

# High Power Density Single Output Supplies

## 500/600 Watts SMQ500/600 Series



## THE **XP**ERTS IN POWER

- High Power Density
- High Peak Load Rating
- Active PFC
- Universal Input
- Single Outputs from 3.3 V to 54 V
- Optional Current Share & ORing Diode

### Specification

#### Input

- Input Voltage* • 90-264 VAC
- Input Frequency* • 47-63 Hz
- Input Current* • 8 A/10 A at 90 VAC - SMQ500/600
- Inrush Current* • 70 A pk at 230 VAC
- Power Factor* • 0.99 typical
- Leakage Current* • <3.5 mA

#### Output

- Output Power* • See Tables
- Output Voltage* • 3.3 VDC to 54 VDC
- Output Voltage Adj.* • ±5%
- Minimum Load* • No minimum load required
- Start Up Delay* • 1 s max at 120 VAC
- Hold up Time* • 20 ms min at 120 VAC & 80% load
- Initial Set Accuracy* • ±1%
- Line Regulation* • ±0.5% from low line to high line
- Load Regulation* • ±1%
- Over/Under Shoot* • 5% max
- Current Share* • 10% where fitted
- Ripple & Noise* • 50mV (Vo<=5V), 1% (Vo>=12V)
- Transient Response* • 5% max deviation, 500 μs recovery to within 1% for a 50% load change
- Overvoltage Protection* • >130% recycle input to reset
- Overload Protection* • 110% to 135% with auto recovery
- Overtemperature Protection* • >85°C ambient with auto recovery measured internally
- Undervoltage Protection* • Shutdown below 80 VAC (±5 V), restart above 86 VAC
- Remote Sense* • Compensates for up to 0.5 V drop
- Remote On/Off* • On = TTL Logic HIGH, or open circuit  
Off = TTL Logic LOW or short circuit

#### General

- Efficiency* • 80% min at 230 VAC, 70% min for Vo <=5V
- Isolation* • 3000 VAC Input to Output  
1500 VAC Input to Ground  
125 VAC Output to Ground
- Switching Frequency* • PFC stage 100 kHz,  
PWM stage 60 kHz typically
- Power Density* • 6.93 W/in<sup>3</sup>
- Signals* • Green LED for Power On  
DC OK TTL HIGH within 100-500 ms  
LOW ≤1 ms before loss of regulation
- MTBF* • 100,000 hrs per MIL-HDBK-217F

#### Environmental

- Operating Temperature* • 0 °C to +70 °C derate from 100% load at +50 °C to 50% load at +70 °C
- Storage Temp* • -20 °C to +85 °C
- Cooling* • Via internal temperature controlled fan
- Relative Humidity* • 5% to 90%, non-condensing
- Operating Altitude* • 3000 m
- Vibration* • 5-50 Hz, acc. 7.35 ms<sup>2</sup> on X, Y & Z axis

#### EMC & Safety

- Safety Approvals* • UL1950, CSA C22.2 No 950, EN60950, CE Mark LVD
- EMC* • Meets EN61000-3-2, -3, FCC Part 15 & CISPR 22 Class B conducted
- ESD Susceptibility* • EN61000-4-2 Level 3 Perf Criteria A
- Radiated Susceptibility* • EN61000-4-3 3 V/m Perf Criteria A
- EFT/Burst* • EN61000-4-4 Level 2 Perf Criteria A
- Surge* • EN61000-4-5 Level 3 Perf Criteria A
- Conducted* • EN61000-4-6 3 V Perf Criteria A

## OUTPUT VOLTAGE & CURRENT RATINGS - 500 WATT MODELS

SMQ500/600

Maximum Power	Output Voltage <sup>(4)</sup>	Output Current		Ripple & Noise <sup>(3)</sup>	Model Number <sup>(5, 8)</sup>
		Maximum	Peak <sup>(1)</sup>		
330 W	3.3 V	100.00 A	180.00 A	50 mV	SMQ500PS03-C
400 W	5.0 V	80.00 A	160.00 A	50 mV	SMQ500PS05-C
500 W	12.0 V	41.67 A	75.00 A	120 mV	SMQ500PS12-C
500 W	15.0 V	31.00 A	56.00 A	150 mV	SMQ500PS15-C
500 W	24.0 V	20.83 A	40.00 A	240 mV	SMQ500PS24-C
500 W	27.0 V	18.50 A	40.00 A	270 mV	SMQ500PS27-C
500 W	48.0 V	10.42 A	18.80 A	480 mV	SMQ500PS48-C
500 W	54.0 V	9.25 A	18.80 A	540 mV	SMQ500PS54-C

## OUTPUT VOLTAGE & CURRENT RATINGS - 600 WATT MODELS

SMQ500/600

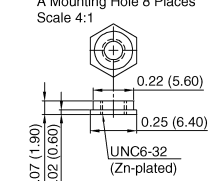
Maximum Power	Output Voltage <sup>(4)</sup>	Output Current		Ripple & Noise <sup>(3)</sup>	Model Number <sup>(5, 8)</sup>
		Maximum	Peak <sup>(1)</sup>		
396 W	3.3 V	120.00 A	180.00 A	50 mV	SMQ600PS03-C
500 W	5.0 V	100.00 A	160.00 A	50 mV	SMQ600PS05-C
600 W <sup>(6)</sup>	12.0 V	50.00 A	75.00 A	120 mV	SMQ600PS12-C
600 W <sup>(7)</sup>	15.0 V	40.00 A	56.00 A	150 mV	SMQ600PS15-C
600 W <sup>(7)</sup>	24.0 V	25.00 A	40.00 A	240 mV	SMQ600PS24-C
600 W <sup>(7)</sup>	27.0 V	22.20 A	40.00 A	270 mV	SMQ600PS27-C
600 W <sup>(7)</sup>	48.0 V	12.50 A	18.80 A	480 mV	SMQ600PS48-C
600 W <sup>(7)</sup>	54.0 V	11.10 A	18.80 A	540 mV	SMQ600PS54-C

**Notes**

1. Standard models have trip & restart mode current protection with a high peak load capability. This peak can be taken for 1 ms only.
2. For optional constant current versions, add suffix 'B' to model number (current limit range is 95-105% of max output current).
3. Ripple and noise measured using 0.1 μF ceramic and 22 μF electrolytic capacitor, 20 MHz bandwidth.
4. Other output voltages are available, contact Sales for details.
5. For optional current share add suffix 'I' to model number, for optional ORing diode add suffix 'O'.
6. Optional high power version available giving 720 W with input above 180 VAC only, add suffix '-H' to model number.
7. Optional high power version available giving 800 W with input above 180 VAC only, add suffix '-H' to model number.
8. For optional IEC320 inlet replace 'C' in model number with 'D'.

### Mechanical Details

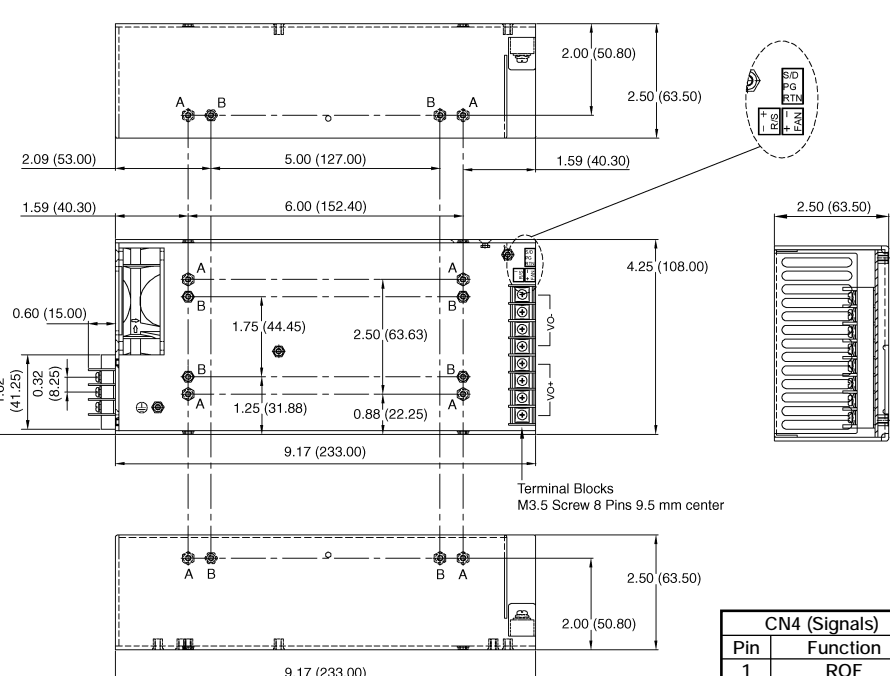
**A Mounting Hole 8 Places**  
Scale 4:1



0.22 (5.60)  
0.07 (1.90)  
0.25 (6.40)  
UNC6-32  
(Zn-plated)

2.50 (63.50)

Terminal Block  
M3 Screw  
3 Pins 8.25 mm center



2.09 (53.00)    5.00 (127.00)    1.59 (40.30)

1.59 (40.30)    6.00 (152.40)    9.17 (233.00)

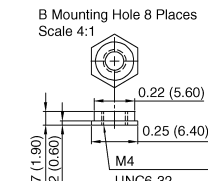
0.60 (15.00)    1.75 (44.45)    2.50 (63.63)

1.62 (41.25)    0.32 (8.25)    1.25 (31.88)    0.88 (22.25)

4.25 (108.00)

2.00 (50.80)    2.50 (63.50)

Terminal Blocks  
M3.5 Screw 8 Pins 9.5 mm center



0.22 (5.60)  
0.07 (1.90)  
0.25 (6.40)  
UNC6-32  
(Zn (yellow) -plated)

**NOTES:**

1. Dimensions in inches (mm).
2. Remote ON/OFF CN4 mates with JST XHP-3 or equivalent
3. Remote sense CN5 and fan CN3 mates with JST XHP-2 or equivalent.
4. Weight: 1.1 kg.

CN4 (Signals)	
Pin	Function
1	ROF
2	DC OK
3	RTN

CN5 (Remote Sense)	
Pin	Function
1	+ RS
2	- RS