

SMC/SMD Series



- High Peak Load Rating
- Single Outputs from 3.3 V to 54 V
- Active PFC
- Remote On/Off
- Optional Current Share
- SEMI F47 Compliant
- Optional Constant Current Limit

Specification

Input

Input Voltage	• 90-264 VAC (120-370 VDC)
Input Frequency	• 47-63 Hz
Input Current	• 9 A at 90 VAC, 3.5 A at 230 VAC
Inrush Current	• 40 A at 230 VAC
Power Factor	• 0.99 typical
Earth Leakage Current	• <2.4 mA max at 264 VAC
Input Protection	• Fitted with a T10 A/250 V fuse

Output

Output Voltage	• See tables
Output Voltage Trim	• $\pm 5\%$ minimum
Initial Set Accuracy	• $\pm 1\%$
Minimum Load	• No minimum load required
Start Up Delay	• 1.5 s at 230 VAC, 2.5 s at 110 VAC
Start Up Rise Time	• 40 ms typical
Hold Up Time	• 18 ms max at 120 VAC
Line Regulation	• $\pm 0.5\%$, low line to high line
Load Regulation	• $\pm 1\%$, 1-100% of load (see note 4)
Over/Undershoot	• 5% max
Transient Response	• 5% max deviation, 500 μ s recovery to within 1% for a 50% load change
Ripple & Noise	• See table
Overvoltage Protection	• 110-130% recycle input to reset
Overtemperature Protection	• $>85^\circ\text{C}$ ambient with auto recovery (measured internally)
Overload Protection	• 110% to 135% with auto recovery
Short Circuit Protection	• Trip and restart (Hiccup mode)
Remote Sense	• Compensates for up to 0.5 V line drop
Remote On/Off	• On = TTL Logic HIGH, or open circuit Off = TTL Logic LOW or short circuit
Current Share	• Optional single wire current share within 10% for up to 4 units

General

Efficiency	• 80% min at 230 VAC, 70% min for $V_o \leq 5V$
Isolation	• 3000 VAC Input to Output, 1500 VAC Input to Ground, 250 VDC Output to Ground
Switching Frequency	• 100 kHz PFC, 25 kHz PWM
Power Density	• 6.93 W/In ³
Signals	• Green LED for Power On, Power Good TTL HIGH within 100-500 ms and LOW ≤ 1 ms before loss of regulation
Current Monitor	• 0.5 V to 3 V output voltage denoting 0-100% output current
MTBF	• 100 kHrs min per MIL-HDBK-217F

Environmental

Operating Temperature	• 0 $^\circ\text{C}$ to $+70^\circ\text{C}$, derate from 100% load at $+50^\circ\text{C}$ to 50% load at $+70^\circ\text{C}$
Cooling	• 30 CFM for SMD U-channel versions
Operating Humidity	• 5-90%, non-condensing
Storage Temperature	• -20°C to $+85^\circ\text{C}$
Operating Altitude	• 3000 m
Shock	• 15 g (non-operation), 11 ms (half sine wave), 3 times for each axis
Vibration	• 10-55 Hz (non-operation) 2 g, sweep time 3 mins, 60 mins/axis

EMC & Safety

Emissions	• FCC Part 15 & CISPR 22 Class B conducted
Harmonic Currents	• EN61000-3-2, EN61000-3-3
ESD Immunity	• EN61000-4-2, level 3 Perf Criteria A
Radiated Immunity	• 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 Immunity	• EN61000-4-6, 3V Perf Criteria A
Safety Approvals	• UL60950, CSA C22.2 No. 950, EN60950, CE Mark LVD, SEMI F47 Compliant (high line only) at 100% rated power output

Models and Ratings

Output Power	Output Voltage ^(3,4)		Output Current		Ripple & Noise ⁽²⁾	Model Number
	Preset	Range	Maximum	Peak ⁽¹⁾		
264 W	3.3 V	2.0-3.3 V	80.00 A	120.00 A	75 mV	SMC500PS03-C†
400 W	5.0 V	5.0-6.0 V	80.00 A	120.00 A	75 mV	SMC500PS05-C†^
500 W	12.0 V	12.0-15.0 V	41.67 A	75.00 A	120 mV	SMC500PS12-C†^
	15.0 V	12.0-15.0 V	31.00 A	56.00 A	150 mV	SMC500PS15-C†^
	18.0 V	16.0-21.0 V	27.78 A	50.00 A	180 mV	SMC500PS18-C
	24.0 V	22.0-30.0 V	20.83 A	37.50 A	240 mV	SMC500PS24-C†^
	27.0 V	22.0-30.0 V	18.50 A	33.33 A	270 mV	SMC500PS27-C†
	36.0 V	31.0-47.0 V	13.89 A	25.00 A	360 mV	SMC500PS36-C
	48.0 V	48.0-56.0 V	10.42 A	18.75 A	480 mV	SMC500PS48-C†^
	54.0 V	48.0-56.0 V	9.25 A	16.67 A	540 mV	SMC500PS54-C
297 W	3.3 V	2.0-3.3 V	90.00 A	135.00 A	100 mV	SMC600PS03-C†
450 W	5.0 V	5.0-6.0 V	90.00 A	135.00 A	100 mV	SMC600PS05-C†^
600 W	12.0 V	12.0-15.0 V	50.00 A	75.00 A	120 mV	SMC600PS12-C†^
	15.0 V	12.0-15.0 V	40.00 A	56.00 A	150 mV	SMC600PS15-C†^
	18.0 V	16.0-21.0 V	33.00 A	50.00 A	180 mV	SMC600PS18-C
	24.0 V	22.0-30.0 V	25.00 A	37.50 A	240 mV	SMC600PS24-C†^
	27.0 V	22.0-30.0 V	22.22 A	33.33 A	270 mV	SMC600PS27-C
	36.0 V	31.0-47.0 V	16.67 A	25.00 A	360 mV	SMC600PS36-C
	48.0 V	48.0-56.0 V	12.50 A	18.75 A	480 mV	SMC600PS48-C†^
	54.0 V	48.0-56.0 V	11.10 A	16.67 A	540 mV	SMC600PS54-C

Notes

1. This peak can be taken for 500 μs only, average power should not exceed the maximum power.
2. Ripple & Noise is measured using 0.1 μF ceramic and 22 μF electrolytic capacitor, 20 MHz bandwidth.
3. Alternative output voltages available, consult sales.
4. Load regulation increases to 2% for 0-100% load change.
5. For output currents >50 A, please connect remote sense to meet regulation ratings.

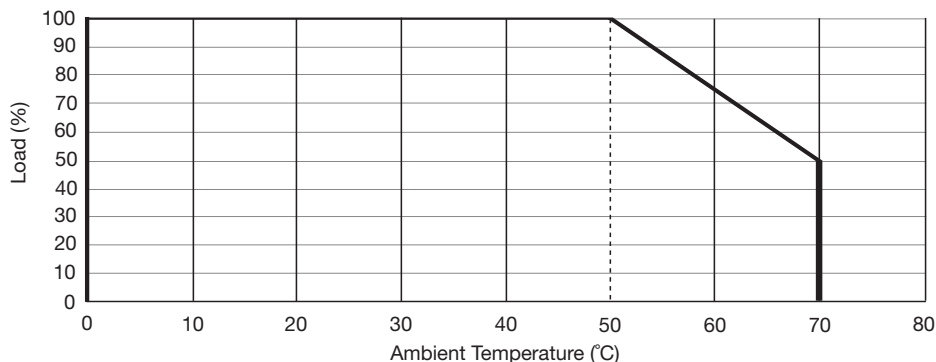
† Available from Farnell. See pages 204-206.

^ Available from Newark. See pages 207-208.

Options

- For U-channel version replace 'SMC' in the part number with 'SMD' and remove '-C' e.g. SMD600PS12 (See Derating Curve Note 1.)
- Constant current limit (95-100%) add suffix '-B' (not available on 3.3 V or 5.0 V models)
- Current share and internal oring diode add suffix '-I' to model number.
- Optional IEC320 inlet replace suffix '-C' with '-D'. Not available for SMD models.
- For multiple option codes please place optional codes in alphabetical order. e.g. SMC500PS12-BD.

Derating Curve



Notes

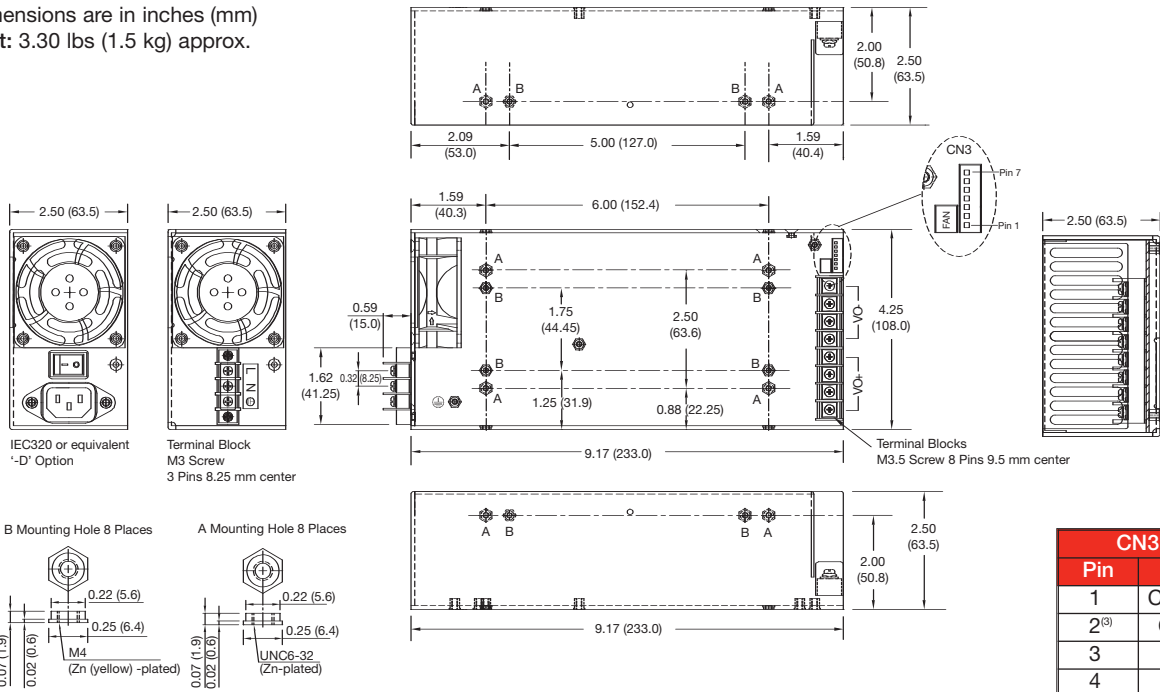
1. SMD units require 30 CFM forced air cooling.



Mechanical Details

SMC with integral fan

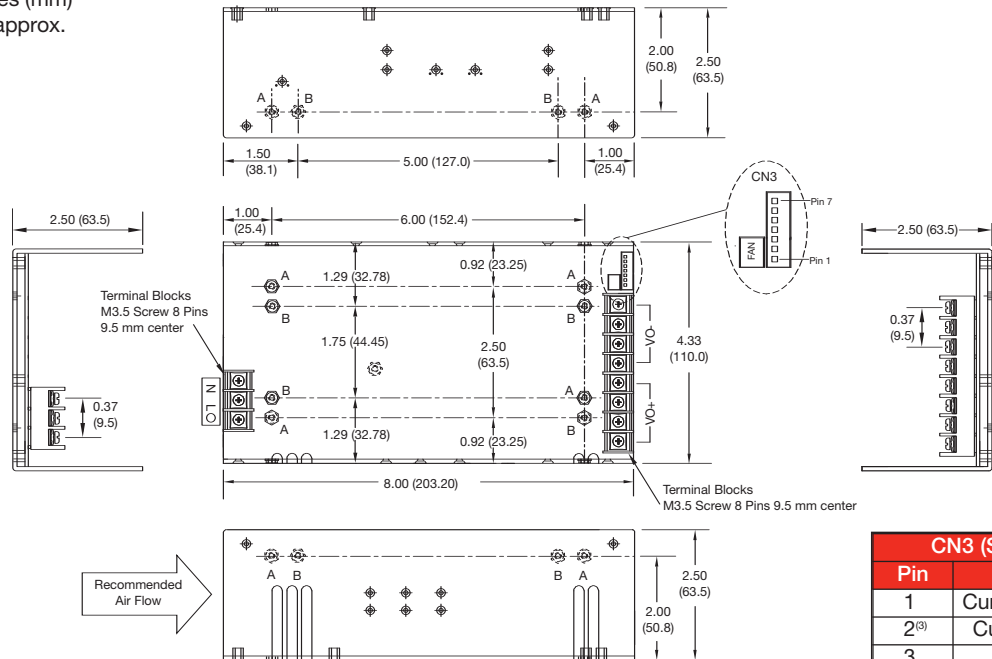
All dimensions are in inches (mm)
 Weight: 3.30 lbs (1.5 kg) approx.



CN3 (Signals)	
Pin	Function
1	Current monitor
2 ⁽³⁾	Current share
3	Return
4	Power good
5	Remote On/Off
6 ⁽³⁾	-Remote sense
7 ⁽³⁾	+Remote sense

SMD U-Channel

All dimensions are in inches (mm)
 Weight: 3.09 lbs (1.4 kg) approx.



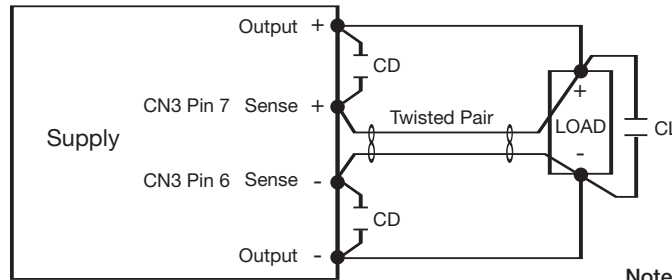
CN3 (Signals)	
Pin	Function
1	Current monitor
2 ⁽³⁾	Current share
3	Return
4	Power good
5	Remote On/Off
6 ⁽³⁾	-Remote sense
7 ⁽³⁾	+Remote sense

Notes

1. Logic connector CN3 mates with JST XHP-7 or equivalent and JST SXH-002T-P0.6 crimp terminals.
2. Fan connector mates with JST XHP-2 or equivalent and JST SXH-002T-P0.6 crimp terminals. Output is 12 VDC/160 mA
3. Current share only available on '-I' models, remote sense not available on '-I' models. Current share not available with constant current models.
4. Maximum mounting screw penetration: 0.15 (4.00) from case outer surfaces.



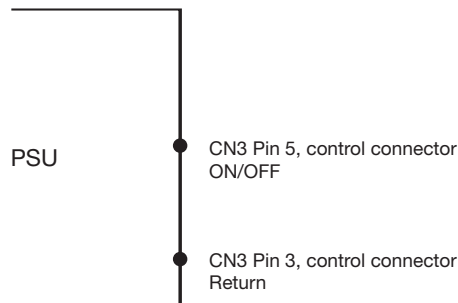
Remote Sense



Note:

1. CL is 47 μ F electrolytic capacitor.
2. CD is 0.1 μ F ceramic capacitor.

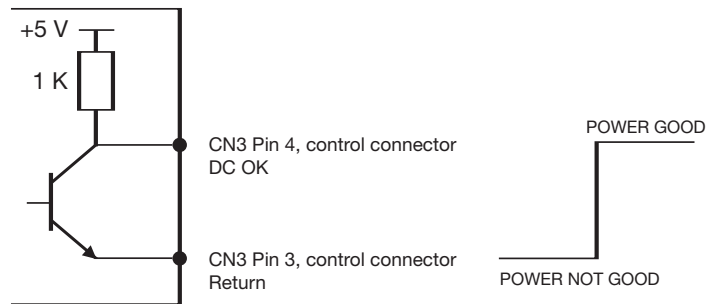
Remote On/Off



Note:

1. Applying <math><0.3\text{ V}</math> or short between pins 5 and 3 turns the output OFF.
2. Applying >math>>4.5\text{ V}</math> or open circuit between pins 5 and 3 turns output ON.

Power Good



Parallel Connection with Current Share Option

