# TPC/PDF-600-XS Series



**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,effificency , 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℃~70℃ |
| RoHS complaint | High reliability,effificency | 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℃, (Typ) % |
|---|---|---|---|---|---|---|---|---|
| | Volatge (VAC) | | Voltage (VDC) | Pre-set voltage @25℃(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℃ | 12V output voltage | ⩽120mVp-p |
| | 24V output voltage | ⩽150mVp-p |
| | 48V output voltage | ⩽480mVp-p |
| Ripple and noise,Ta is ambient , -20＜Ta⩽0℃ | 12V 24V output voltage | ⩽240mVp-p |
| | 48V output voltage | ⩽480mVp-p |
| Dynamic load characterstics, -20＜Ta⩽70℃ | 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℃ | 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℃ | ±3% at 12V, ±2% at 24V 48V | |
| Voltage regulation accuracy @-20~0℃ | ±3% at 12V, ±2% at 24V 48V | |
| Line regulation @-25~50℃ | ±1% at 12V , ±0.5% at 24V 48V | |
| Load regulation @-25~50℃ | ±2% at 12V , ±1% at 24V 48V | |
| Temp. coefficient @-25~50℃ | ±0.03%/℃ | |
| Set-up time @25℃ | ⩽2.0S@220Vac input at12V, ≤2.5S/110Vac ≤1.5S/220Vac full load at 24/48V | |
| Hold-up time @25℃ | ⩾10mS@(230Vac input, Full load) | |
| Overshoot&Undershoot | <5.0% | |



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## 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℃ | 90Vac（refer to the derating curve） |
| Input current @25℃ | ＜4.0 A/220Vac @12V50A output ＜5.0A/110Vac @12V35A output, others:＜6A/110Vac ＜4A/220Vac |
| Inrush current @25℃ | ＜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℃

| 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℃+5℃(detect on thermal protector on PFC mosfet);shut down,auto recovery after the temperature goes down to 40℃ |
| Output short circuit | Long-term model , constant current,auto recovery | |

## ENVIRONMENT CHARACTERISTICS

| Conditions | Parameter |
|---|---|
| Operating amb. Temp.&Humi. | -20℃~70℃; 20%~90%RH No condensing （refer to the derating curve） |
| Storage Temp. & Humi. | -40℃~85℃; 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℃

| 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.<br>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 |

TOPPOWER

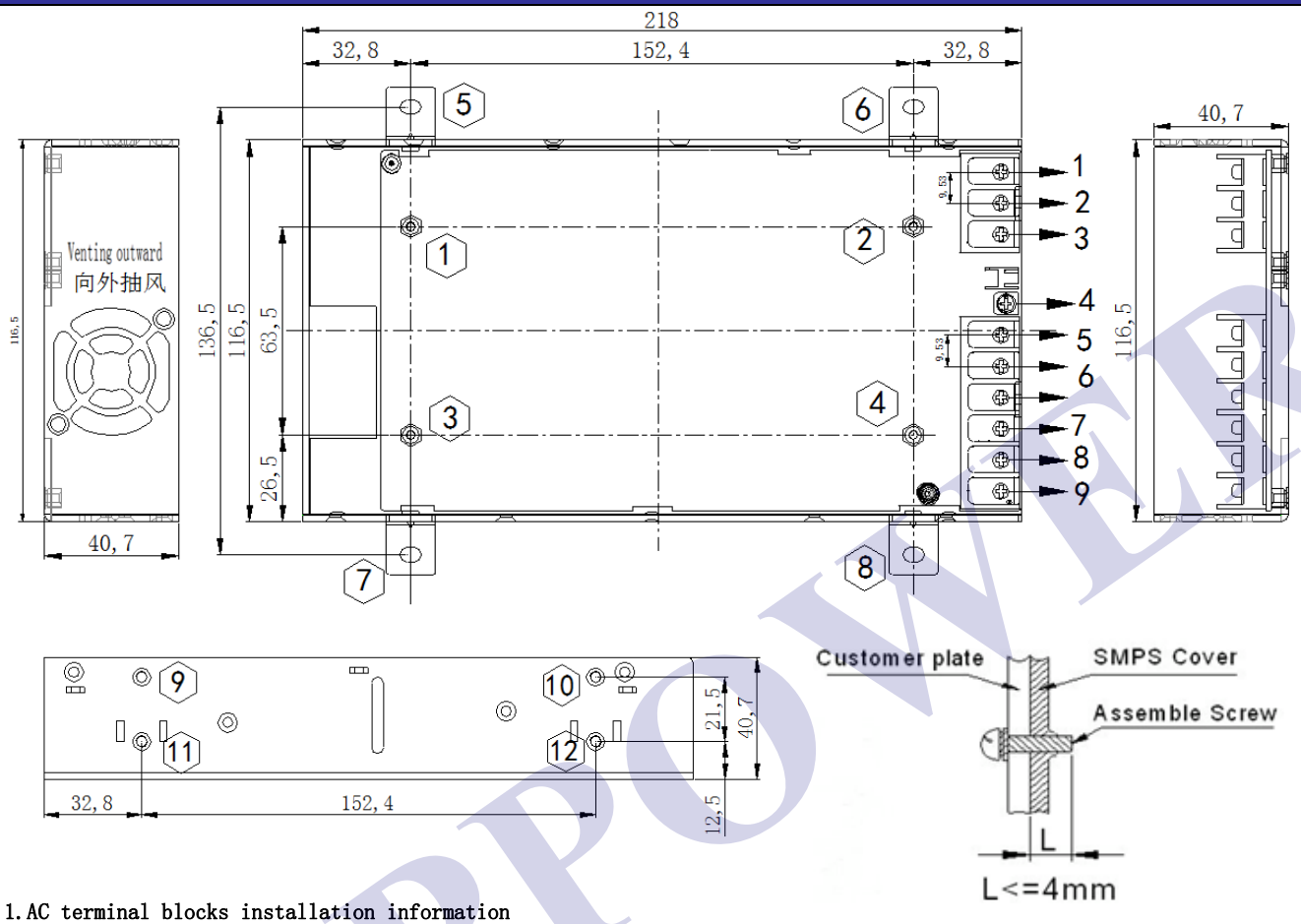


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## RELIABIILITY CHARACTERISTICS

| Conditions | Parameter |
|---|---|
| MTBF | 100，000Hrs AT 25℃, 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.

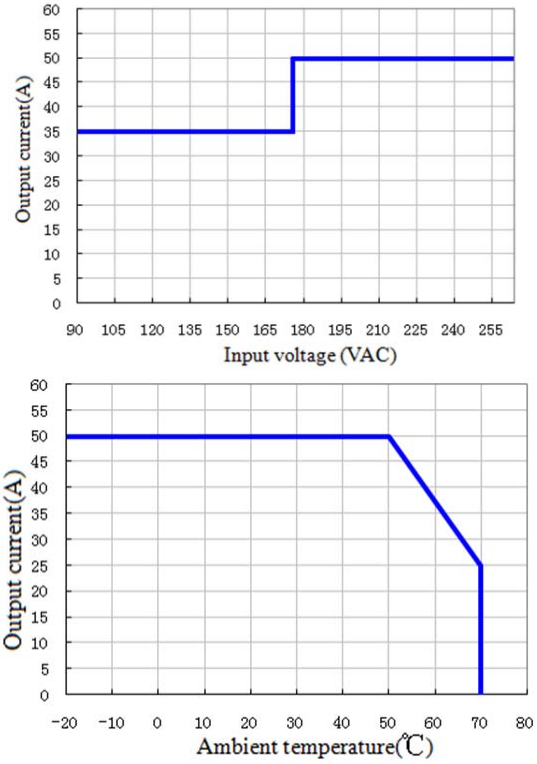
| Mounting position | Mounting type | Mounting position No. | Screw type | Lmax | Mounting Torque |
|---|---|---|---|---|---|
| Bottom | Fixing by screws | ① — ④ | M3 | 4MM | 8Kgf.cm (max) |
| | | ⑤ — ⑧ | M4 | 4MM | 12Kgf.cm (max) |
| Side | Fixing by Bracket | ⑨ — ⑫ | M4 | 4MM | 12Kgf.cm (max) |



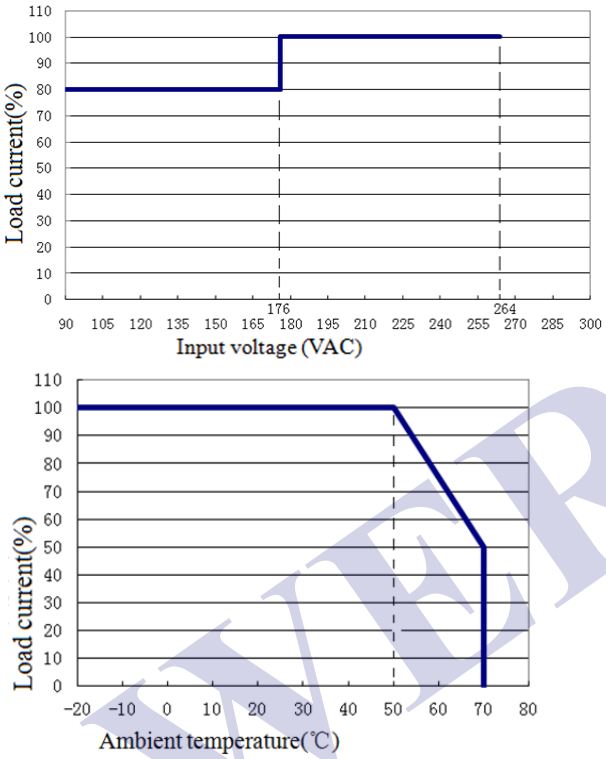
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## DERATING CURVE

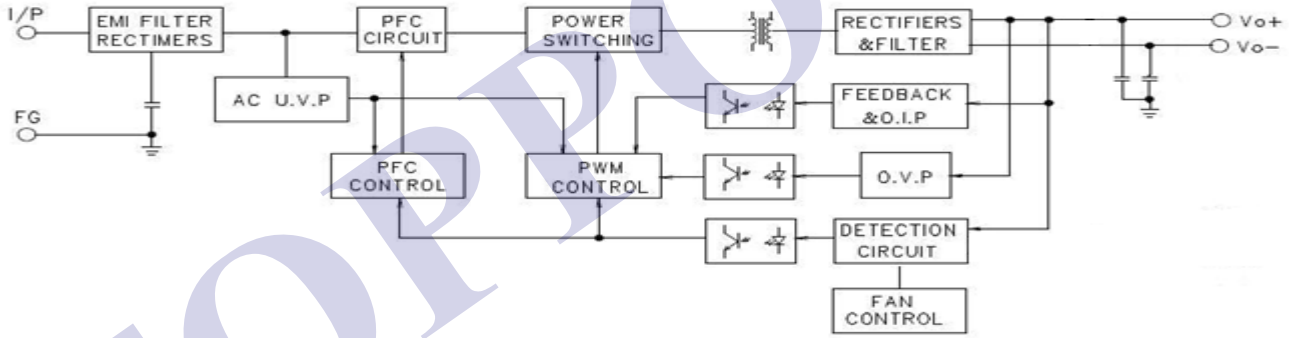
**12V**




**24V 48V**




## BLOCK DIAGRAM




## MODEL SELECTION

**TP C / PDF – 600 – X S**

- S: Single ouput; D: Dual output
- Output voltage
- Delimiter
- Rated output Power
- Delimiter
- Series
- Delimiter
- Type
- Brand TOPPOWER

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