

3 Watts

- 85-265VAC Input no derating
- IEC 62368-1 ITE approval & designed to meet IEC 60335-1 Home Appliance
- EE20 Transformer Footprint
- -25 to +80°C Operation
- EN55032 Level B conducted & radiated
- 5 Year warranty



Dimensions:

0.96 x 0.98 x 0.63" (25 x 25 x 16mm)

The ASQ03 series of encapsulated AC-DC power modules are PCB mount and have low emissions, meeting EN55032 level B for both conducted and radiated noise. The units are suitable for home appliance designed to meet IEC60335-1, also they are approved to the latest IEC62368-1 safety standard. They provide 3W of power and have a wide temperature range from -25 to +80°C. The series offers low no-load power consumption of <0.15W and outputs are available from 3.3 to 24V. All models have a FiDUS 5 year warranty.

Models & Ratings

Model Number	Output Power	Output voltage	Output Current	Efficiency	Capacitive Load
ASQ03020	3W	3.3V	830mA	63%	100000uF
ASQ03021	3W	5V	600mA	65%	70000uF
ASQ03022	3W	9V	330mA	70%	13200uF
ASQ03023	3W	12V	250mA	72%	5300uF
ASQ03024	3W	15V	200mA	72%	3300uF
ASQ03025	3W	18V	170mA	72%	3300uF
ASQ03026	3W	24V	125mA	74%	2500uF

Key specifications

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
AC Input range	85		265	VAC	120-370 VDC also. See derating curve
Operating temperature	-25		80	°C	See derating curve
Efficiency	63		74	%	See model table above. At 230VAC full load
Dimensions	0.96 x 0.98 x 0.63" (25 x 25 x 16mm)				
EMC	EN55032 Level B Conducted and Radiated. EN61000-3 and EN61000-4, harmonics, flicker, Surge, EFT, ESD, conducted and radiated.				
Safety	UL / IEC / EN 62368-1, Designed to meet IEC / EN 60335-1, CE				

Input

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Input voltage	85		265	VAC	See derating curve
	120		370	VDC	DC fuse required.
Input frequency	47		63	Hz	
Power factor					EN61000-3-2 class A compliant
Input current			150	mA rms	230mA 115VAC and 140mA at 230VAC
Inrush current			10	A	Cold start at 25°C 230VAC
No load input power			0.15	W	

Output

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Output voltage	3.3		24	VDC	See Model & Ratings table
Set point accuracy		±5		%	
Line regulation		±3		%	From 85 to 265VAC
Load regulation		±5		%	0 to 100% load
Minimum load	0			%	
Ripple & Noise		200		mV pk-pk	Noise and ripple measured with 0.1uF ceramic and 47uF electrolytic. 20 MHz bandwidth 12" twisted pairs, 240VAC full load.
Transient response			110	%	50-100% load, 1A/us, 1kHz, 50% duty ratio.
Hold up time	5			ms	At 230VAC. Full load
Overload protection					Trip & restart. Automatic recovery
Short circuit protection					Trip & restart. Automatic recovery
Over temperature protection	130		150	%	Automatic recovery

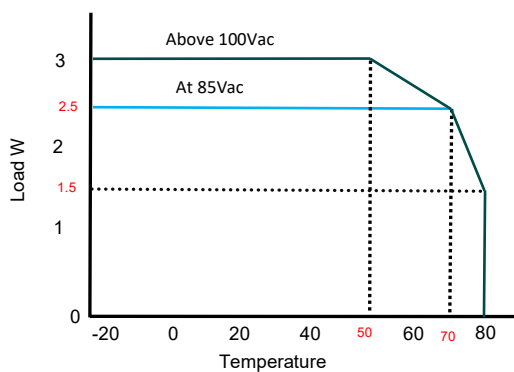
General

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency	63		74	%	See models & Ratings table. At 230VAC full load
Isolation	4000			VAC	Input to output
Power density			5	W/in ³	
MTBF		>550		kHrs	As per MIL-HDBK-217F, 25°C GB
Weight		18.5		g	

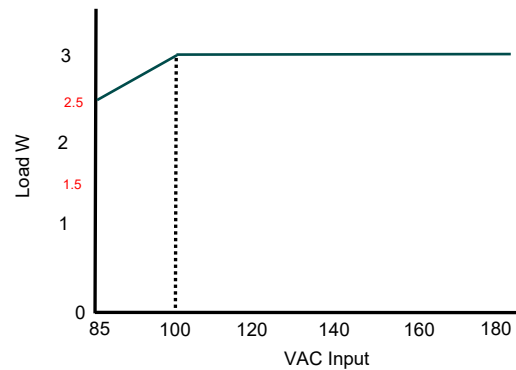
Environmental

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating temperature	-25		80	°C	See derating curve below . 10-90% RH
Storage temperature	-40		85	°C	5-95% RH
Cooling					Convection cooled

Derating curve 3.3V /5V



AC input curve



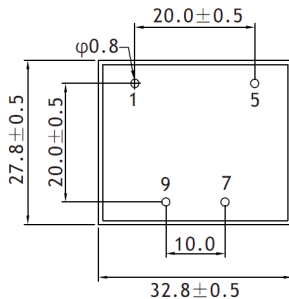
EMC: Emissions

	Standard	Test level	Criteria	Notes & Conditions
Conducted	EN55032	B		
Radiated	EN55032	B		
Harmonic current	EN61000-3-2	Class A		
Voltage flicker	EN61000-3-3			

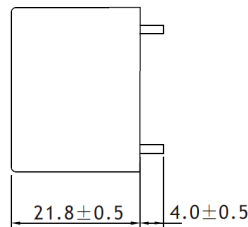
Safety Approvals

	Safety standard	Notes & Conditions
UL	UL 62368-1	
CB	IEC 62368-1, Designed to meet IEC 60335-1	
TUV	EN 62368-1, Designed to meet EN 60335-1	
CE		2014/35/EU Low voltage directive
Equipment protection class		Class II

Mechanical Details



View from pins side



All dimensions shown in millimetres

Pin Connections	
Pin	Function
1	Line
5	Neutral
7	+Vout
9	-Vout

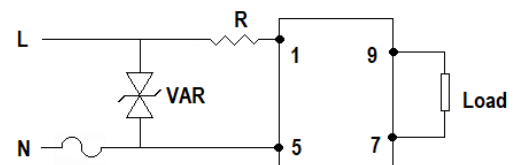
Application note:

If the unit is required to withstand surge levels in excess of the standard 1KV, its surge performance can be enhanced with the following circuit for up to 6KV in accordance with EN600004-5, where:

$R = 10R/1W$ to $3W$ resistance wire $\varnothing 0.1$ to 0.23

$VAR = 14D471, 300Vac$ 118J

Fuse is 6.3A to 10A 250Vac slow blow



Output must remain floating and can not be directly connected to earth. Please utilise one of the following circuits where:

$L = 10mH$ to $30mH$

$CX = X2$ Cap $0.1\mu F$ to $22\mu F / 275Vac$

$CY1/2 = Y$ cap $1000pf$ to $2200pf / 400V$

