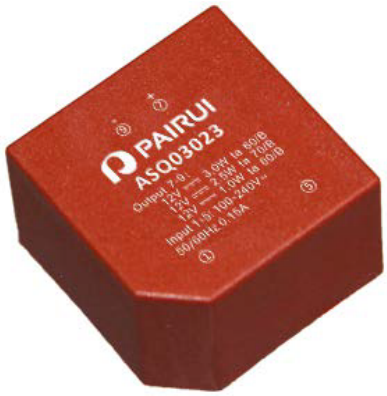
PAIRUI

AC-DC Converter
DIP-Package

ASQ03 Series 3Watt

FEATURES:

- ✓ Small size, high power density
- ✓ Wide input voltage range: 85~265Vac or 120~370Vdc
- ✓ Wide output voltage range: 3.3~24VDC
- ✓ Low on-load power consumption <0.15W
- ✓ High energy efficiency meets Energy Star requirements
- ✓ Package design is consistent with EE20 potting transformer for easy replacement
- ✓ Short circuit protection, over temperature protection, over current protection



MODEL LIST

Model number	Nominal input voltage	Output voltage	Output power	Maximum output current	efficiency	Maximum ambient temperature	authentication
ASQ03020	85-265VAC	3.3V	1W 2.5W 3W	300mA 750mA 830mA	60% 63% 63%	80˚C 60˚C 50˚C	UL, CUL, CE, CB, FCC
ASQ03021	85-265VAC	5V	1W 2.5W 3W	200mA 500mA 600mA	60% 65% 65%	80˚C 60˚C 50˚C	UL, CUL, CE, CB, FCC
ASQ03022	85-265VAC	9V	1W 2.5W 3W	110mA 280mA 330mA	67% 70% 70%	80˚C 60˚C 50˚C	UL, CUL, CE, CB, FCC
ASQ03023	85-265VAC	12V	1W 2.5W 3W	84mA 210mA 250mA	67% 72% 72%	80˚C 60˚C 50˚C	UL, CUL, CE, CB, FCC
ASQ03024	85-265VAC	15V	1W 2.5W 3W	67mA 170mA 200mA	67% 72% 72%	80˚C 60˚C 50˚C	UL, CUL, CE, CB, FCC
ASQ03025	85-265VAC	18V	1W 2.5W 3W	56mA 140mA 170mA	67% 72% 72%	80˚C 60˚C 50˚C	UL, CUL, CE, CB, FCC
ASQ03026	85-265VAC	24V	1W 2.5W 3W	42mA 105mA 125mA	70% 74% 74%	80˚C 60˚C 50˚C	UL, CUL, CE, CB, FCC

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ELECTRICAL PARAMETER

item	Conditions	min	typ	max	unit
Input voltage		85 120	--- ---	265 370	Vac Vdc
Input frequency	Vin=85~265Vac	47	---	63	Hz
Input current	Full load, Vin=85~265Vac/120~370Vdc	---	0.15	---	A
Inrush current	Cold start, Vin=230Vac	---	---	10	A
Standby power	No load, rated output voltage	---	---	0.15	W
Output voltage accuracy	Rated input voltage, full load	---	±5	---	%
Line regulation	Vin from 85~265Vac or 120~370Vdc	---	±3	---	%
Load regulation	Vout from min. to max.	---	±5	---	%
Dynamic Response(Vout)	50%~100% load, 1A/us, 1Khz, 50% duty ratio	---	---	110	%
Turn-on delay time	Rated input voltage, full load, cold start	---	---	3	S
Turn-on rise time	Rated input voltage, full load	---	---	50	ms
Hold up time	Rated input voltage, full load	5	---	---	ms
Overshoot	Rated input voltage, full load	---	---	10	%
Undershoot	Rated input voltage, full load	---	---	10	%
Ripple	Refer to below note	---	200	---	mV P-P
Short circuit	In hiccup mode, it will recover automatically after fault condition is removed;No excessive heat, odor, or plastic deformation shall occur with no safety hazard				
Over temperature	130-150℃, shut off output voltage, it will recover automatically after the temperature turn to normal				
Over current	When output current exceeds the rated range, it will be protected automatically, and will recover automatically after fault condition is removed				
Ambient operating temperature	Startup at rated voltage	-25		/	℃
Operating relative humidity	Non condensing	10		90	%
Storage temperature	Humidity 5 ~ 95% RH	-40		+85	℃
MTBF	Full load, 220Vac input, 25℃ ambient temperature	550			Khrs
Dimension(LxWxH)	25.0 x 25.0 x 16.0mm, pin length 4mm				
Weigh	18.5g				
Safety	Design refer to UL/CUL60950, UL/CUL62368, IEC/EN60950, IEC/EN60335, IEC/EN61558-2-16, IEC/EN62368				
Withstand voltage	I/P-O/P: 4KVAC, 5mA, 3s				
EMI	Design refer to EN55032, EN55014, FCC part15, Class B under 3dB margin				
Harmonic wave	Design refer to EN61000-3-2:2014 ClassA				
Voltage fluctuation and flicker	Design refer to EN61000-3-3:2013				
ESD	Design refer to IEC61000-4-2:2008 Contact discharge ±4KV, air discharge ±8KV62368				
Rf field intensity sensitivity	Design refer to IEC61000-4-3:2006+A1:2007+A2:2010				
EFT	Design refer to IEC61000-4-4:2012 ±1KV				

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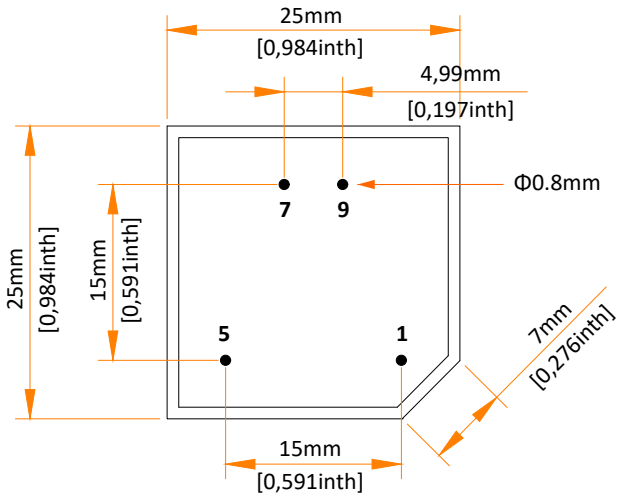
ELECTRICAL PARAMETER

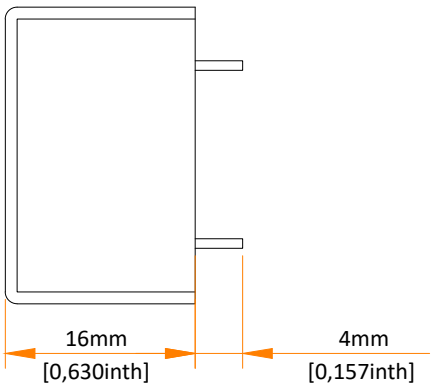
surge	Design refer to IEC61000-4-5:2014 ±1KV
Conduction sensitivity	Design refer to IEC61000-4-6:2013
Voltage drop and interruption	Design refer to IEC61000-4-11:2004

OVERALL DIMENSION

Bottom view



Side view

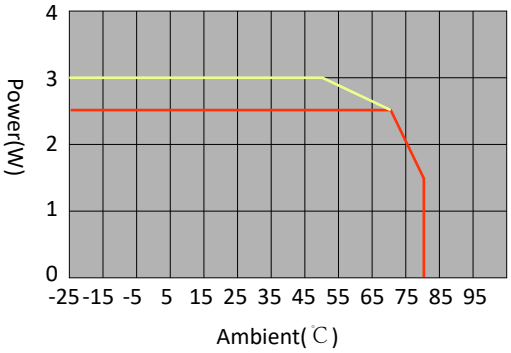


PIN DEFINITION

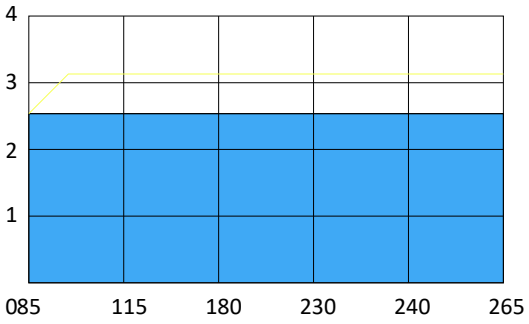
No	definition
1	AC(L)
5	AC(N)
7	Vout(+)
9	Vout(0V)

ELECTRICAL CURVE

Power Derating Curve



Power Derating Curve

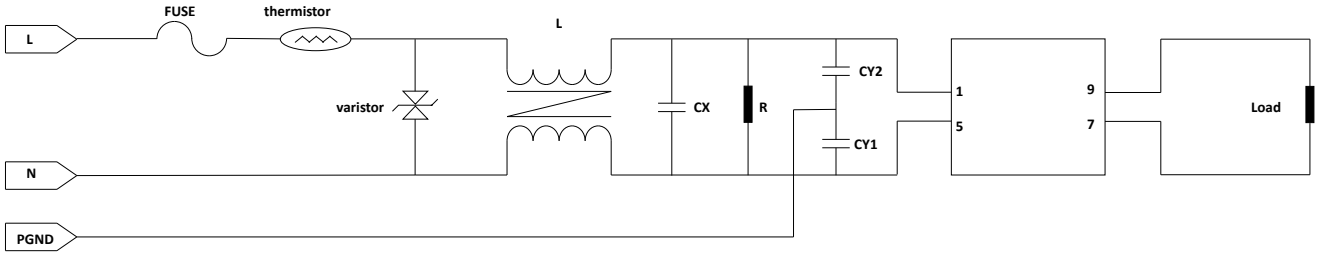


APPLICATION GUIDE

1. Storage guide
Storage temperature: -40℃ to +85℃, storage humidity: 5% to 95%

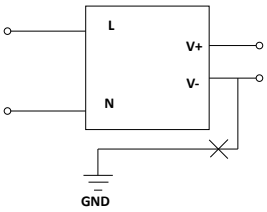
2. Warranty Guide
In order to best ensure the reliability and life of the power supply, we recommend customers to use within 6 months. If the power supply is stored unused for more than 12 months,Then we recommend that the product needs to be aged for 2 hours before use.

3. Suitable for applications that require high EMC performance
This product is certified to EN55022 and EN55014 CLASS B EMC without any additional internal components. As follows
The circuit can meet the more stringent EMC performance requirements.

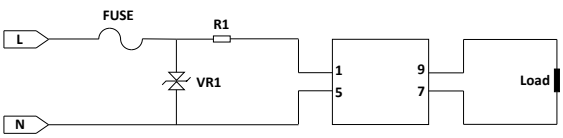


Fuse: Recommended parameters: 5A to 10A/250Vac, slow-acting fuse type
Thermistor: Recommended parameters: 2A,5Ω,1.8W to 5A D10,2.5Ω,2.4W.
Varistor: Recommended parameters: 14D471,300Vac, maximum energy 118 joules.
L is common mode inductor: Recommended parameter: 10mH to 30mH
CX is an X2 capacitor: Recommended parameters: 0.1uF to 0.22uF/275Vac
R is a resistor: Suggested parameter: 1.0MQ to 3.0 MQ2.

4. Suitable for grounding:
The application does not support ASQ/ASP products



5. High surge circuit
The ASQ /ASP series tests and certificates surge levels to 1EC61000-4-5 and does not require any additional external components. To wave
When the surge level is increased to 6KV, the following external circuits may be recommended.



VR1 is a varistor, recommended parameters: 14D471,300 Vac, maximum energy 118 joules.
R1 is a winding resistor, recommended parameters: 10R/1W~10R/3W, resistance wire diameter 0.1 to 0.23mm.
F1 is a fuse, recommended parameters: 6.3A to 10A/250 VAC, slow-acting fuse.