

AMA04W Series

4 Watts

- Compact size
- Wide input range, 90-305 VAC
- Single and dual outputs
- Encapsulated PCB mount
- -40 to +70°C Operation
- EN55022 Level B conducted & radiated
- 5 year warranty



The AMA04W series of compact, encapsulated AC-DC power modules are PCB mount and have low emissions, meeting EN55022 level B for both conducted and radiated noise. Notably they also have a wide AC input range, accepting between 90-305AC. Single output versions are available from 3.3V to 24VDC, as well as a number of dual output models. All models have a FiDUS 5 Year warranty.

Dimensions:

1.46 x 1.08 x 0.69" (37.0 x 27.5 x 17.5mm)

Models & Ratings

Model Number	Output Power	Output 1		Output 2		Efficiency
		Voltage	Current	Voltage	Current	
AMA0403W	3.96W	3.3V	1.2A			70%
AMA0405W	4W	5V	0.8A			71%
AMA0408W	4W	8V	0.5A			74%
AMA0409W	4W	9V	0.44A			76%
AMA0412W	4W	12V	0.33A			75%
AMA0414W	4W	14V	0.29A			75%
AMA0415W	4W	15V	0.27A			77%
AMA0424W	4W	24V	0.17A			77%
AMA04D01W	3.5W	5V	0.6A	3.3V	0.15A	72%
AMA04D02W	3.6W	8V	0.38A	5V	0.12A	75%
AMA04D03W	3.6W	12V	0.25A	5V	0.12A	75%

Key specifications

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
AC Input range	90		305	VAC	No derating
Operating temperature	-40		70	°C	See derating curve & Environmental notes
Efficiency	70		77	%	
Dimensions	1.46 x 1.08 x 0.69" (37.0 x 27.5 x 17.5mm)				
EMC	EN55022 Level B Conducted and Radiated. EN61000-3 and EN61000-4, harmonics, flicker, Surge, EFT, ESD, conducted and radiated.				
Safety	IEC60950-1, UL60950-1, CSA22.2 No 234 as per cUL, CE				

Input					
Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Input voltage	90		305	VAC	
	120		430	VDC	
Input frequency	47		440	Hz	
Power factor					EN61000-3-2 class A compliant
Input current			110	mA rms	At 115VAC
Inrush current		15/25		A	115/230VAC cold start at 25°C
No load input power			0.3	W	
Earth leakage current					Class II construction
Input protection	3.15A slow blow fuse required				

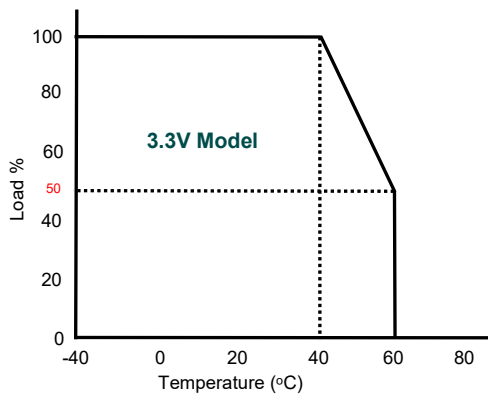
Output					
Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Output voltage	3.3		24	VDC	See Model & Ratings table
Set point accuracy	Singles: All outputs $\pm 2\%$			%	
	Duals: V1 $\pm 2\%$, V2 $\pm 5\%$				
Line regulation	Singles: 3.3-9V outputs $\pm 0.5\%$, 12-24V outputs $\pm 0.2\%$			%	Low line to High line
	Duals: V1 $\pm 0.2\%$, V2 $\pm 3\%$				
Load regulation	Singles: 3.3-9V outputs $\pm 1.5\%$, 12-24V outputs $\pm 0.5\%$			%	0 to 100% for single outputs. 25 to 100% for dual outputs
	Duals: V1 $\pm 0.5\%$, V2 $\pm 5\%$				
Minimum load	0			%	
Transient response			4	%	For a 25% load change, recovery to within 1% in less than 500 μ S.
Ripple & Noise	Singles: 3.3-5V: <250, 8-9V: <200, 12-14V: <150, 15-24V: <100			mV pk-pk	All models measured with 0.1 μ F ceramic and 47 μ F electrolytic. 20 MHz bandwidth.
	Duals: D01: <200, D02: <150, D03: <100				
Hold up time	15			mS	
Overload protection	110		260	%	
Short circuit protection					Trip and restart. Automatic recovery

General					
Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency	70		77	%	See Model & Ratings table
Isolation	3000			VAC	Input to output
Switching frequency	46		66	KHz	
Power density			3.7	W/in ³	
MTBF		>450		KHrs	As per MIL-HDBK-217F, 25°C GB
Weight		26		g	

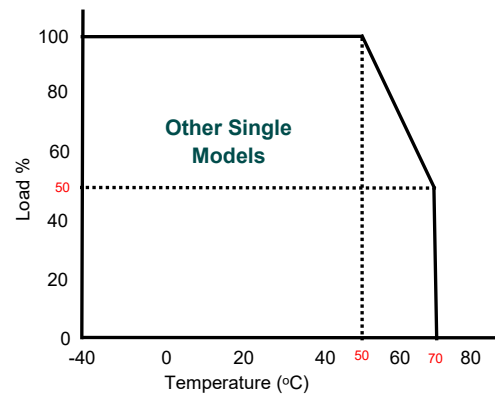
Environmental

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating temperature	-40		70	°C	3.3V version: derate linearly from 100% power at 40°C to 40% at 60°C. 5V version: Above 280VAC in, derate linearly from 100% power at 40°C to 40% at 70°C All other models: derate linearly from 100% power at 50°C to 40% load at 70°C Dual output models: -25°C to 70°C
Storage temperature	-40		85	°C	
Cooling					Convection cooled
Temperature coefficient			±0.02	%/°C	
Humidity			95	%RH	

Derating curve



Derating curve



EMC: Emissions

	Standard	Test level	Criteria	Notes & Conditions
Conducted	EN55022	B		
Radiated	EN55022	B		
Harmonic current	EN61000-3-2	Class A		
Voltage flicker	EN61000-3-3			

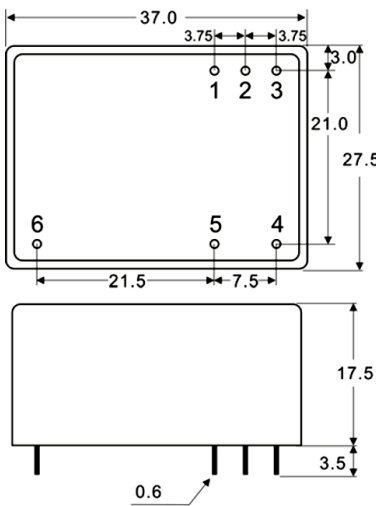
EMC: Immunity

	Standard	Test level	Criteria	Notes & Conditions
ESD	EN61000-4-2	±4kV contact, ±8kV air	A	
Radiated	EN61000-4-3	3V/m	A	
EFT	EN61000-4-4	3	A	
Surges	EN61000-4-5	Installation Class 3	A	
Conducted	EN61000-4-6	3Vrms	A	
Magnetic Fields	EN61000-4-8	1A/m	A	

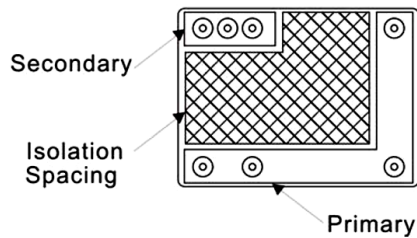
Safety Approvals

	Safety standard	Notes & Conditions
UL	UL60950-1, CSA 22.2 No 234 as per cUL	
CB	IEC60950-1	
CE		2011/65/EU RoHS Directive and 2014/35/EU Low voltage directive
Equipment protection class		Class II

Mechanical Details



Isolation
Bottom View



Pin Connections

Pin	Single	Dual
1	+Vout	+V1
2	GND	COM
3	NC	+V2
4	AC IN (L)	AC IN (L)
5	AC IN (N)	AC IN (N)
6	NC	NC

Dimension notes

- All dimensions shown in millimetres
- Pin diameter 0.5 ± 0.05 (0.02 ± 0.002)
- Case tolerance ± 0.5 (± 0.002)