voltage (VDC)	Output Current Max (mA)	Isolation (VDC)	Maximum Capacitive Load (μF)	Efficiency Typ. (%)
AM1GH-1203SLPZ*	12 (4.5-18)	113/20	3.3	303	1600	2400	74
AM1GH-1205SLPZ*	12 (4.5-18)	113/20	5	200	1600	2200	75
AM1GH-1206SLPZ*	12 (4.5-18)	113/20	6	167	1600	1800	75
AM1GH-1209SLPZ*	12 (4.5-18)	113/20	9	111	1600	1000	78
AM1GH-1212SLPZ*	12 (4.5-18)	113/20	12	83	1600	680	78
AM1GH-1215SLPZ*	12 (4.5-18)	113/20	15	67	1600	470	78
AM1GH-1218SLPZ*	12 (4.5-18)	113/20	18	56	1600	330	75
AM1GH-1224SLPZ*	12 (4.5-18)	113/20	24	42	1600	330	75
AM1GH-1228SLPZ*	12 (4.5-18)	113/20	28	36	1600	220	75
AM1GH-2403SLPZ*	24 (9-36)	60/15	3.3	303	1600	2400	73
AM1GH-2405SLPZ*	24 (9-36)	60/15	5	200	1600	2200	75
AM1GH-2406SLPZ*	24 (9-36)	60/15	6	167	1600	1800	75
AM1GH-2409SLPZ*	24 (9-36)	60/15	9	111	1600	1000	76
AM1GH-2412SLPZ*	24 (9-36)	60/15	12	83	1600	680	76
AM1GH-2415SLPZ*	24 (9-36)	60/15	15	67	1600	470	76
AM1GH-2418SLPZ*	24 (9-36)	60/15	18	56	1600	330	72
AM1GH-2424SLPZ*	24 (9-36)	60/15	24	42	1600	330	70
AM1GH-2428SLPZ*	24 (9-36)	60/15	28	36	1600	220	70
AM1GH-4803SLPZ	48 (18-75)	29/5	3.3	303	1600	2400	71
AM1GH-4805SLPZ	48 (18-75)	29/5	5	200	1600	2200	72
AM1GH-4806SLPZ	48 (18-75)	29/5	6	167	1600	1800	72
AM1GH-4809SLPZ	48 (18-75)	29/5	9	111	1600	1000	74
AM1GH-4812SLPZ	48 (18-75)	29/5	12	83	1600	680	74
AM1GH-4815SLPZ	48 (18-75)	29/5	15	67	1600	470	74
AM1GH-4818SLPZ	48 (18-75)	29/5	18	56	1600	330	74
AM1GH-4824SLPZ	48 (18-75)	29/5	24	42	1600	330	74
AM1GH-4828SLPZ	48 (18-75)	29/5	28	36	1600	220	74
AM1GH-1203SH30LPZ*	12 (4.5-18)	113/20	3.3	303	3000	2400	74
AM1GH-1205SH30LPZ*	12 (4.5-18)	113/20	5	200	3000	2200	75
AM1GH-1206SH30LPZ*	12 (4.5-18)	113/20	6	167	3000	1800	75
AM1GH-1209SH30LPZ*	12 (4.5-18)	113/20	9	111	3000	1000	78
AM1GH-1212SH30LPZ*	12 (4.5-18)	113/20	12	83	3000	680	78
AM1GH-1215SH30LPZ*	12 (4.5-18)	113/20	15	67	3000	470	78
AM1GH-1218SH30LPZ*	12 (4.5-18)	113/20	18	56	3000	330	75
AM1GH-1224SH30LPZ*	12 (4.5-18)	113/20	24	42	3000	330	75
AM1GH-1228SH30LPZ*	12 (4.5-18)	113/20	28	36	3000	220	75
AM1GH-2403SH30LPZ*	24 (9-36)	60/15	3.3	303	3000	2400	73
AM1GH-2405SH30LPZ*	24 (9-36)	60/15	5	200	3000	2200	75
AM1GH-2406SH30LPZ*	24 (9-36)	60/15	6	167	3000	1800	75
AM1GH-2409SH30LPZ*	24 (9-36)	60/15	9	111	3000	1000	76
AM1GH-2412SH30LPZ*	24 (9-36)	60/15	12	83	3000	680	76
AM1GH-2415SH30LPZ*	24 (9-36)	60/15	15	67	3000	470	76
AM1GH-2418SH30LPZ*	24 (9-36)	60/15	18	56	3000	330	72
AM1GH-2424SH30LPZ*	24 (9-36)	60/15	24	42	3000	330	70

AM1GH-2428SH30LPZ*	24 (9-36)	60/15	28	36	3000	220	70
AM1GH-4803SH30LPZ	48 (18-75)	29/5	3.3	303	3000	2400	71
AM1GH-4805SH30LPZ	48 (18-75)	29/5	5	200	3000	2200	72
AM1GH-4806SH30LPZ	48 (18-75)	29/5	6	167	3000	1800	72
AM1GH-4809SH30LPZ	48 (18-75)	29/5	9	111	3000	1000	74
AM1GH-4812SH30LPZ	48 (18-75)	29/5	12	83	3000	680	74
AM1GH-4815SH30LPZ	48 (18-75)	29/5	15	67	3000	470	74
AM1GH-4818SH30LPZ	48 (18-75)	29/5	18	56	3000	330	74
AM1GH-4824SH30LPZ	48 (18-75)	29/5	24	42	3000	330	74
AM1GH-4828SH30LPZ	48 (18-75)	29/5	28	36	3000	220	74

Dual Output							
Model	Input Voltage (VDC)	Input Current Full/No load Typ. (mA)	Output Voltage (VDC)	Output Current Max (mA)	Isolation (VDC)	Maximum Capacitive Load (μF)	Efficiency Typ. (%)
AM1GH-1203DLPZ*	12 (4.5-18)	113/20	±3.3	±152	1600	±1200	75
AM1GH-1205DLPZ*	12 (4.5-18)	113/20	±5	±100	1600	±1000	76
AM1GH-1209DLPZ*	12 (4.5-18)	113/20	±9	±56	1600	±560	76
AM1GH-1212DLPZ*	12 (4.5-18)	113/20	±12	±42	1600	±470	76
AM1GH-1215DLPZ*	12 (4.5-18)	113/20	±15	±33	1600	±330	74
AM1GH-1224DLPZ*	12 (4.5-18)	113/20	±24	±21	1600	±220	77
AM1GH-2403DLPZ*	24 (9-36)	60/15	±3.3	±152	1600	±1200	73
AM1GH-2405DLPZ*	24 (9-36)	60/15	±5	±100	1600	±1000	75
AM1GH-2409DLPZ*	24 (9-36)	60/15	±9	±56	1600	±560	73
AM1GH-2412DLPZ*	24 (9-36)	60/15	±12	±42	1600	±470	72
AM1GH-2415DLPZ*	24 (9-36)	60/15	±15	±33	1600	±330	72
AM1GH-2424DLPZ*	24 (9-36)	60/15	±24	±21	1600	±220	75
AM1GH-4803DLPZ	48 (18-75)	29/5	±3.3	±152	1600	±1200	72
AM1GH-4805DLPZ	48 (18-75)	29/5	±5	±100	1600	±1000	74
AM1GH-4809DLPZ	48 (18-75)	29/5	±9	±56	1600	±560	75
AM1GH-4812DLPZ	48 (18-75)	29/5	±12	±42	1600	±470	75
AM1GH-4815DLPZ	48 (18-75)	29/5	±15	±33	1600	±330	74
AM1GH-4824DLPZ	48 (18-75)	29/5	±24	±21	1600	±220	76
AM1GH-1203DH30LPZ*	12 (4.5-18)	113/20	±3.3	±152	3000	±1200	75
AM1GH-1205DH30LPZ*	12 (4.5-18)	113/20	±5	±100	3000	±1000	76
AM1GH-1209DH30LPZ*	12 (4.5-18)	113/20	±9	±56	3000	±560	76
AM1GH-1212DH30LPZ*	12 (4.5-18)	113/20	±12	±42	3000	±470	76
AM1GH-1215DH30LPZ*	12 (4.5-18)	113/20	±15	±33	3000	±330	74
AM1GH-1224DH30LPZ*	12 (4.5-18)	113/20	±24	±21	3000	±220	77
AM1GH-2403DH30LPZ*	24 (9-36)	60/15	±3.3	±152	3000	±1200	73
AM1GH-2405DH30LPZ*	24 (9-36)	60/15	±5	±100	3000	±1000	75
AM1GH-2409DH30LPZ*	24 (9-36)	60/15	±9	±56	3000	±560	73
AM1GH-2412DH30LPZ*	24 (9-36)	60/15	±12	±42	3000	±470	72
AM1GH-2415DH30LPZ*	24 (9-36)	60/15	±15	±33	3000	±330	72
AM1GH-2424DH30LPZ*	24 (9-36)	60/15	±24	±21	3000	±220	75
AM1GH-4803DH30LPZ	48 (18-75)	29/5	±3.3	±152	3000	±1200	72
AM1GH-4805DH30LPZ	48 (18-75)	29/5	±5	±100	3000	±1000	74
AM1GH-4809DH30LPZ	48 (18-75)	29/5	±9	±56	3000	±560	75
AM1GH-4812DH30LPZ	48 (18-75)	29/5	±12	±42	3000	±470	75
AM1GH-4815DH30LPZ	48 (18-75)	29/5	±15	±33	3000	±330	74
AM1GH-4824DH30LPZ	48 (18-75)	29/5	±24	±21	3000	±220	76

Input Specification

Parameters	Conditions	Typical	Maximum	Units
Maximum rating	1 Sec(max), 12Vin models	> -0.7	25	VDC
	1 Sec (max), 24Vin models	> -0.7	50	VDC
	1 Sec (max), 48Vin models	> -0.7	100	VDC
Under voltage protection	12Vin models	3.5	--	VDC
	24Vin models	6.5	--	VDC
	48Vin models	15.5	--	VDC
Input Reflected Ripple Current	12Vin models	30	--	mA
	24/48Vin models	55	--	mA
Remote ON/OFF control	ON	Pin open or logic high (2.7V ~ 12V)		
	OFF	Pin grounded or logic low (0V ~ 1.2V)		
	Ctrl pin current	6	10	mA
Filter	Capacitor			

Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	5~100% load, positive output	±1	±3	%
	5~100% load, negative output	±3	±5	%
Line regulation	Full load, positive output	±0.5	±1.0	%
	Full load, negative output	±1.0	±2.0	%
Load regulation	5~100% load	±1.0	±2.0	%
	0~100% load	±2.0	±4.0	%
Transient response deviation	25% load step, 3.3/5Vout models	±5	±8	%
	25% load step, others	±3	±5	%
Transient recovery time	25% load step	500	2000	μS
Ripple & Noise*	20MHz bandwidth, 5~100% load	80	150	mV p-p

* Ripple and Noise are measured at 20MHz bandwidth by using a 12" twisted pair-wire terminated with a 0.1μF (M/C) and 47μF (E/C) parallel capacitor.

Isolation Specification

Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec, leakage current ≤1mA, H30 models	>3000	--	VDC
	60 sec, leakage current ≤1mA, others	>1600	--	VDC
Resistance I/O	500VDC	>1000	--	MΩ
Capacitance I/O	100KHz, 0.1V	1000	--	pF

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	Full load	300	--	KHz
Over current protection	Continuous, auto-recovery	>110	--	% Iout
Short circuit protection	Continuous, auto-recovery			
Operating temperature		-40 to +105	--	°C
Storage temperature		-55 to +125	--	°C
Temperature coefficient	Full load	0.02	0.03	%/°C
Lead Temperature	1.5mm from case for 10 seconds	--	300	°C
Cooling	Free air convection			

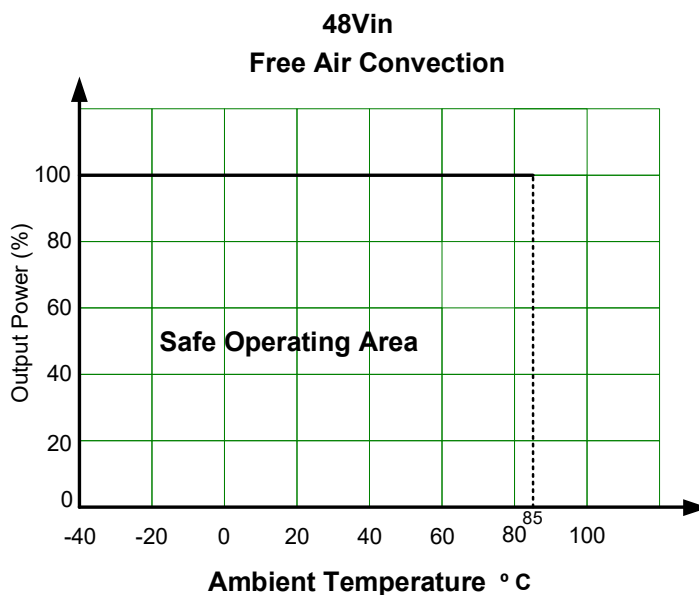
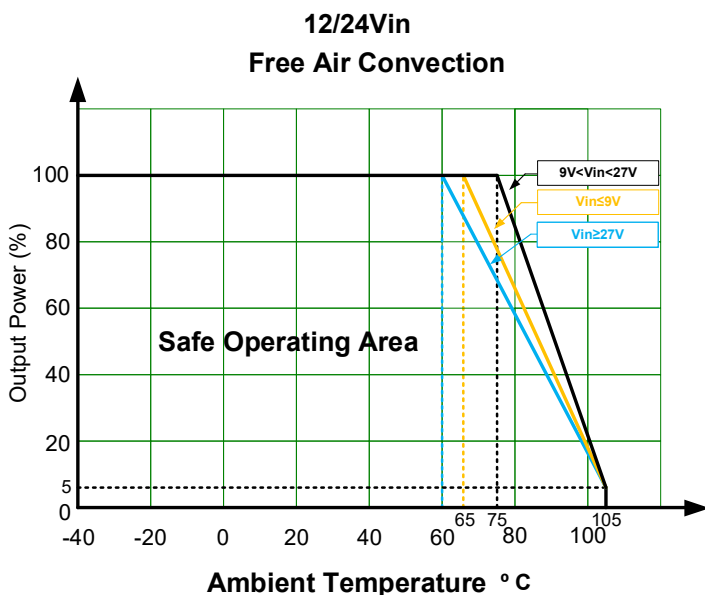
Humidity	Non-condensing	>5	95	% RH
Case material	Plastic (UL94V-0)			
Vibration	10-150Hz, 5G, 0.75mm along X, Y and Z			
Weight		4.5	--	g
Dimensions (L x W x H)	0.87 x 0.37 x 0.47 inches (22.00 x 9.50 x 12.00 mm)			
MTBF	1 000 000 hrs (MIL-HDBK -217F, t=+25°C) / Full Load			
NOTE: All specifications 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

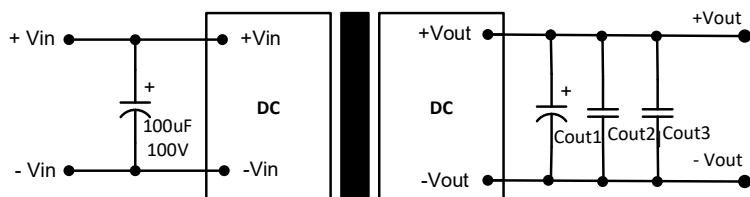
Parameters

Agency Approval	UL 62368-1 models marked with * only		
	Designed to meet IEC/EN 62368-1		
Standards	EMC - Conducted and radiated emission	CISPR32/EN55032 Class B with EMC recommended circuit	
	Electrostatic Discharge Immunity	IEC/EN 61000-4-2 Contact ±4KV, 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, Criteria B with EMC recommended circuit	
	Surge Immunity	IEC/EN 61000-4-5 L-L ±2KV, Criteria B with EMC recommended circuit	
	RF, Conducted Disturbance Immunity	IEC/EN 61000-4-6 3Vrms, Criteria A	

Derating



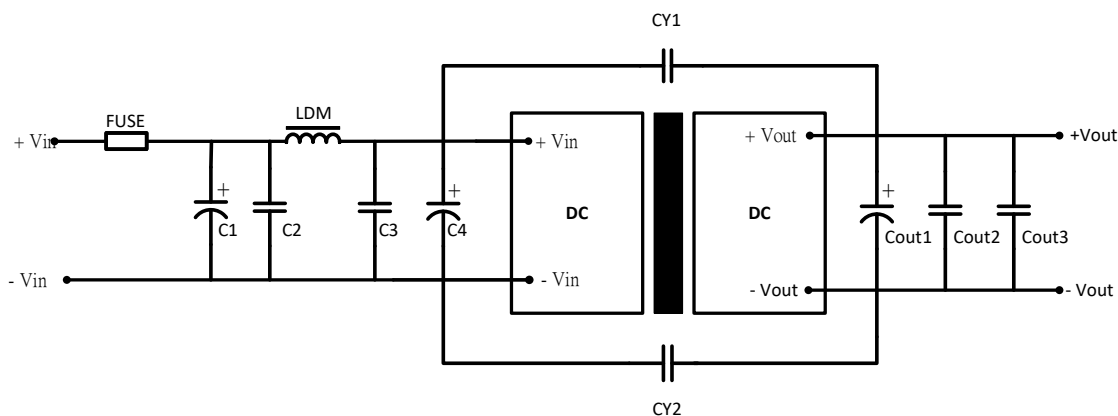
Typical application circuit



Vout	Cout1	Cout2	Cout3
3.3V, 5V, 6V	100uF/16V	10uF/50V	0.1uF/16V
9V, 12V, 15V	100uF/25V	10uF/50V	0.1uF/25V
18V, 24V, 28V	100uF/50V	10uF/50V	0.1uF/50V

For dual output models, the recommended output values apply to each output.

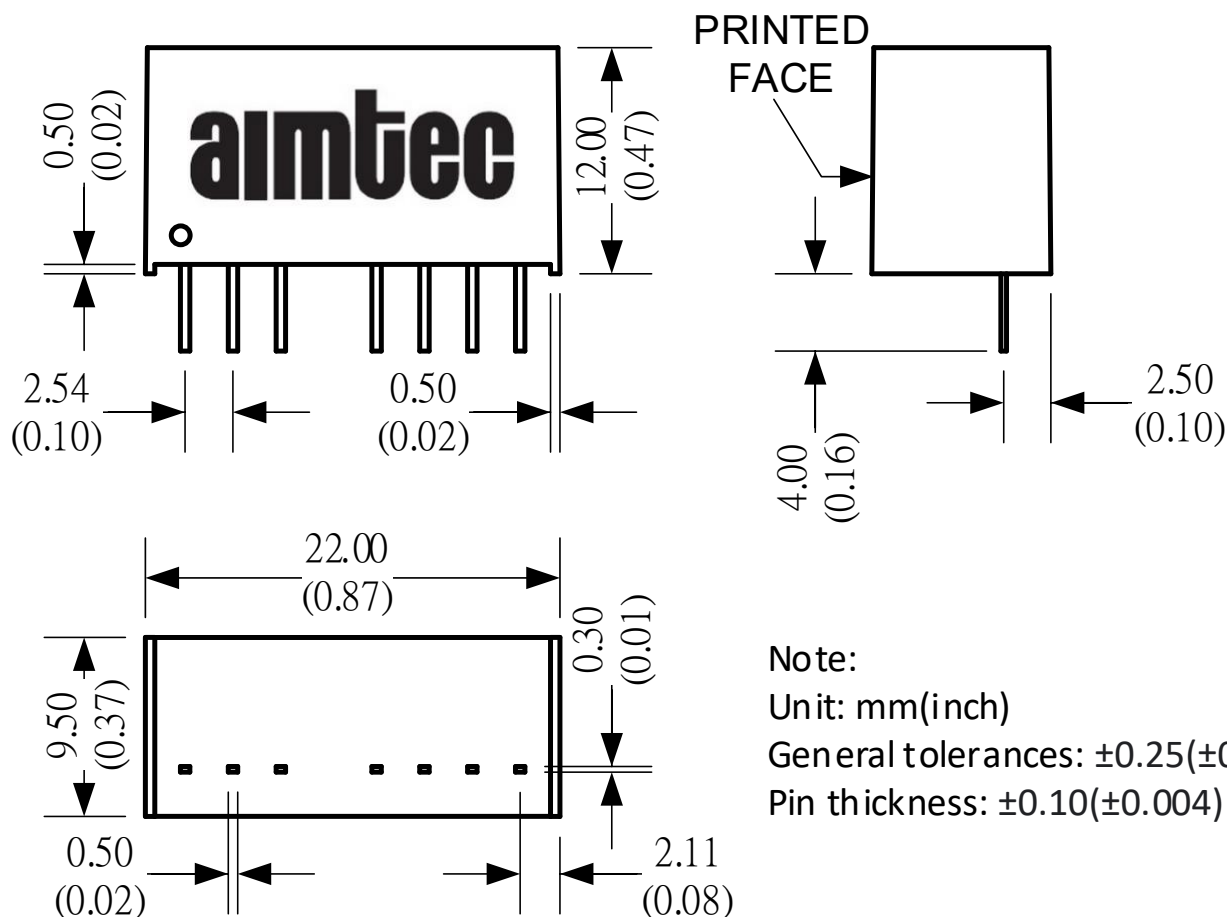
EMC recommended circuit



Component	12Vin	24Vin	48Vin
C1, C4	680μF, 25V	330μF, 50V	330μF, 100V
C2, C3	10μF, 50V	10μF, 50V	10μF, 100V
Cout1, Cout2, Cout3	Refer to Typical Application Circuit		
LDM	12μH	12μH	12μH
CY1, CY2 (1600VDC models)	2.2nF, 2kV	2.2nF, 2kV	2.2nF, 2kV
CY1, CY2 (3000VDC models)	2.2nF, 3kV	2.2nF, 3kV	2.2nF, 3kV

FUSE : Choose according to actual input current

Dimensions



Pin Out Specifications		
Pin	Single output	Dual output
1	-V Input	-V Input
2	+V Input	+V Input
3	Remote ON/OFF	Remote ON/OFF
5	N.C.	N.C.
6	+V Output	+V Output
7	-V Output	Common
8	N.C.	-V Output

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