

# AC/DC U-Channel

## 500 Watts SMQ500 Series

**XPiQ inc.**

Intelligent Design Quality Product



- High Power Density
- High Peak Load Rating
- Active PFC
- Universal Input
- Single Outputs from 3.3 V to 54 V
- International Safety Approvals

## Specification

### Input

Input Voltage	• 90-264 VAC
Input Frequency	• 47-63 Hz
Power Factor	• 0.99 typical
Inrush Current	• 70 A Peak at 230 VAC
Input Current	• 8 A at 90 VAC
Leakage Current	• <3.5 mA
Remote On/Off	• On = TTL Logic HIGH, or open circuit Off = TTL Logic LOW or short circuit

### Output

Output Voltage	• 3.3 VDC to 54 VDC
Output Power	• See Table
Output Voltage Adjustment	• $\pm 5\%$
Minimum Load	• No minimum load required
Line Regulation	• $\pm 0.5\%$ from low line to high line
Load Regulation	• $\pm 1\%$
Ripple & Noise	• 50mV ( $V_o \leq 5V$ ), 1% ( $V_o \geq 12V$ )
Transient Response	• 5% max deviation, 2.5 ms recovery time to within 1% for a 50% load change
Hold up Time	• 20ms minimum at 120 VAC and 80% load
Turn On Time	• 1 second max at 120 VAC
Overvoltage Protection	• 130% recycle input to reset
Overcurrent Protection	• 110% to 135% with auto recovery
Overtemperature Protection	• $>85^\circ\text{C}$ ambient with auto recovery measured internally
Remote Sense	• Compensates for up to 0.5 V drop

### General

Efficiency	• 70% minimum at 230 VAC, 65% min for $V_o \leq 5V$
Power Density	• 5.13 W/in <sup>3</sup>
MTBF	• 100,000 hrs per MIL-HDBK-217F
Isolation Voltage	• 3000 VAC Input to Output 1500 VAC Input to Ground 500 VAC Output to Ground
Signals	• Green LED for Power On DC OK TTL HIGH within 100-500 ms LOW at least 1 ms before loss of regulation
Size	• 9.17" x 4.25" x 2.50"
Weight	• 0.5 lbs. (1.1kg) approx

### Environmental

Operating Temperature	• $0^\circ\text{C}$ to $+70^\circ\text{C}$ derate linearly from 100% load at $+50^\circ\text{C}$ to 50% load at $+70^\circ\text{C}$
Cooling	• Via internal fan
Relative Humidity	• 5% to 90%, non-condensing
Storage Temperature	• $-20^\circ\text{C}$ to $+85^\circ\text{C}$

### EMC & Safety

Safety Approvals	• UL1950, CSA C22.2 No 950 EN60950, CE Mark LVD
EMI/EMC	• Meets EN61000-3-2, -3 FCC Part 15 and CISPR 22 Class B conducted

# OUTPUT VOLTAGE & CURRENT RATINGS

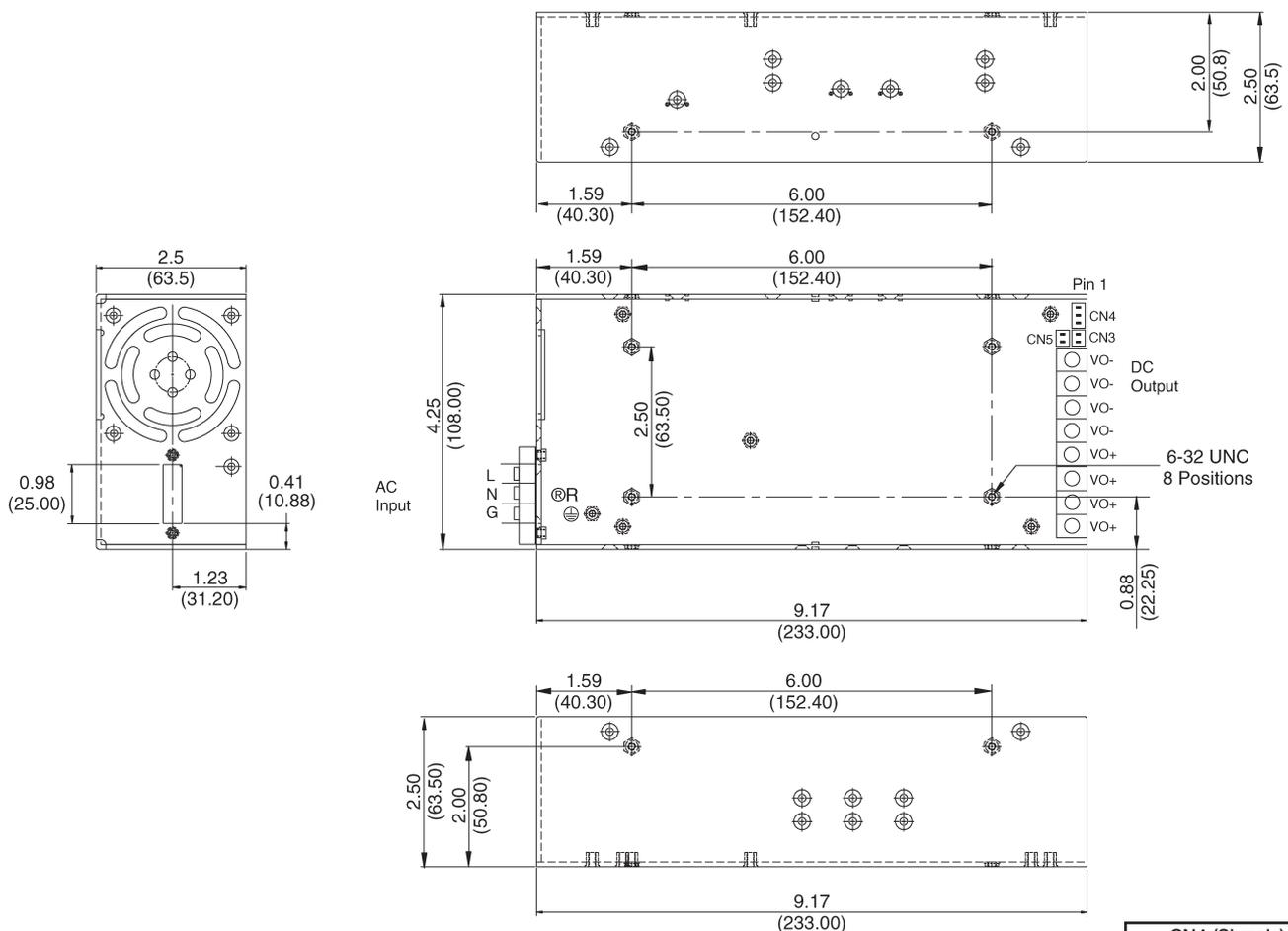
**SMQ500**

Maximum Power	Output Voltage	Output Current		Ripple & Noise <sup>(3)</sup>	Model Number
		Maximum	Peak <sup>(1)</sup>		
330 W	3.3 V	100.00 A	180.00 A	50 mV	<b>SMQ500PS03-C</b>
400 W	5.0 V	80.00 A	160.00 A	50 mV	<b>SMQ500PS05-C</b>
500 W	12.0 V	41.00 A	75.00 A	120 mV	<b>SMQ500PS12-C</b>
500 W	15.0 V	31.00 A	56.00 A	150 mV	<b>SMQ500PS15-C</b>
500 W	18.0 V	27.77 A	54.00 A	180 mV	SMQ500PS18-C
500 W	24.0 V	22.00 A	40.00 A	240 mV	<b>SMQ500PS24-C</b>
500 W	27.0 V	18.50 A	40.00 A	270 mV	<b>SMQ500PS27-C</b>
500 W	48.0 V	10.00 A	18.80 A	480 mV	<b>SMQ500PS48-C</b>
500 W	54.0 V	9.25 A	18.80 A	540 mV	SMQ500PS54-C

## Notes

- Standard models have foldback mode current protection with a high peak load capability. This peak can be taken for 1 ms only.
- For optional constant current versions, add suffix 'B' to model number (current limit range is 95-105% of max output current). Not available on 3.3 V and 5 V models.
- Ripple and noise measured using 0.1  $\mu$ F ceramic and 22  $\mu$ F electrolytic capacitor, 20 MHz bandwidth.
- Part numbers in bold are stocking models. Others are build to order.
- Other output voltages are available, contact factory for details.

## Mechanical Details



### NOTES:

- Dimensions in inches (mm).
- Remote ON/OFF CN4 mates with JST XHP-3 or equivalent
- Fan Connector CN3 is wired in parallel to the internal fan. No auxiliary output is available.
- Remote sense CN5 mates with JST XHP-2 or equivalent.
- Weight: 0.5 lb (1.1 kg) approx.

CN4 (Signals)	
Pin	Function
1	ON/OFF
2	DC OK
3	RTN

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