

# Series AME40-MAZ

## 40 Watt | AC-DC / DC-DC Converter



### FEATURES:

- 4000VAC I/O isolation
- Medical Switching power modules for PCB mounting
- Operating temperature: -40 to +85°C
- Universal Input: 90-264VAC, 47-440Hz, or 130-370VDC
- Energy star compliant
- RoHS compliant
- Low Ripple and Noise
- CE, cULus approvals



### Models Single output

Model	Input Voltage (VAC/Hz)	Input Voltage (VDC)	Output Voltage (V)	Maximum Capacitive load (μF)	Output Current max (A)	Efficiency (%)	
						115 VAC	230 VAC
AME40-3.3SMAZ	90-264/47-440	130-370	3.3	8200	8	77	75
AME40-5SMAZ	90-264/47-440	130-370	5	8200	8	80	80
AME40-12SMAZ	90-264/47-440	130-370	12	2200	3.33	84	85
AME40-15SMAZ	90-264/47-440	130-370	15	1500	2.66	84	84
AME40-24SMAZ	90-264/47-440	130-370	24	560	1.66	82	82

### Models Dual output

Model	Input Voltage (VAC/Hz)	Input Voltage (VDC)	Output Voltage (V)	Maximum Capacitive load (μF)	Output Current max (A)	Efficiency (%)	
						115 VAC	230 VAC
AME40-5DMAZ	90-264/47-440	130-370	±5	3300	±4	80	80
AME40-12DMAZ	90-264/47-440	130-370	±12	2200	±1.66	82	80
AME40-15DMAZ	90-264/47-440	130-370	±15	1000	±1.33	82	81
AME40-24DMAZ	90-260/47-440	130-370	±24	470	±0.835	79	77

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	Conditions	Typical	Maximum	Units
Current	115 VAC		1000	mA
	230 VAC		530	mA
Inrush current <2ms	115 VAC		30	A
	230 VAC		50	A
Leakage current			0.15	mA
External fuse	Recommended slow blow type	3.15		A
Input dissipation	115 / 230 VAC	≤0.5		W
Start-up time		150		ms

### Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±2		%
Line regulation	(LL-HL)	±2		%
Load regulation	0-100% load single	±3		%
	0-100% load dual	±3		
Cross regulation	25% load - 1 <sup>st</sup> out, 100% load – 2 <sup>nd</sup> out	±5		%
Transient response deviation	25% load Step	±2		% of Vout
Ripple & Noise*	3.3 / 5V models	75		mV p-p
	12 / 15V models	100		
	24V models	150		
Hold-up time (min)	115VAC	15		ms
Minimum Load Current		0		% of Max

\*Ripple & Noise measured at 20MHz bandwidth with 0.1μF M/C and 47μF E/C

## Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec		4000	VAC
Isolation Resistance		>1000		MΩ

## General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency		47		KHz
Protection class		Class II		
Over current protection	Foldback	110	140	%
Over voltage protection		Zener diode clamp	110	%
Short circuit protection		Auto recovery		
Operating temperature	With derating above 50°C	-40 - +85		°C
Maximum case temperature			100	°C
Storage temperature		-40 to +95		°C
Temperature coefficient		0.02		% / °C
Cooling		Free air convection		
Humidity	Non condensing		95	% RH
Case material		Plastic (flammability to UL 94V-0)		
Weight		300		g
Dimensions (L X W X H)		3.56 x 2.48 x 1.18 inches 90.5 x 63 x 30 mm		
MTBF		> 800,000 hrs (MIL-HDBK -217F, t <sub>a</sub> =+25 °C)/Full Load > 200,000 hrs (MIL-HDBK -217F, t <sub>a</sub> =at highest operating temperature)/Full Load		

## Environment Approval

Test	Parameters	Conditions
Shock	Wave form	Half sine wave
	Acceleration amplitude	5gn
	Bump duration	30 ms
	Converter operation	Before and after test, body mounted (on chassis)
	Number of bumps	18 (3 in each direction for every axis)
Vibration	Test mode	Sweep sine, 10-100Hz, speed 0.05Hz/s
	Displacement	1 mm
	Acceleration	3g, 3 loops 30min one cycle, 3h total, every axis tested
	Converter operation	Before and after test, body mounted (on chassis)

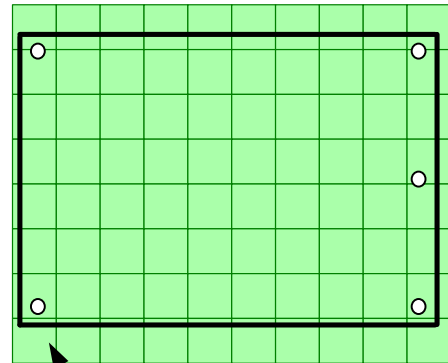
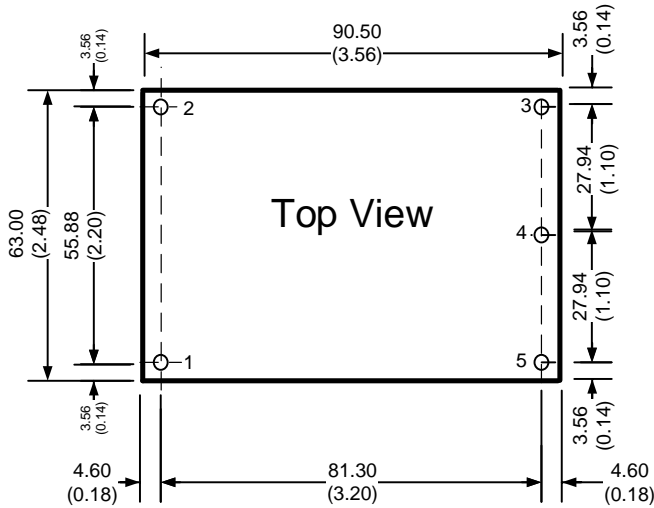
## Safety Specifications

Parameters		
Agency approvals	cULus, CE, CB	
Standards	Medical Electrical Equipment	IEC\EN\UL 60601-1, 2 x MOOP, CSA-C22.2 No. 601.1-M90
	Information technology Equipment	EN 60950-1:2006+A11:2009
	Harmonic Current Emissions	IEC/EN 61000-3-2, Class A
	EMI - Conducted and radiated emission	EN55011, class B
	Voltage fluctuations and flicker	IEC/EN 61000-3-3, (EN60555-3)
	Electrostatic Discharge Immunity	IEC 61000-4-2 Level 3
	RF, Electromagnetic Field Immunity	IEC 61000-4-3 Level 2
	Electrical Fast Transient/Burst Immunity	IEC 61000-4-4 Level 3
	Surge Immunity	IEC 61000-4-5 Level 2
	RF, Conducted Disturbance Immunity	IEC 61000-4-6 Level 2
	Power frequency Magnetic Field Immunity	IEC 61000-4-8 Level 2
Voltage dips, Short Interruptions Immunity	IEC 61000-4-11	

### Pin Out Specifications

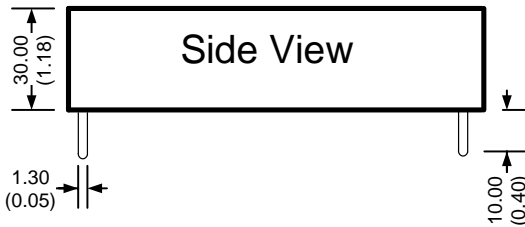
Pin	Single	Dual
1	AC Input (L)	AC Input (L)
2	AC Input (N)	AC Input (N)
3	+V Output	+V Output
4	-V Output	Common
5	No pin	-V Output

### Dimensions



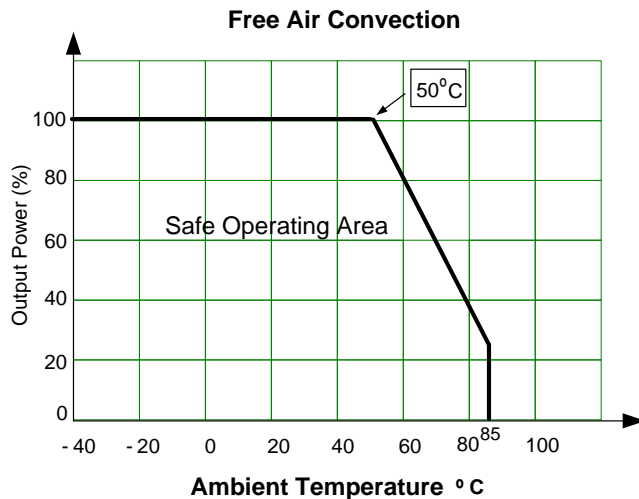
DIV: 10.00 (0.40)

5Ø 1.30 (Ø 0.05)

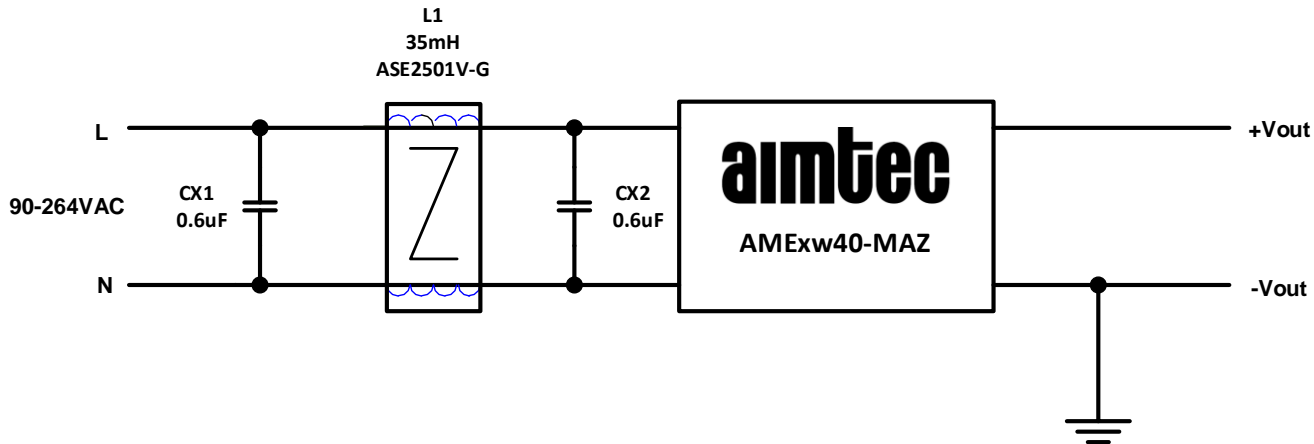


Dimensions mm (inch)  
Case Tolerance  $\pm 0.50$  ( $\pm 0.02$ )  
Pin Diameter  $1.30 \pm 0.05$  ( $0.05 \pm 0.002$ )  
Pin Pitch Tolerance  $\pm 0.35$  ( $\pm 0.014$ )  
Pin Length Tolerance  $\pm 2.00$  ( $\pm 0.079$ )

### Derating



**Earth/Ground Connection EMC EN55022 class B compliant Application circuit**



The Application circuit is EMC compliant for any type of Earth/Ground connection: Input Ground connection, Output Ground connection as shown or both sides, which is not recommended if the product Isolation is used as a Safety feature.

**NOTE:** 1. Datasheets are updated as needed and as such, specifications are subject to change without notice. Once printed or downloaded, datasheets are no longer controlled by Aimtec; refer to [www.aimtec.com](http://www.aimtec.com) for the most current product specifications. 2. Product labels shown, including safety agency certifications on labels, may vary based on the date manufactured. 3. Mechanical drawings and specifications are for reference only. 4. All specifications are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified. 5. Aimtec may not have conducted destructive testing or chemical analysis on all internal components and chemicals at the time of publishing this document. CAS numbers and other limited information are considered proprietary and may not be available for release. 6. This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet. 7. Warranty is in accordance with Aimtec's standard Terms of Sale available at [www.aimtec.com](http://www.aimtec.com).