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AM6GH-LPZ

SIP8

Aimtec adds the AM6GH-LPZ 6W series to its SIP8 DC/DC converters family. The AM6GH-LPZ series provide a 4:1 input voltage range and comes standard with single/dual regulated output voltages of 3.3, 5, 6, 9, 12, 15 and 24VDC with I/O isolation of 1500 / 3000VDC.

Thanks to its wide -40°C to +85°C operating temperature range, the AM6GH-LPZ is suitable for applications such as industrial control, grid power, instrumentation and telecommunication.

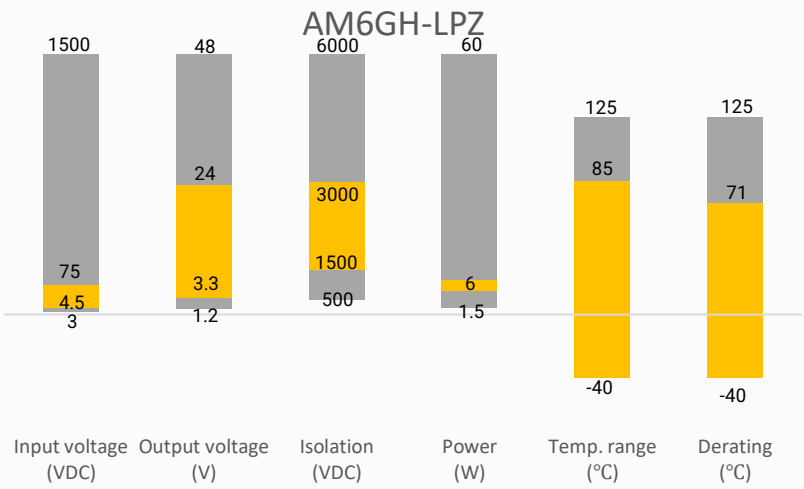
In addition to meeting EN62368-1 certification, protections for input under-voltage, output short circuit, over-current are also included, increasing the overall safety of your new system design.

Features

- Wide 4:1 Input Range: 4.5-18VDC, 9-36VDC, 18-75VDC
- Operating Temp: -40 °C to +85 °C
- Low ripple & noise, up to 50mV(p-p) typ.
- Efficiency up to 87%
- Output short circuit, over current protection, Input under-voltage protection
- Regulated Output

RoHS 3yr Warranty CE cULus

Summary



Training

Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications

Power Grid | Industrial | Telecom | Instrumentation

Models & Specifications

Single Output							
Model	Input Voltage (VDC)	Output Voltage (VDC)	Input Current Max (mA)		Output Current Max (mA)	Maximum Capacitive Load (µF)	Efficiency (%) Full Load (Typ.)
			No Load	Full Load			
AM6GH-1203SLPZ*	12 (4.5~18)	3.3	30	476	1350	1800	80
AM6GH-1205SLPZ*	12 (4.5~18)	5	30	641	1200	1000	80
AM6GH-1206SLPZ*	12 (4.5~18)	6	30	641	1000	680	80
AM6GH-1209SLPZ*	12 (4.5~18)	9	30	610	667	470	82
AM6GH-1212SLPZ*	12 (4.5~18)	12	30	610	500	470	84
AM6GH-1215SLPZ*	12 (4.5~18)	15	30	610	400	220	85
AM6GH-1224SLPZ*	12 (4.5~18)	24	30	610	250	100	84
AM6GH-2403SLPZ*	24 (9~36)	3.3	30	248	1350	1800	80
AM6GH-2405SLPZ*	24 (9~36)	5	30	325	1200	1000	82
AM6GH-2406SLPZ*	24 (9~36)	6	30	325	1000	680	82
AM6GH-2409SLPZ*	24 (9~36)	9	30	315	667	470	84
AM6GH-2412SLPZ*	24 (9~36)	12	30	315	500	470	86
AM6GH-2415SLPZ*	24 (9~36)	15	30	315	400	220	87
AM6GH-2424SLPZ*	24 (9~36)	24	30	315	250	100	85
AM6GH-4803SLPZ	48 (18~75)	3.3	30	166	1600	1200	78
AM6GH-4805SLPZ	48 (18~75)	5	30	160	1200	680	82
AM6GH-4806SLPZ	48 (18~75)	6	30	160	1000	680	82
AM6GH-4809SLPZ	48 (18~75)	9	30	156	667	470	84
AM6GH-4812SLPZ	48 (18~75)	12	30	156	500	330	83
AM6GH-4815SLPZ	48 (18~75)	15	30	156	400	150	84
AM6GH-4824SLPZ	48 (18~75)	24	30	156	250	68	82
AM6GH-1203SH30LPZ*	12 (4.5~18)	3.3	30	476	1350	1800	80
AM6GH-1205SH30LPZ*	12 (4.5~18)	5	30	641	1200	1000	80
AM6GH-1206SH30LPZ*	12 (4.5~18)	6	30	641	1000	680	80
AM6GH-1209SH30LPZ*	12 (4.5~18)	9	30	610	667	470	82
AM6GH-1212SH30LPZ*	12 (4.5~18)	12	30	610	500	470	84
AM6GH-1215SH30LPZ*	12 (4.5~18)	15	30	610	400	220	85
AM6GH-1224SH30LPZ*	12 (4.5~18)	24	30	610	250	100	84
AM6GH-2403SH30LPZ*	24 (9~36)	3.3	30	248	1350	1800	80
AM6GH-2405SH30LPZ*	24 (9~36)	5	30	325	1200	1000	82
AM6GH-2406SH30LPZ*	24 (9~36)	6	30	325	1000	680	82
AM6GH-2409SH30LPZ*	24 (9~36)	9	30	315	667	470	84
AM6GH-2412SH30LPZ*	24 (9~36)	12	30	315	500	470	86
AM6GH-2415SH30LPZ*	24 (9~36)	15	30	315	400	220	87
AM6GH-2424SH30LPZ*	24 (9~36)	24	30	315	250	100	85
AM6GH-4803SH30LPZ	48 (18~75)	3.3	30	166	1600	1200	78
AM6GH-4805SH30LPZ	48 (18~75)	5	30	160	1200	680	82
AM6GH-4806SH30LPZ	48 (18~75)	6	30	160	1000	680	82
AM6GH-4809SH30LPZ	48 (18~75)	9	30	156	667	470	84
AM6GH-4812SH30LPZ	48 (18~75)	12	30	156	500	330	83
AM6GH-4815SH30LPZ	48 (18~75)	15	30	156	400	150	84
AM6GH-4824SH30LPZ	48 (18~75)	24	30	156	250	68	82

Dual Output							
Model	Input Voltage (VDC)	Output Voltage (VDC)	Input Current Max (mA)		Output Current Max (mA)	Maximum Capacitive Load (µF)	Efficiency (%) Full Load (Typ.)
			No Load	Full Load			
AM6GH-1203DLPZ	12 (4.5~18)	±3.3	30	476	±675	±470	76
AM6GH-1205DLPZ	12 (4.5~18)	±5	30	641	±600	±470	78
AM6GH-1209DLPZ	12 (4.5~18)	±9	30	610	±333	±220	80
AM6GH-1212DLPZ	12 (4.5~18)	±12	30	610	±250	±120	81
AM6GH-1215DLPZ	12 (4.5~18)	±15	30	610	±200	±100	81
AM6GH-1224DLPZ	12 (4.5~18)	±24	30	610	±125	±68	80
AM6GH-2403DLPZ	24 (9~36)	±3.3	30	248	±675	±470	78
AM6GH-2405DLPZ	24 (9~36)	±5	30	325	±600	±470	80
AM6GH-2409DLPZ	24 (9~36)	±9	30	315	±333	±220	83
AM6GH-2412DLPZ	24 (9~36)	±12	30	315	±250	±120	83
AM6GH-2415DLPZ	24 (9~36)	±15	30	315	±200	±100	83
AM6GH-2424DLPZ	24 (9~36)	±24	30	315	±125	±68	82
AM6GH-4803DLPZ	48 (18~75)	±3.3	30	166	±675	±470	78
AM6GH-4805DLPZ	48 (18~75)	±5	30	160	±600	±470	80
AM6GH-4809DLPZ	48 (18~75)	±9	30	156	±333	±220	82
AM6GH-4812DLPZ	48 (18~75)	±12	30	156	±250	±120	83
AM6GH-4815DLPZ	48 (18~75)	±15	30	156	±200	±100	83
AM6GH-4824DLPZ	48 (18~75)	±24	30	156	±125	±68	82
AM6GH-1203DH30LPZ	12 (4.5~18)	±3.3	30	476	±675	±470	76
AM6GH-1205DH30LPZ	12 (4.5~18)	±5	30	641	±600	±470	78
AM6GH-1209DH30LPZ	12 (4.5~18)	±9	30	610	±333	±220	80
AM6GH-1212DH30LPZ	12 (4.5~18)	±12	30	610	±250	±120	81
AM6GH-1215DH30LPZ	12 (4.5~18)	±15	30	610	±200	±100	81
AM6GH-1224DH30LPZ	12 (4.5~18)	±24	30	610	±125	±68	80
AM6GH-2403DH30LPZ	24 (9~36)	±3.3	30	248	±675	±470	78
AM6GH-2405DH30LPZ	24 (9~36)	±5	30	325	±600	±470	80
AM6GH-2409DH30LPZ	24 (9~36)	±9	30	315	±333	±220	83
AM6GH-2412DH30LPZ	24 (9~36)	±12	30	315	±250	±120	83
AM6GH-2415DH30LPZ	24 (9~36)	±15	30	315	±200	±100	83
AM6GH-2424DH30LPZ	24 (9~36)	±24	30	315	±125	±68	82
AM6GH-4803DH30LPZ	48 (18~75)	±3.3	30	166	±675	±470	78
AM6GH-4805DH30LPZ	48 (18~75)	±5	30	160	±600	±470	80
AM6GH-4809DH30LPZ	48 (18~75)	±9	30	156	±333	±220	82
AM6GH-4812DH30LPZ	48 (18~75)	±12	30	156	±250	±120	83
AM6GH-4815DH30LPZ	48 (18~75)	±15	30	156	±200	±100	83
AM6GH-4824DH30LPZ	48 (18~75)	±24	30	156	±125	±68	82

Input Specification				
Parameters	Conditions	Typical	Maximum	Units
Voltage range	See models table			VDC
Filter	Capacitor			
Absolute maximum rating	1 sec. max, 12VDC input models	> -0.7	25	VDC
	1 sec. max, 24VDC input models	> -0.7	50	VDC

	1 sec. max, 48VDC input models	> -0.7	100	VDC
Reflected ripple current		50		mA
Start-up voltage	Nominal 12V input models		4.5	VDC
	Nominal 24V input models		9	VDC
	Nominal 48V input models		18	VDC
Under voltage protection	Nominal 12V input models	3.5 ~ 4		VDC
	Nominal 24V input models	5.5 ~ 6.5		VDC
	Nominal 48V input models	12 ~ 15.5		VDC
On/Off ctrl *	ON – Ctrl pin open or pulled high (3.5~12VDC) OFF – Ctrl pin pulled low to GND (0~1.2VDC), idle current 10mA max.			

* The Ctrl pin voltage is referenced to input GND.

Isolation Specification

Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec, 1mA max	≥1500		VDC
	60 sec, 1mA max, H30 models	≥3000		VDC
Resistance	500VDC	≥1000		MΩ
Capacitance	I/O capacitance at 100KHz/0.1V	1000		pF

Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	Single output, 5~100% load	±1	±3	%
	Dual output, 5~100% load	±3	±5	%
Line regulation	Single output, Full load	±0.5	±1	%
	Dual output, Full load	±1.0	±1.5	%
Load regulation**	Single output, 5~100% load	±0.5	±1.5	%
	Dual output, 5~100% load	±1.0	±1.5	%
Cross Regulation	Dual, positive output 50% load, negative output 10% to 100% Load		±5	%
Over current protection		110~160		% Iout
Short circuit protection	Continuous, Auto recovery			
Temperature coefficient	Full load		±0.03	%/°C
Ripple & Noise*	20MHz bandwidth, 5~100% load	50	100	mV pk-pk
Transient recovery time	25% load step change	300	500	µS
Transient response deviation	25% load step change, 3.3/5Vout models	±5	±8	%Vout
	25% load step change, others	±3	±5	%Vout

* Ripple and Noise are measured at 20MHz bandwidth by using a 0.1µF (M/C) and 47µF (E/C) parallel capacitor.
** Operating with less than 5% of rated load will not cause permanent damage to the converters, but the performances data may not fall into the specifications, and reliable operating is not assured.

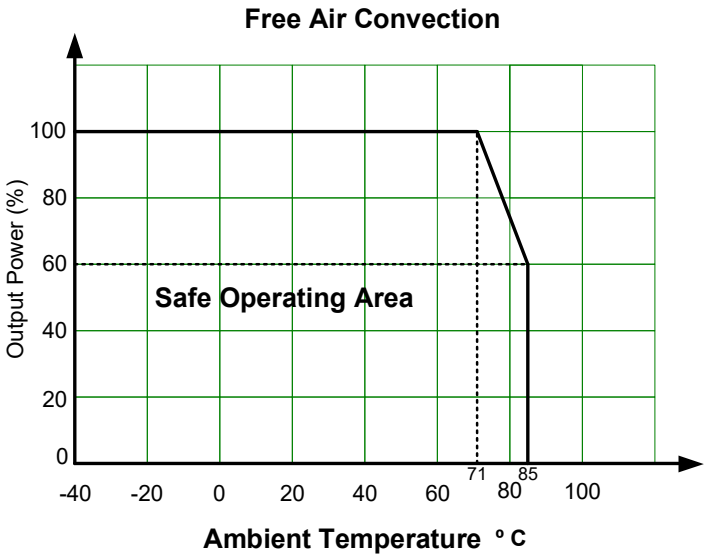
General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	300		KHz
Operating temperature	See derating graph		-40 to +85	°C
Storage temperature			-55 to +125	°C
Pin soldering temperature			300	°C
Cooling	Free air convection			

Humidity	Non-condensing	> 5	95	% RH
Case material	Black Plastic (flammability to UL 94V-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 12.00mm			
MTBF	> 1 000 000 hrs (MIL-HDBK -217F, t=+25°C) / Full Load			

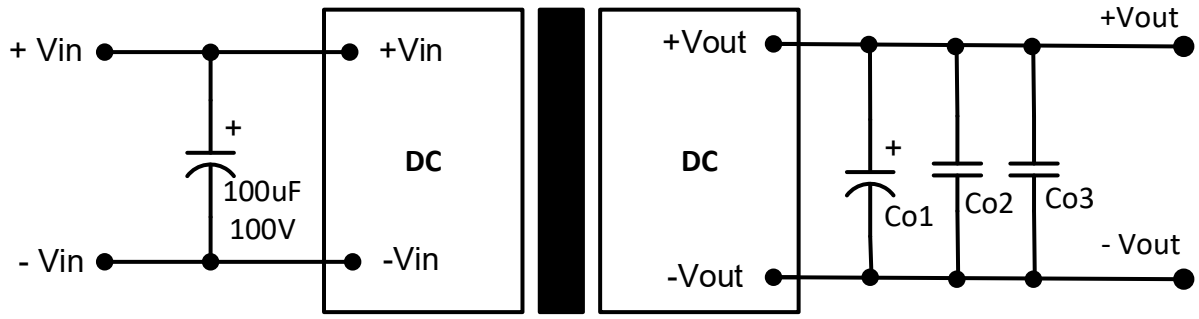
Safety Specifications		
Parameters		
Agency Approvals	UL62368-1 models marked with * only	
Standards	Designed to meet IEC/EN/UL62368-1	
	EMC - Conducted and radiated emission	CISPR32/EN55032, CLASS B with EMC recommended circuit
	Electrostatic Discharge Immunity	IEC 61000-4-2 Contact ±4KV, Criteria B
	RF, Electromagnetic Field Immunity	IEC 61000-4-3 10V/m, Criteria A
	Electrical Fast Transient/Burst Immunity	IEC 61000-4-4 ±2KV, Criteria B with EMC recommended circuit
	Surge Immunity	IEC 61000-4-5 L-L ±2KV, Criteria B with EMC recommended circuit
	RF, Conducted Disturbance Immunity	IEC 61000-4-6 3Vr.m.s, Criteria A

Derating



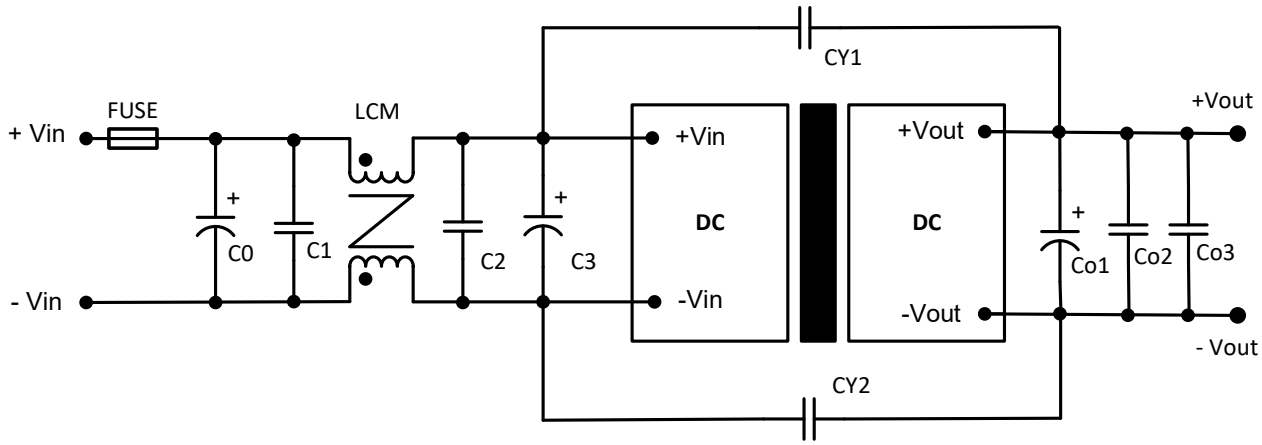
Typical Application Circuit

Typical application circuit is to further lower the input and output ripple. It is not required for general use.
For dual output models, output capacitors are connected to each output.



Vout	Co1	Co2	Co3
3.3, 5, 6V	100uF, 16V	10uF, 50V	0.1uF, 16V
9, 12, 15V	47uF, 25V	10uF, 50V	0.1uF, 25V
24V	47uF, 50V	10uF, 50V	0.1uF, 50V

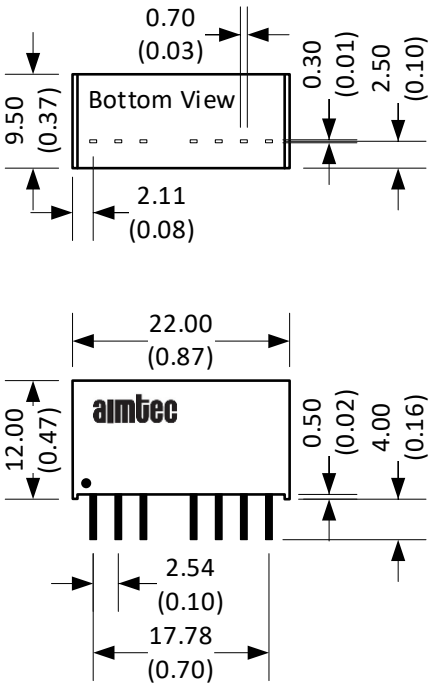
EMC Recommended Circuit

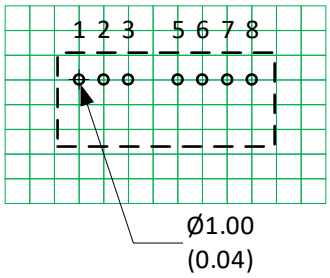


Vin	C0, C3	C1, C2	LCM	CY1, CY2
12V	330uF, 25V	10uF, 100V	1.4~1.7mH	1nF, 2KV 1nF, 4KV (H30 models)
24V	330uF, 50V			
48V	220uF, 100V			

Fuse to be selected according to application needs. Output components refer to Typical Application Circuit.

Dimensions





Note : Grid 2.54*2.54 mm

Notes:
All dimensions are typical in millimeters (inches).
Pin section tolerances : ±0.10 (±0.004)
General tolerance : ±0.25 (±0.01)

in Out Specifications		
Pin	Single	Dual
1	-V Input	-V Input
2	+V Input	+V Input
3	Ctrl On/Off	Ctrl On/Off
5	NC	NC
6	+V Output	+V Output
7	-V Output	Common
8	NC	-V Output