PRS-45-U1 series

45W AC-DC converter

GLOBAL LEADER POWER

■ Features:

- *Universal 85-264VAC or 100-370VDC input voltagr*
- *3x2 inch high power density*
- *Protections: Over current / Short circuit / Over Voltage*
- *High efficiency, high reliability*
- *Regulated output, low ripple and noise*
- *EMI performance meets EN55032 CLASS B*

CE UKCA SELV RoHS

MODEL NUMBERING

PRS	-	45	-	X	-	U1
Series		*Rated Output Power*		*Rated Output*		
Compact size power converter		45 means 45W		X = 05 X = 09 X = 12 X = 15 X = 24 X = 30 X = 48		

ELECTRICAL SPECIFICATION

MODEL	PRS-45-03-U1	PRS-45-05-U1	PRS-45-09-U1	PRS-45-12-U1	PRS-45-15-U1	PRS-45-24-U1	PRS-45-48-U1
OUTPUT							
Rated Voltage	3.3V	5V	9V	12V	15V	24V	48V
Rated Current	8000mA	8000mA	4444mA	3750mA	3000mA	1875mA	940mA
Rated Power	26.4W	40W	40W	45W	45W	45W	45W
Line regulation	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%
Load Regulation	± 1%	± 1%	± 1%	± 1%	±1%	±1%	±1%
*Ripple & Noise (max.) [2]**	$100mV_{P-P}$	$100mV_{P-P}$	$100mV_{P-P}$	$100mV_{P-P}$	$100mV_{P-P}$	$100mV_{P-P}$	$100mV_{P-P}$
Capacitive Load (Max.)	30000µF	20000µF	6000µF	4000µF	3500µF	1000µF	600µF
Hold Up Time (typ.)	50ms / 230VAC input						
INPUT							
Voltage Range	85 ÷ 264VAC; 100 ÷ 370VDC						
Frequency Range	47 ÷ 63Hz						
Efficiency (typ.)	76%	82%	84%	84%	86%	86%	87%
Power Factor (typ.)	0.95 / 230VAC; 0.98 / 115VAC						
AC Current (Max.)	700mA / 230VAC; 1200mA / 115VAC						
Inrush Current (typ.)	50A / 230VAC; 35A / 115VAC						

PROTECTIONS

Over Current	Range: ≥150% Io	
	Type: self-recovery	
Short Circuit	Type: Hiccup, continuous, self recovery	
Over Voltage	3.3VDC Output	≤7.5VDC (Output voltage clamp or turn off)
	5VDC Output	≤9VDC (Output voltage clamp or turn off)
	9VDC Output	≤16VDC (Output voltage clamp or turn off)
	12VDC Output	≤20VDC (Output voltage clamp or turn off)
	15VDC Output	≤24VDC (Output voltage clamp or turn off)
	24VDC Output	≤35VDC (Output voltage clamp or turn off)
	48VDC Output	≤60VDC (Output voltage clamp or turn off)

WORKING ENVIRONMENT

Working Temperature	-25°C ÷ +70°C (Refer to Temperature Derating Curve)
Storage Temperature and Humidity	-25°C ÷ 85°C, 10 ÷ 95% RH non-condensing
Switching Frequency	65kHz
Temperature Coefficient	± 0.02% / °C (0°C ÷ +45°C)

SAFETY AND EMC REGULATIONS

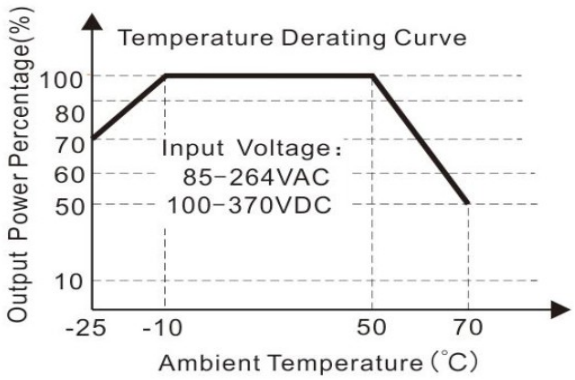
Safety Standards	Compliance to EN62368-1
Withstand Voltage	IN/OUT: 3000VAC (< 5mA)
Isolation Resistance	IN/OUT, IN/GND, OUT/GND: 100MΩ/500VDC
EMC Emission	Compliance to EN55032 Class B
EMC Immunity	Compliance to EN61000-4-2, -3, -4, -5, -6, -11

OTHERS

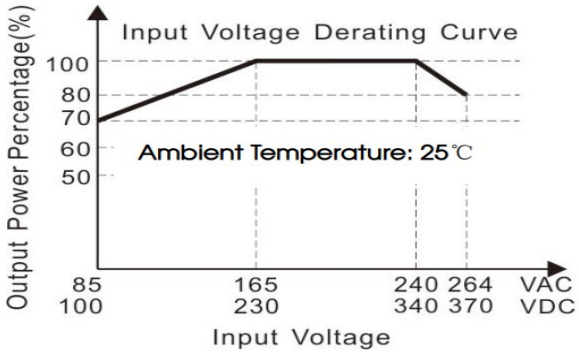
Cooling Method	Free air convection
MTBF (min.)	300 000h / 25°C per MIL-HDBK-217F
Dimensions and Case Material	76.2 x 50.8 x 30mm (L x W x H)
Net Weight	0.90kg

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load, 25°C of ambient temperatur and humidity <75% RH.
2. Ripple & noise is measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μF i 47μF parallel capacitor.
3. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability.
4. Case needs to be connected to the earth ( ) of the system when the terminal equipment in operating.
5. The room temperature derating of 5°C / 1000m is needed for operating altitude greater than 2000m.
6.Power supply is considered as component not indented to apply by end-user. Power supply meets safety and EMC standards however the final equipment with power supply must be re-quality to comply with EMC Directives.
7. One magnetic bead (nickel-zinc ferrite) should be coupled with the output load line during CE/RE testing.
8. All EMC items are tested on a metal plate (L x W x H, 450mm x 450mm x 3mm), the product should be assembled on such a plate.

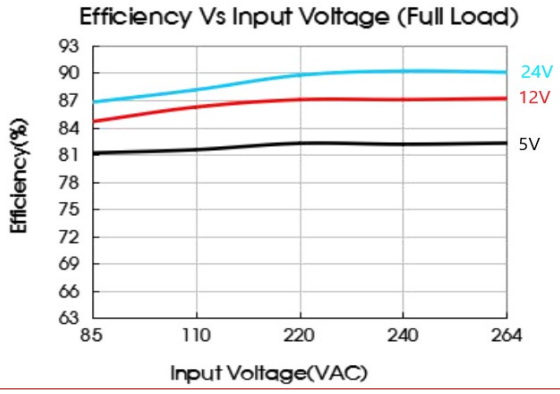
TEMPERATURE DERATING CURVE



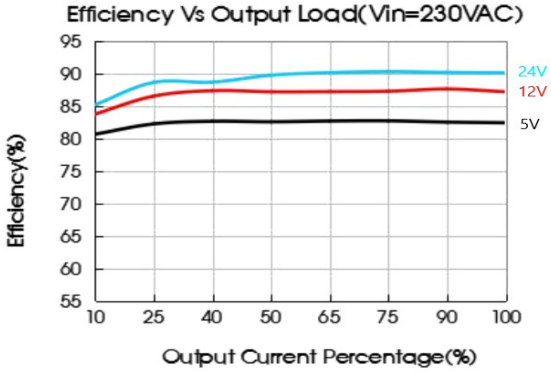
INPUT VOLTAGE DERATING CURVE



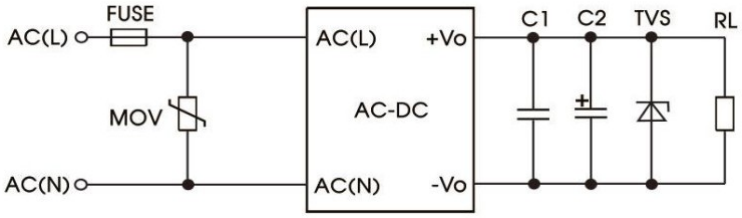
EFFICIENCY CURVE (FULL LOAD)



EFFICIENCY CURVE (Vin=230VAC)



TYPICAL APPLICATION

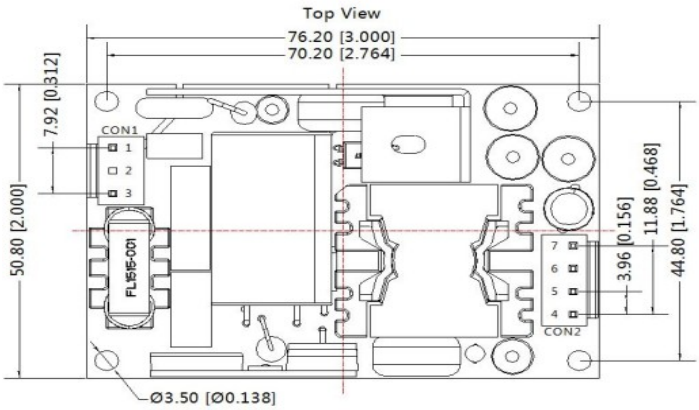


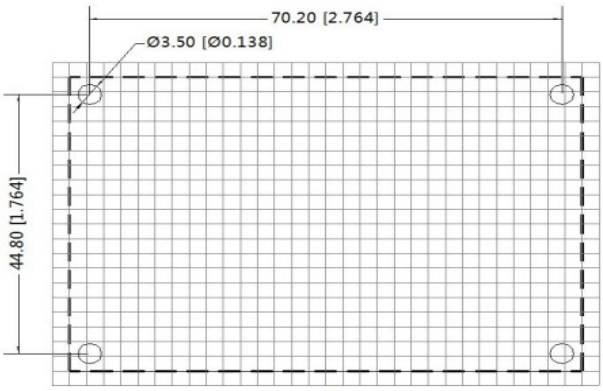
Part No.	FUSE	MOV	C1(μF)	C2(μF)	TVS
PRS65-03-U1	3.15A/250V slow-blow	S14K300	1μF/16V	680μF/16V	SMBJ7.0A
PRS65-05-U1					SMBJ7.0A
PRS65-09-U1				47μF/16V	SMBJ12A
PRS65-12-U1			1μF/25V	47μF/25V	SMBJ20A
PRS65-15-U1					SMBJ20A
PRS65-24-U1			1μF/50V	47μF/35V	SMBJ30A
PRS65-48-U1			1μF/100V	47μF/63V	SMBJ64A

Output Filter Components:

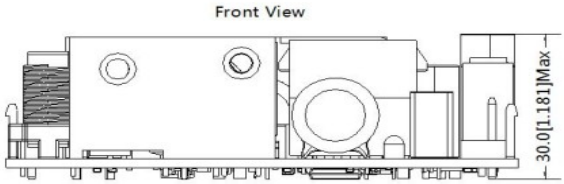
We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2 (refer to manufacture's datasheet). C1 is a ceramic capacitor used for filtering high-frequency noise. Choose a capacitor voltage rating with at least 20% margin, in other words not exceeding 80%. And TVS is a recommended supressor diode to protect the application in case of a converter failure.

DIMENSIONS AND RECOMMENDED LAYOUT





Note: Grid 2.54*2.54mm



Note:
Unit: mm[inch]
General tolerances: ±0.50[±0.020]
In CON1 model: VH-3A, Recommend terminal: VH-3Y
Out CON2 model: VH-4A, Recommend terminal: VH-4Y
Mounting hole screwing torque: Max 0.4 N·m

Pin-Out			
Pin	Function	Connector	Terminal
1	AC(L)	VH-3A or B2P3-VH or the same Spec.	VH-3Y or VHR-3N or the same Spec.
2	NoPin		
3	AC(N)		
4	-Vo	VH-4A or B4P-VH or the same Spec.	VH-4Y or VHR-4N or the same Spec.
5	-Vo		
6	+Vo		
7	+Vo		