



**DESCRIPTION:**

**600W wide input AC/DC switching power supply**

The rated output power of TPC/PDF-600-XS series is 600W, input voltage range: 90-264VAC, output voltage: 12V, 24V, 48V, High reliability, precision, efficiency, ultra-small size, no external heat sink required, stable output voltage and etc, with over current protection, short circuit, overload protection, Widely used in telecommunications, industrial control, instrument, data acquisition, signal control, New Energy, Security, and other electronic systems.

**FEATURES**

AC input : 90VAC-264VAC	short circuit, overload, over-voltage protection	Operating temperature: -20°C~70°C
RoHS complaint	High reliability, efficiency	Built-in active PFC function, PF>0.95
Altitude up to 5000m	PCB soldering side with conformal coating	1 U low profile, 40.7mm

**SELECTION GUIDE**

Part Number	Input		Output				Efficiency @25°C, (Typ) %	
	Voltage (VAC)		Voltage (VDC)	Pre-set voltage @25°C (V)	Rated current (A)	Current range(A)		Rated power(W)
	Rated	Range						
TPC/PDF-600-12S	220	90-264	12	12.00-12.20	35/50	0-50	600	90
TPC/PDF-600-24S	220	90-264	24	24.00-24.24	20/25	0-25	600	90
TPC/PDF-600-48S	220	90-264	48	48.00-48.24	10/12.5	0-12.5	600	>90

All specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified.

**OUTPUT CHARACTERISTICS**

Conditions	Conditions	Parameter
Ripple and noise, Ta is ambient, 0<Ta≤70°C	12V output voltage	≤120mVp-p
	24V output voltage	≤150mVp-p
	48V output voltage	≤480mVp-p
Ripple and noise, Ta is ambient, -20<Ta≤0°C	12V 24V output voltage	≤240mVp-p
	48V output voltage	≤480mVp-p
Dynamic load characteristics, -20<Ta≤70°C	12V output voltage	10%-50%: <±400mV 50%-90%: <±400mV 10%-90%: <±800mV
	24V output voltage	10%-50%: <±400mV 50%-90%: <±400mV 10%-90%: <±800mV
	48V output voltage	10%-50%: <±400mV 50%-90%: <±400mV 10%-90%: <±800mV
Output adjustment range @25°C	12V output voltage	11.8~13.2V
	24V output voltage	23.4~26.4V
	48V output voltage	47.5~52.8V
Rated output current	12V output voltage	50A at 176~246VAC input, 35A at 90~176VAC input
	24V output voltage	25A at 176~246VAC input, 20A at 90~176VAC input
	48V output voltage	10A at 176~246VAC input, 12.5A at 90~176VAC input
Voltage regulation accuracy @0~70°C	±3% at 12V, ±2% at 24V 48V	
Voltage regulation accuracy @-20~0°C	±3% at 12V, ±2% at 24V 48V	
Line regulation @-25~50°C	±1% at 12V, ±0.5% at 24V 48V	
Load regulation @-25~50°C	±2% at 12V, ±1% at 24V 48V	
Temp. coefficient @-25~50°C	±0.03%/°C	
Set-up time @25°C	≤2.0S@220Vac input at 12V, ≤2.5S/110Vac ≤1.5S/220Vac full load at 24/48V	
Hold-up time @25°C	≥10mS@(230Vac input, Full load)	
Overshoot&Undershoot	<5.0%	

## INPUT CHARACTERISTICS

Conditions	Parameter
Input voltage range	90Vac~264Vac , (300Vac 3000mS)
Rated input voltage range	100Vac~240Vac
Frequency Range	47Hz~63Hz
Set-up voltage @-20~65°C	90Vac (refer to the derating curve)
Input current @25°C	<4.0 A/220Vac @12V50A output <5.0A/110Vac @12V35A output, others:<6A/110Vac <4A/220Vac
Inrush current @25°C	<40A@220Vac input 12V output <15A@110Vac input 24/48V output <30A@220Vac input 24/48V output
Power Factor(Typical)	PF≥0.95/220VAC @12V50A output , PF≥0.98/110VAC@ full load , PF≥0.95/220VAC@ full load ,
Leakage Current	Input—output: ≤0.25mA Input—PG: ≤3.5mA (264Vac, 63Hz)
Standby power consumption	<5W

## PROTECTION @-20~65°C

Conditions	Parameter	Notes
Over-Load	12V 24V 48V	Protection type: 12V: Intermittent working, working time>0.1s, recovery time >2s 24V / 48V: Hiccup mode, auto recovery
Over-voltage	12V 24V 48V	113%~130% of rated voltage Protection type: Constant voltage, auto recovery
Over-temperature	12V 24V 48V	95°C+5°C(detect on thermal protector on PFC mosfet);shut down,auto recovery after the temperature goes down to 40°C
Output short circuit	Long-term model , constant current,auto recovery	

## ENVIRONMENT CHARACTERISTICS

Conditions	Parameter
Operating amb. Temp.&Humi.	-20°C~70°C; 20%~90%RH No condensing (refer to the derating curve)
Storage Temp. & Humi.	-40°C~85°C; 10%~95%RH No condensing
Vibration	10 ~ 500Hz, 2G, 10min./1cycle, period for60min. each along X,Y, Z axes
Pulse	20G/11mS pulse ,3 times at each X,Y,Z axes
Altitude	5000m

## SAFETY&EMC STANDARDS @25°C

Conditions	Parameter
Safety Standards	GB4943/EN60950 (for reference)
Withstand Voltage	I/P-O/P:3.0KVac/10mA; I/P-FG:1.5KVac/10mA; O/P-FG:0.5KVdc/10mA test time:1min.
Isolation resistance	I/P-O/P: 10M ohms; I/P-FG : 10M ohms; O/P-FG : 10M ohms
Grounding test	12V: Test condition: 40A / 1min.Grounding resistance: <0.1 ohms. 24V 48V: Test condition: 32A / 2min.Grounding resistance: <0.1 ohms.
Harmonic Current	Compliance to EN61000-3-2,Class D
EMC emission	Compliance to EN55032, CLASS B FCC PART15B
EMC immunity	Compliance to EN61000-4-2,3,4,5,6,8,11 heavy industry Leve

## OTHERS

Conditions	Parameter
Cooling method	Cooling by free air flow
Dimension (L*W*H)	218*116.5*40.7mm
Net Weight	1.02kg

**RELIABILITY CHARACTERISTICS**

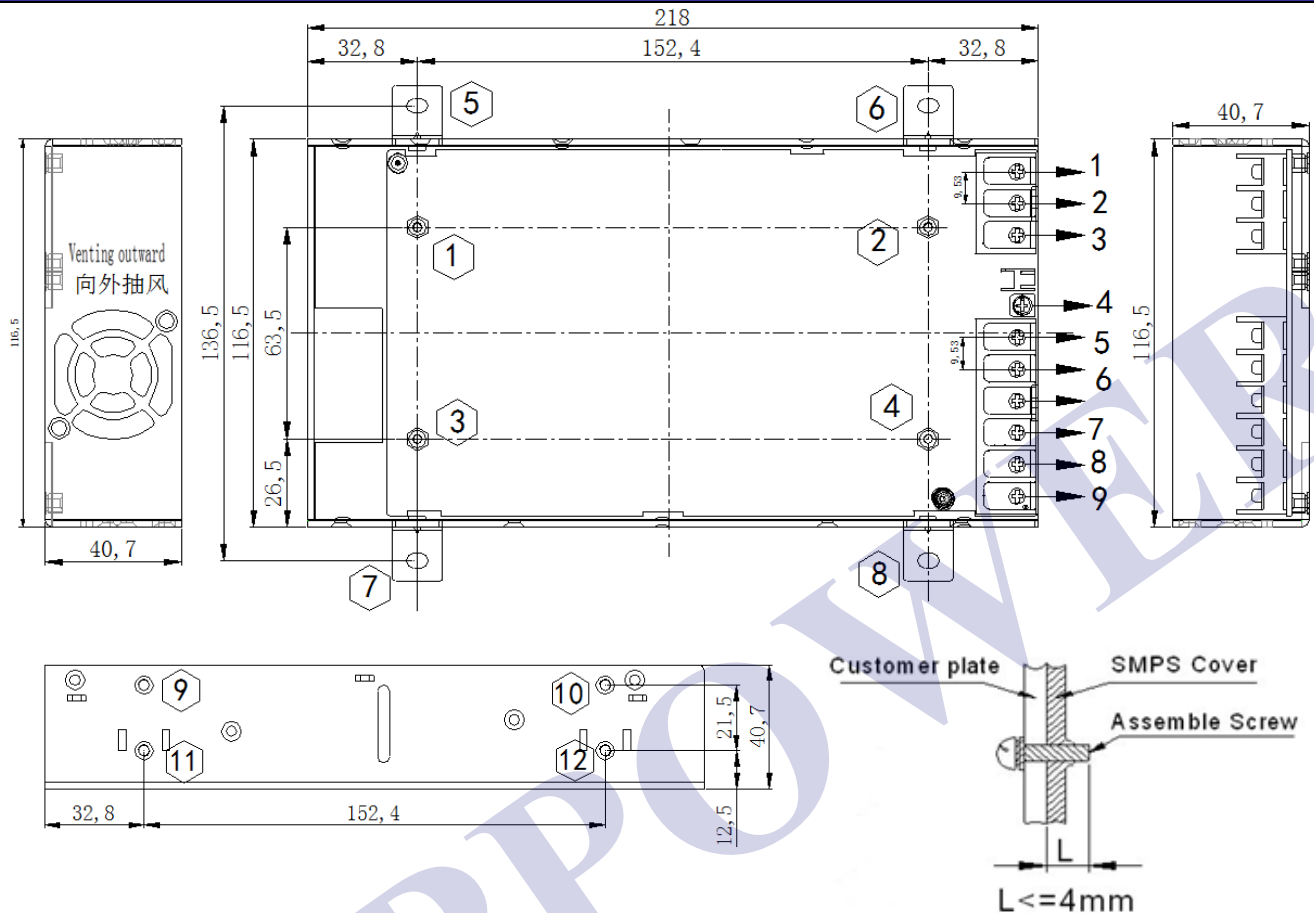
Conditions

Parameter

MTBF

100, 000Hrs AT 25°C, MIL-217 Method 2 Components Stress Method

**MECHANICAL DIMENSIONS**



**1. AC terminal blocks installation information**

Terminal No.	Function	Wire Spec.	Recommended Torque
1	L	22-12AWG	12Kgf. cm(max)
2	N		
3	⊕		

**2. DC terminal blocks installation information**

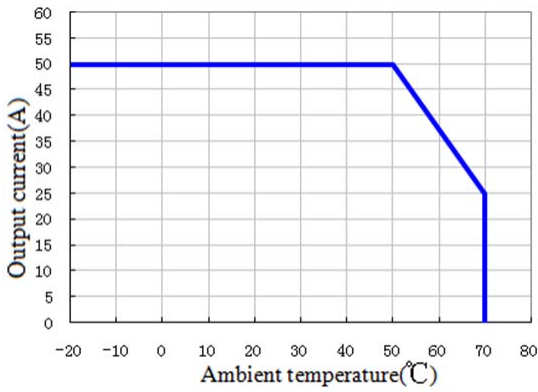
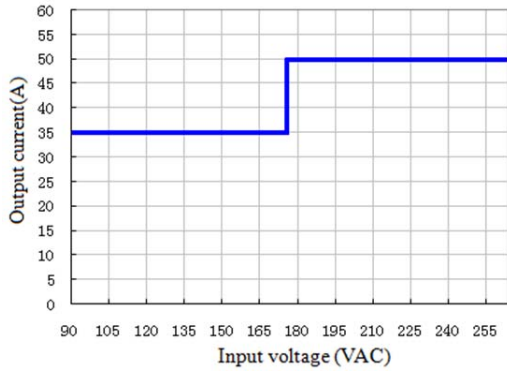
Terminal No.	Function	Wire Spec.	Recommended Torque
4/5/6	-V	22-12AWG	12Kgf. cm(max)
7/8/9	+V		

**3.**

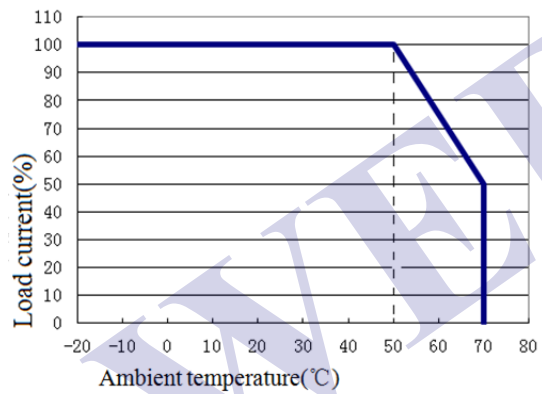
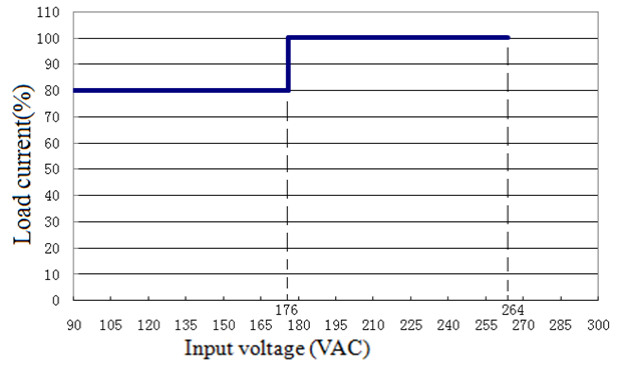
Mounting position	Mounting type	Mounting position No.	Screw type	Lmax	Mounting Torque
Bottom	Fixing by screws	①—④	M3	4MM	8Kgf. cm (max)
		⑤—⑧	M4	4MM	12Kgf. cm (max)
Side	Fixing by Bracket	⑨—⑫	M4	4MM	12Kgf. cm (max)

DERATING CURVE

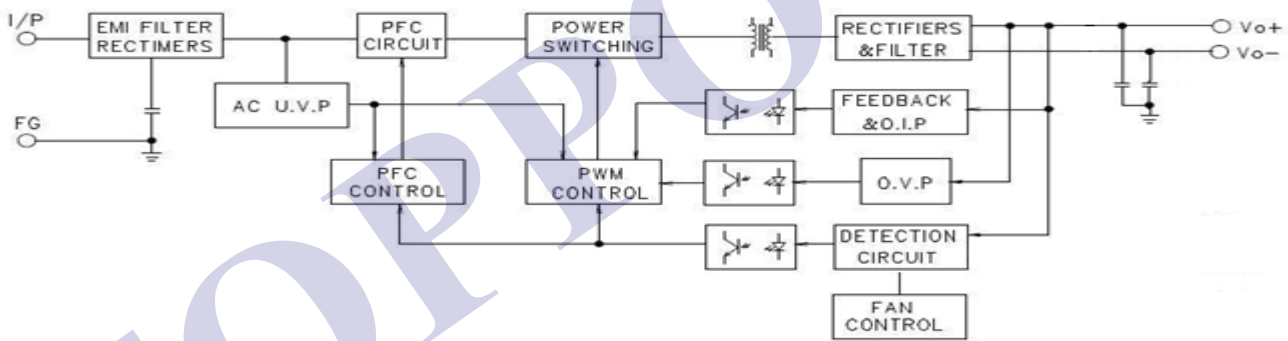
12V



24V 48V



BLOCK DIAGRAM



MODEL SELECTION

**TP C / PDF - 600 - X S**

