

## 2 Watts

- Compact size
- 90-305VAC Universal input
- Single output 3.3 to 24V
- Encapsulated PCB mount
- -40 to +80°C Operation
- EN5022 Level B conducted & radiated
- 5 Year warranty



The AMA02S 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. They have a wide temperature range from -40 to +80°C and offer low no load power consumption of <0.3W. The AMA02S also accepts a wide input voltage range, taking between 90-305VAC. Outputs are available from 3.3 to 24V and all come with a FiDUS 5 Year warranty

Dimensions:

1.12 x 1.02 x 0.67" (28.5 x 25.8 x 17.0mm)

### Models & Ratings

Model Number	Output Power	Output voltage	Output Current	Efficiency
AMA0203S	2W	3.3V	0.6A	67%
AMA0205S	2W	5V	0.4A	70%
AMA0209S	2W	9V	0.22A	73%
AMA0212S	2W	12V	0.17A	73%
AMA0215S	2W	15V	0.13A	74%
AMA0224S	2W	24V	0.08A	75%

### Notes

1. It is required to add varistor TMOV14RP300E or equivalent across L/ N to meet EN61000-4-5

### Key specifications

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
AC Input range	90		305	VAC	No derating
Operating temperature	-40		80	°C	See derating curve
Efficiency	67		75	%	
Dimensions	1.12 x 1.02 x 0.67" (28.5 x 25.8 x 17.0mm)				
EMC	EN55022 Level B Conducted and Radiated. EN61000-3 and EN61000-4, harmonics, flicker, Surge, EFT, ESD, conducted and radiated				
Safety	EN/IEC60950-1, UL60950-1, CSA22.2 No 234 as per cUL, CE				

### Input

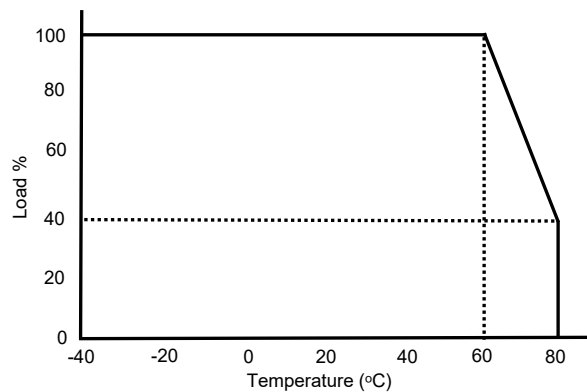
Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Input voltage	90		305	VAC	No derating
	120		430	VDC	DC fuse required
Input frequency	47		63	Hz	
Power factor					EN61000-3-2 class A compliant
Input current			75	mA rms	At 115VAC
Inrush current		30/50		A	115/230VAC cold start at 25°C
No load input power			0.3	W	
Earth leakage current					Class II construction, no earth
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			±6	%	
Line regulation			±5	%	Low line to High line
Load regulation			±6	%	10 to 100%
Minimum load	0			%	
Transient response			4	%	For a 25% load change, recovery to within 1% in less than 500uS.
Ripple & Noise		300		mV	All models measured with 0.1uF ceramic and 47uF electrolytic. 20 MHz bandwidth.
Hold up time	15			mS	
Overload protection	172		336	%	
Short circuit protection					Trip & restart. Automatic recovery

General					
Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency	67		75	%	See models & Ratings table
Isolation	3000			VAC	Input to output
Switching frequency	32		90	KHz	
Power density			2.6	W/In <sup>3</sup>	
MTBF		>450		KHrs	As per MIL-HDBK-217F, 25°C GB
Weight		19.9		g	

Environmental					
Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating temperature	-40		80	°C	Derate linearly from 100% power at 60°C to 40% power at 80°C.
Storage temperature	-40		85	°C	
Cooling					Convection cooled
Temperature coefficient			±0.02	%/°C	
Humidity			95	% RH	

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			

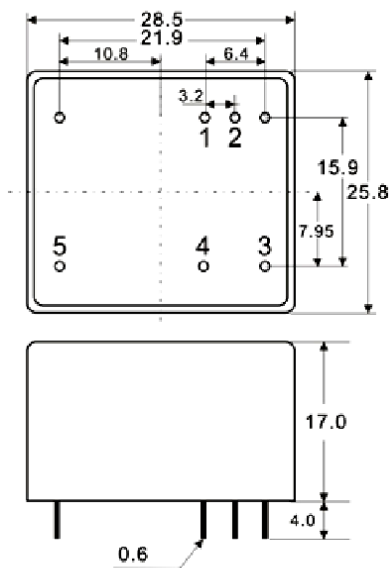
## EMC: Immunity

	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	It is required to add varistor TMOV14RP300E or equivalent across L/ N.
Conducted	EN61000-4-6	3Vrms	A	
Magnetic Fields	EN61000-4-8	1A/m	A	

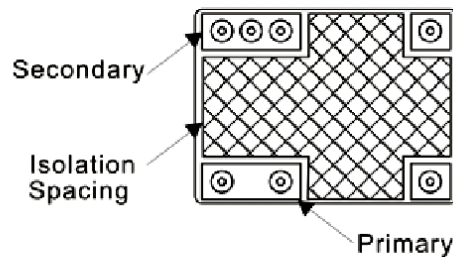
## Safety Approvals

	Safety standard	Notes & Conditions
UL	UL60950-1, CSA 22.2 No 234 as per cUL	
CB	IEC60950-1 Ed2 Am1	
TUV	EN60950-1 A12 2011	
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	Function
1	+DC OUT
2	-DC OUT
3	AC IN (N)
4	AC IN (L)
5	NC

### Dimension notes

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