

## Series AM6GH-Z

### 6 Watt | DC-DC Converter



#### FEATURES:

- SIP8 Package
- High Efficiency up to 87%
- On / Off Control
- No Minimum Load
- Operating Temperature -40°C to +85°C
- Continuous Short Circuit Protection
- Input / Output Isolation 1500 & 3000 VDC
- Wide 4:1 Input Range



#### Models Single Output

Model	Input Voltage (V)	Output Voltage (V)	Output Current Max (mA)	Isolation (VDC)	Input Current Full   No Load (mA)		Capacitor Load (µF)	Efficiency (%)
AM6GH-2403SZ	9-36	3.3	1500	1500	261	6	4700	79
AM6GH-2405SZ	9-36	5	1200	1500	298	6	2200	84
AM6GH-2409SZ	9-36	9	666	1500	290	6	1000	86
AM6GH-2412SZ	9-36	12	500	1500	287	6	470	87
AM6GH-2415SZ	9-36	15	400	1500	287	6	220	87
AM6GH-2424SZ	9-36	24	250	1500	287	6	100	87
AM6GH-4803SZ	18-75	3.3	1500	1500	131	6	4700	79
AM6GH-4805SZ	18-75	5	1200	1500	151	6	2200	83
AM6GH-4809SZ	18-75	9	666	1500	147	6	1000	85
AM6GH-4812SZ	18-75	12	500	1500	144	6	470	87
AM6GH-4815SZ	18-75	15	400	1500	144	6	220	87
AM6GH-4824SZ	18-75	24	250	1500	144	6	100	87
AM6GH-2403SH30Z	9-36	3.3	1500	3000	261	6	4700	79
AM6GH-2405SH30Z	9-36	5	1200	3000	298	6	2200	84
AM6GH-2409SH30Z	9-36	9	666	3000	290	6	1000	86
AM6GH-2412SH30Z	9-36	12	500	3000	287	6	470	87
AM6GH-2415SH30Z	9-36	15	400	3000	287	6	220	87
AM6GH-2424SH30Z	9-36	24	250	3000	287	6	100	87
AM6GH-4803SH30Z	18-75	3.3	1500	3000	131	6	4700	79
AM6GH-4805SH30Z	18-75	5	1200	3000	151	6	2200	83
AM6GH-4809SH30Z	18-75	9	666	3000	147	6	1000	85
AM6GH-4812SH30Z	18-75	12	500	3000	144	6	470	87
AM6GH-4815SH30Z	18-75	15	400	3000	144	6	220	87
AM6GH-4824SH30Z	18-75	24	250	3000	144	6	100	87

#### Models Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current Max (mA)	Isolation (VDC)	Input Current Full   No Load (mA)		Capacitor Load (µF)	Efficiency (%)
AM6GH-2405DZ	9-36	±5	±600	1500	298	6	±330	84
AM6GH-2412DZ	9-36	±12	±250	1500	291	6	±220	86
AM6GH-2415DZ	9-36	±15	±200	1500	287	6	±100	87
AM6GH-4805DZ	18-75	±5	±600	1500	152	6	±330	82
AM6GH-4812DZ	18-75	±12	±250	1500	147	6	±220	85
AM6GH-4815DZ	18-75	±15	±200	1500	145	6	±100	86
AM6GH-2405DH30Z	9-36	±5	±600	3000	298	6	±330	84
AM6GH-2412DH30Z	9-36	±12	±250	3000	291	6	±220	86
AM6GH-2415DH30Z	9-36	±15	±200	3000	287	6	±100	87
AM6GH-4805DH30Z	18-75	±5	±600	3000	152	6	±330	82
AM6GH-4812DH30Z	18-75	±12	±250	3000	147	6	±220	85
AM6GH-4815DH30Z	18-75	±15	±200	3000	145	6	±100	86

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

## Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage range	24 48	9-36 18-75		VDC
Filter	Capacitor			
Transient recovery time		250		µs
Transient Response deviation	3.3 & 5 V output		±3 ±5	%
Start up time		30		ms
Absolute Maximum Rating	24 Vin 48 Vin	-0.7-50 -0.7-100		VDC
On / Off Control	ON – high impedance or open; OFF – 2-4mA input current through 1KΩ (standby 2.5mA max)			
Input reflected ripple current*	24Vin 48Vin	20 40		mA p-p

\* The input reflected ripple current should be measured with connected 12µH inductor and 47µF input capacitor (ESR<1Ω at 100 KHz)

## Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	3 sec		1500 & 3000	VDC
Resistance		> 1000		MOhm
Capacitance		50		pF

## Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy			±1	%
Cross Regulation (Dual)	1 <sup>st</sup> output 25% to 100%, 2 <sup>nd</sup> output 100%	±5		%
Short Circuit protection	Continuous			
Short Circuit restart	Auto recovery			
Line voltage regulation	LL~HL		±0.2	%
Load voltage regulation	(0 to 100% load) Single (0 to 100% load) 3V, 5V, & Dual		±0.5 ±1.0	%
Temperature coefficient		±0.02		%/°C
Ripple & Noise*	At 20MHz Bandwidth		125	mV p-p

\* Measured with a 100nF CC.

## General Specifications

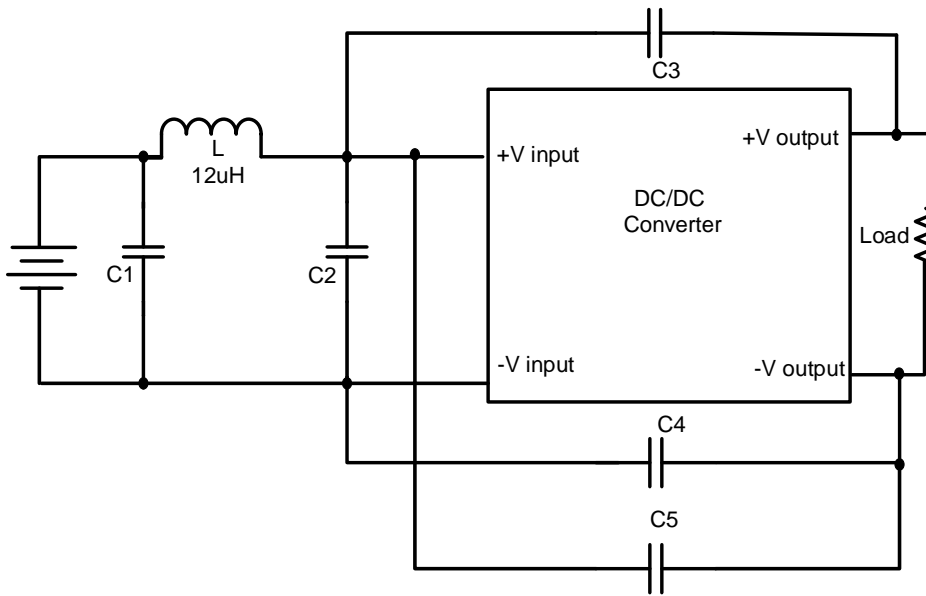
Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	580		KHz
Operating temperature	Derating above +71°C	-40 to +85		°C
Storage temperature		-55 to +125		°C
Max Case temperature			+100	°C
Cooling	Free air convection (30-65 LFM)			
Humidity			95	%
Case material	Non-conductive black plastic			
Potting material	Epoxy (UL94V-0 rated)			
Pin Material	C5191R-H Solder coated			
Weight		4.5		g
Dimensions (L x W x H)	0.86 x 0.36 x 0.44 inch 21.85 x 9.20 x 11.18 mm			
MTBF	>800,000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C)			

## Safety Specifications

Parameters	
Agency Approvals	CE, UL
Standards	EN55032 Class A, EN55024 (external class A circuit required)
	IEC61000-4-2, Perf. Criteria A
	IEC61000-4-3, Perf. Criteria A
	IEC61000-4-4, Perf. Criteria A (external EFT/Surge circuit required)

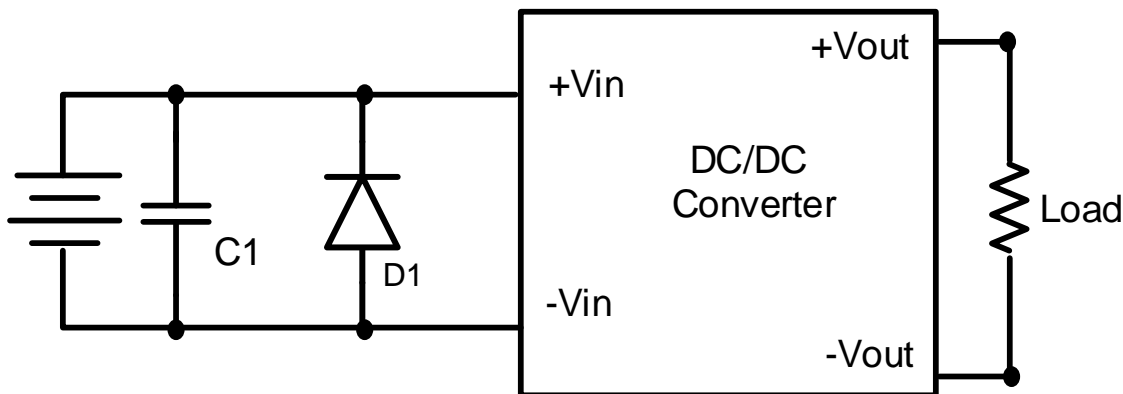


**Class A EMI, external filter**



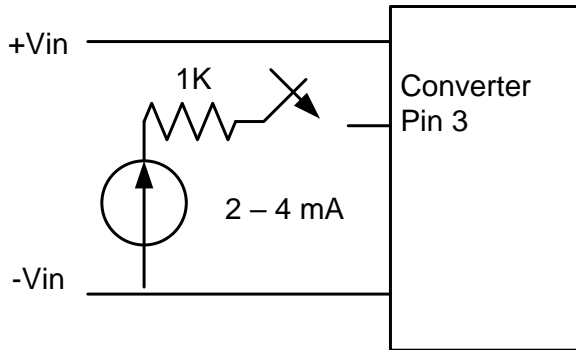
Vin	C1 & C2	C3 & C4	C5
24VDC	10 $\mu$ F/35V, MLCC	470pF/3KV, MLCC	-
48VDC	2.2 $\mu$ F/100V, MLCC	1nF/3KV, MLCC	1nF/3KV, MLCC

**EFT/Surge Application circuit**



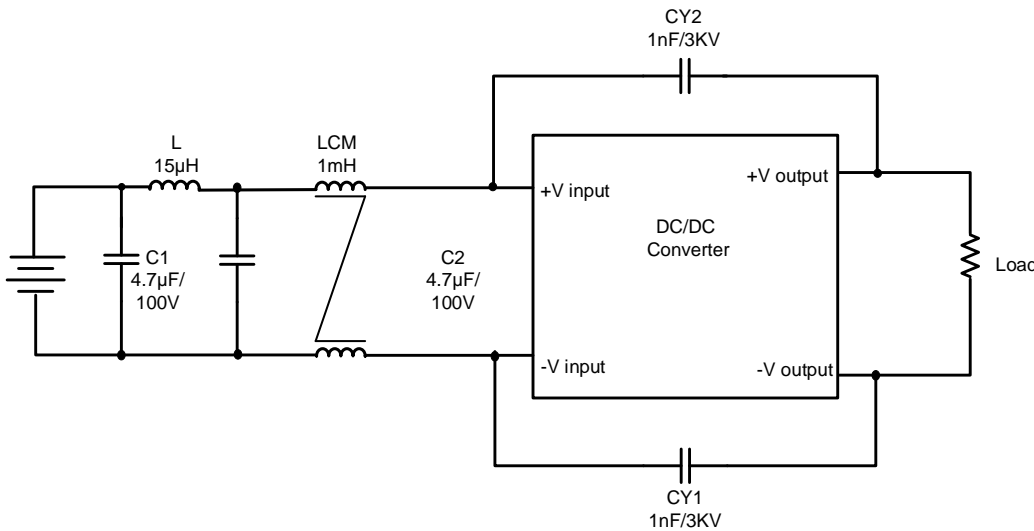
Vin	C1	D1
24VDC	300 $\mu$ F/100V	TVS, 3kW, 75V
48VDC	470 $\mu$ F/100V	TVS, 3kW, 130V

**Control ON/OFF pin connection example:**



The voltage could be applied through a limiting resistor. The converter is turned on the external switching circuit is open.

**Recommended circuit for class B compliance**



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