



2019-V1.0-0320

# Specifications

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**AC-DC Converter**  
**ASQ03 Series, 1-3W**

**2019**

**PAIRUI ELECTRONICS**

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# AC-DC Converter, ASQ03 Series, 1-3W

## Features

- Compact Size, High Power Density
- Universal Input Voltage Range: 85~264Vac/120~370Vdc
- Output Voltage Range: 3.3VDC~24VDC
- Low Standby Power Consumption<0.15W
- Better Energetic Efficiency: Meet Requirements of Energy Star and EC Code of Conduct
- Encapsulated Design and Same Footprint as EE20 Transformer
- Protections: Short Circuit, Over Temperature, Over Current



## Electrical

Part Number	Nominal Input Voltage	Output Voltage	Output Power	Max. Output Current	Efficiency	Max. Ambient Temp.	Certificate
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 70°C 60°C	UL, CUL, CE, CB, FCC
ASQ03023	85-265VAC	12V	1W 2.5W 3W	84mA 210mA 250mA	67% 72% 72%	80°C 70°C 60°C	UL, CUL, CE, CB, FCC
ASQ03024	85-265VAC	15V	1W 2.5W 3W	67mA 170mA 200mA	67% 72% 72%	80°C 70°C 60°C	UL, CUL, CE, CB, FCC
ASQ03025	85-265VAC	18V	1W 2.5W 3W	56mA 140mA 170mA	67% 72% 72%	80°C 70°C 60°C	UL, CUL, CE, CB, FCC
ASQ03026	85-265VAC	24V	1W 2.5W 3W	42mA 105mA 125mA	70% 74% 74%	80°C 70°C 60°C	UL, CUL, CE, CB, FCC

**INPUT**

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
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**

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
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		mVp-p

NOTE: The values are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with 0.1uF & 47uF parallel capacitor under ambient temperature 25°C at rated input voltage and rated load.

Protection

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°C, 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

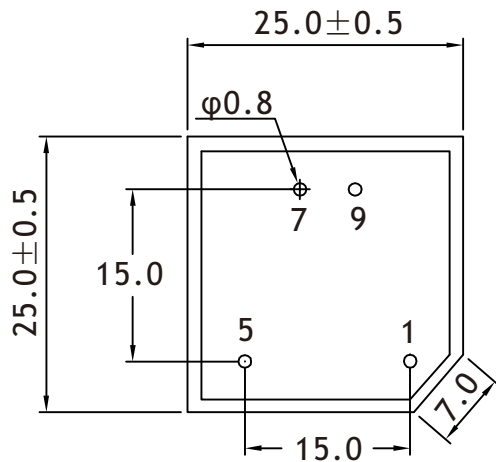
Environment

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Ambient operating temperature	Startup at rated voltage	-25		/	°C
Operating relative humidity	Non condensing	10		90	%
Storage temperature	Humidity 5 ~ 95% RH	-40		+85	°C
MTBF	Full load, 220Vac input, 25°C ambient temperature	550			Khrs
Dimension(LxWxH)	25.0 x 25.0 x 16.0mm, pin length 4mm				
Weight	18.5g				

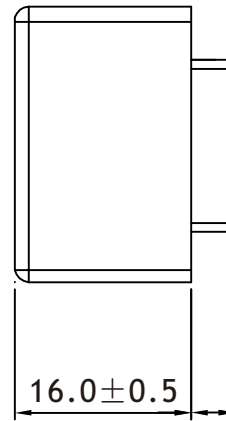
Safety/EMC

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
EMS	Design refer to EN61000-3-2:2014 ClassA EN61000-3-3:2013 IEC61000-4-2:2008 Contact Discharge±4KV, Air Discharge±8KV IEC61000-4-3:2006+A1:2007+A2:2010 IEC61000-4-4:2012 ±1KV IEC61000-4-5:2014 ±1KV IEC61000-4-6:2013 IEC61000-4-11:2004

## Dimension & Pinout



View from pins side



Unit: mm

**PRI:**  
Pins 1-5: AC or DC Input  
**SEC:**  
Pin 7: DC Output +V  
Pin 9: DC Output 0V

## Electrical Curve

