aimtec
Your Power Partner

Series AM9G-Z

9 Watt | DC-DC Converter



FEATURES:

- SIP8 Metal Case Package
- High Efficiency up to 90%
- On / Off Control
- Input Under Voltage Lockout
- Operating Temperature -40°C to +85°C
- Continuous Short Circuit Protection
- Input / Output Isolation 1600VDC
- Over Voltage and Over Current Protection

RoHS

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 (%)
AM9G-1203SZ	9-18	3.3	2000	1600	679	15	2600	81
AM9G-1205SZ	9-18	5	1600	1600	784	15	1300	85
AM9G-1209SZ	9-18	9	1000	1600	862	15	800	87
AM9G-1212SZ	9-18	12	750	1600	852	15	560	88
AM9G-1215SZ	9-18	15	600	1600	843	15	470	89
AM9G-1224SZ	9-18	24	375	1600	843	15	200	89
AM9G-2403SZ	18-36	3.3	2000	1600	344	15	2600	80
AM9G-2405SZ	18-36	5	1600	1600	392	15	1300	85
AM9G-2409SZ	18-36	9	1000	1600	426	15	800	88
AM9G-2412SZ	18-36	12	750	1600	421	15	560	89
AM9G-2415SZ	18-36	15	600	1600	417	15	470	90
AM9G-2424SZ	18-36	24	375	1600	417	15	200	90
AM9G-4803SZ	36-75	3.3	2000	1600	168	10	2600	82
AM9G-4805SZ	36-75	5	1600	1600	196	10	1300	85
AM9G-4809SZ	36-75	9	1000	1600	213	10	800	88
AM9G-4812SZ	36-75	12	750	1600	211	10	560	89
AM9G-4815SZ	36-75	15	600	1600	211	10	470	89
AM9G-4824SZ	36-75	24	375	1600	211	10	200	89

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 (%)
AM9G-1205DZ	9-18	±5	±800	1600	784	15	±800	85
AM9G-1212DZ	9-18	±12	±375	1600	852	15	±390	88
AM9G-1215DZ	9-18	±15	±300	1600	843	15	±200	89
AM9G-2405DZ	18-36	±5	±800	1600	388	15	±800	86
AM9G-2412DZ	18-36	±12	±375	1600	421	15	±390	89
AM9G-2415DZ	18-36	±15	±300	1600	431	15	±200	87
AM9G-4805DZ	36-75	±5	±800	1600	194	10	±800	86
AM9G-4812DZ	36-75	±12	±375	1600	216	10	±390	87
AM9G-4815DZ	36-75	±15	±300	1600	216	10	±200	87

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	12 24 48	9-18 18-36 36-75		VDC
Filter	Capacitor			
Transient recovery time	100% - 25% load, 25% load step change	250		µs
Transient Response deviation	100% - 25% load, 25% load step change, 3.3 & 5Vout 100% - 25% load, 25% load step change, Others		±5 ±3	%
Startup time		50		ms
Absolute Maximum Rating	12 Vin 24 Vin		25 50	VDC

	48 Vin		100	
Peak Input Voltage Time			100	ms
Input Reflected Ripple Current*			30	mA p-p
On / Off Control	ON – high impedance or open; OFF – 2-4mA input current through 1KΩ (standby 2.5mA typ.)			
Under Voltage lockout	12 (ON/OFF) 24(ON/OFF) 48(ON/OFF)	8.9 / 7 16 / 13 33 / 30		VDC

* 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	60 sec		1600	VDC
Case / Input or Output	60 sec		1000	VDC
Resistance		> 1000		MOhm
Capacitance			50	pF

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy			±1	%
Cross Regulation (Dual)	1st output 25% to 100%, 2nd output 100%		±5	%
Short Circuit protection	Continuous			
Short Circuit restart	Auto recovery			
Line voltage regulation	LL~HL		±0.2	%
Load voltage regulation (Single)	0-100% load, 3.3 Vin 0-100% load, others		±1 ±0.5	%
Load voltage regulation (Dual)	0-100% balanced load		±1	%
Over Voltage protection		130		%
Over Current protection		150		%
Temperature coefficient		±0.02		%/°C
Ripple & Noise*	At 20MHz Bandwidth		75	mV p-p

* Measured with a 1µF CC and a 10µF EC.

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load, 12 & 24Vin models 100% load, 48Vin models	400 500		KHz
Operating temperature	Refer Derating Curve	-40 to +85		°C
Storage temperature		-55 to +125		°C
Max Case temperature			+100	°C
Cooling	Free air convection (30 – 65 LFM)			
Humidity			5 - 95	%
Case material	Copper			
Potting material	Epoxy (UL94V-0 rated)			
Pin Material	C5191R-H Solder coated			
Weight		7.3		g
Dimensions (L x W x H)	0.86 x 0.38 x 0.44 inch 21.85 x 9.60 x 11.20 mm			
MTBF	>900,000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C)			
Maximum soldering temp.	1.5mm from case for 10 sec max		260	°C

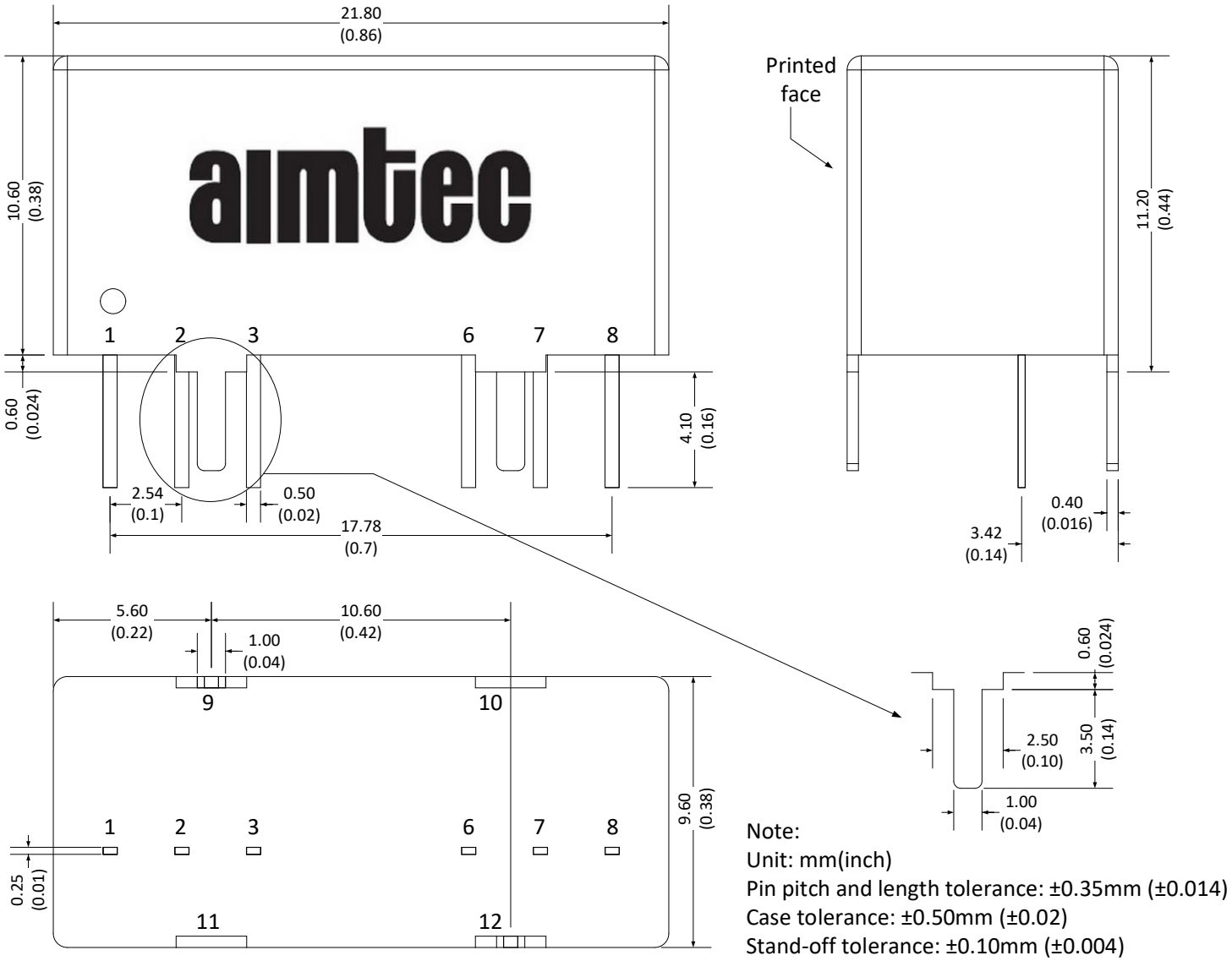
Safety Specifications

Parameters	
Standards	EN55032 Class A (external class A circuit required)
	IEC61000-4-2, Perf. Criteria B
	IEC61000-4-3, Perf. Criteria A
	IEC61000-4-4, Perf. Criteria A (external EFT/Surge circuit required)
	IEC61000-4-5, Perf. Criteria A (external EFT/Surge circuit required)
	IEC61000-4-6, Perf. Criteria A
	IEC61000-4-8, Perf. Criteria A
	NOTE: designed to meet IEC/EN/UL 60950-1, 62368-1

Pin Out Specifications

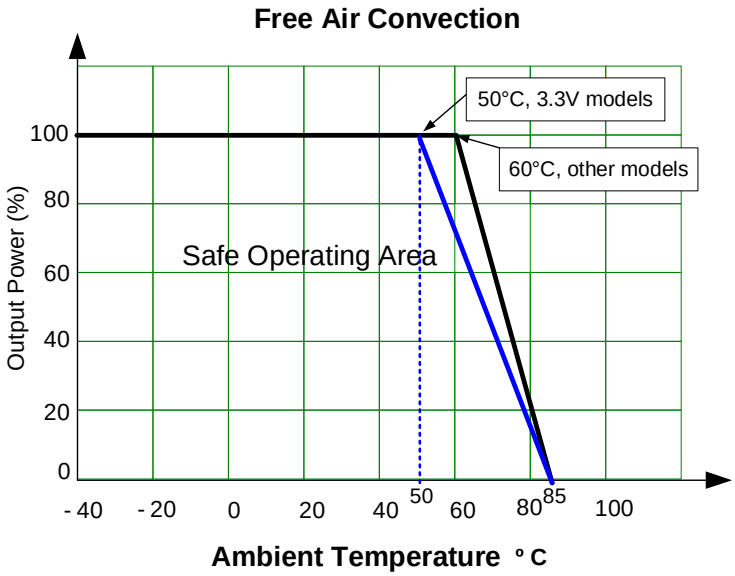
Pin	1600 VDC	
	Single	Dual
1	- V Input	- V Input
2	+ V Input	+ V Input
3	On/Off Control	On/Off Control
6	+ V Output	+ V Output
7	- V Output	Common
8	N.C.	- V Output
9	Case	Case
10	Stand-off	Stand-off
11	Stand-off	Stand-off
12	Case	Case

Dimensions

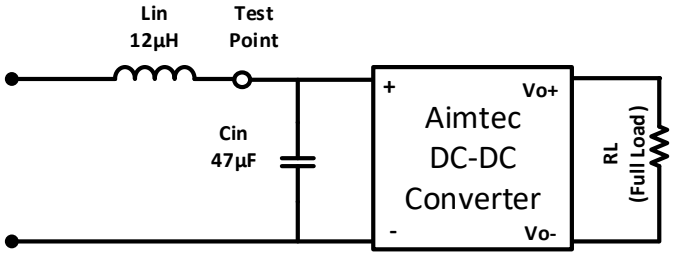


Note:
Unit: mm(inch)
Pin pitch and length tolerance: ±0.35mm (±0.014)
Case tolerance: ±0.50mm (±0.02)
Stand-off tolerance: ±0.10mm (±0.004)

Derating

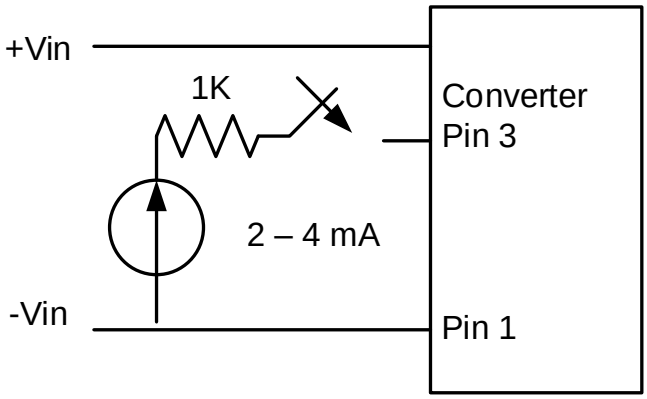


Input Reflected Ripple Test Circuit



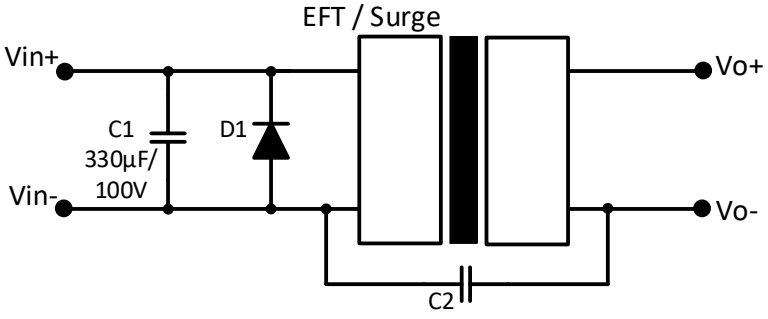
* Tested at full load, and nominal input

Control ON/OFF pin connection example



NOTE: The voltage could be applied trough a limiting resistor. The converter is turned on when the external switching circuit is open

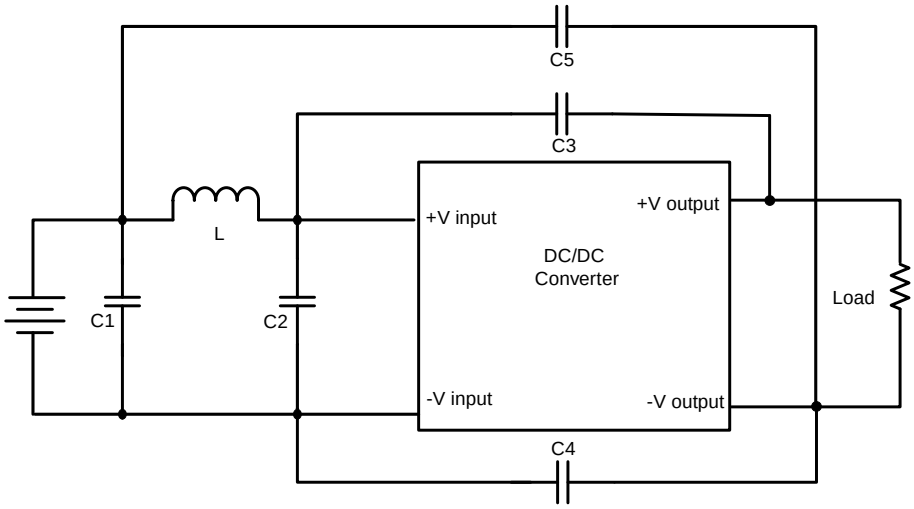
EFT/Surge Application circuit



Vin	C2	D1
12VDC	-	TVS, 3kW, 26V
24VDC	-	TVS, 3kW, 70V
48VDC	1000pF/3KV	TVS, 3kW, 120V

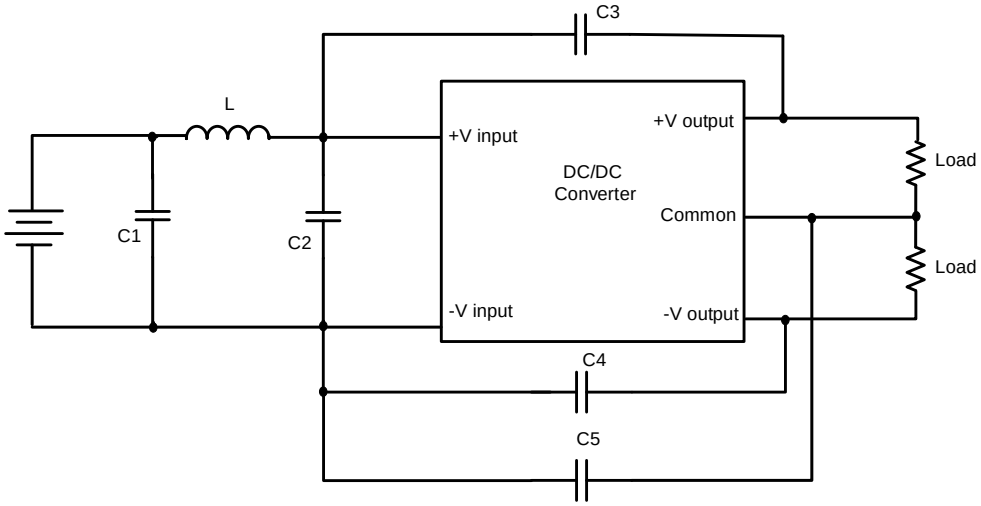
Class A EMI, external filter

Single output models



Vin	C1	C2	C3, C4	C5	L
12VDC	10µF/35V	-	1nF/3KV	-	3.3µH
24VDC	4.7µF/100V	4.7µF/100V	1nF/3KV	-	10µH
48VDC	4.7µF/100V	4.7µF/100V	1nF/3KV	220pF/3KV	10µH

Dual output models



Vin	C1	C2	C3, C4	C5	L
12VDC	10µF/35V	-	1nF/3KV	-	3.3µH
24VDC	4.7µF/100V	4.7µF/100V	1nF/3KV	-	10µH
48VDC	4.7µF/100V	4.7µF/100V	1nF/3KV	220pF/3KV	10µH

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