



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



MHP Series



- Rugged Construction
- Medical Safety Approvals
- Variable Fan Speed for Noise Reduction
- -20 °C to +70 °C Operation
- AC OK, Remote On/Off and Active Current Share
- 5 V Standby
- 3 Year Warranty

Specification

Input

Input Voltage	• 650 W: 80-264 VAC, derate output power 10% <90 VAC, and 20% <85 VAC, 1000 W: 85-264 VAC, derate output power 10% <90 VAC
Input Frequency	• 47-63 Hz
Input Current	• 650 W: 6.5 A at 115 VAC typical, 3.2 A at 230 VAC full load, 1000 W: 10.9 A at 115 VAC typical, 5.1 A at 230 VAC full load
Inrush Current	• 650 W: 40 A max at 264 VAC 1000 W: 60 A max at 264 VAC
Power Factor	• >0.9
Earth Leakage Current	• 250 μ A max at 264 VAC/60 Hz
Input Protection	• 650 W: T16 A/250 V, 1000 W: T20 A/250 V internal fuse in line and neutral

Output

Output Voltage	• 12-48 VDC (see tables)
Output Voltage Trim	• \pm 10% V1
Initial Set Accuracy	• 650 W: \pm 1% V1, \pm 5% V3, 1000 W: \pm 1% V1, \pm 5% V2
Minimum Load	• No minimum load required
Start Up Delay	• 500 ms max
Start Up Rise Time	• 50 ms typical
Hold Up Time	• 20 ms minimum
Drift	• \pm 0.2% after 20 min warm up
Line Regulation	• \pm 0.5%
Load Regulation	• 650 W: \pm 1% V1, \pm 5% V3, 1000 W: \pm 1% V1, \pm 5% V2
Transient Response	• 4% max. deviation, recovery to within 1% in 500 μ s for a 50-75-50% load change
Ripple & Noise	• 1% pk-pk V1, 20 MHz bandwidth
Overvoltage Protection	• 115-145% Vnom, recycle input to reset
Overload Protection	• 110-140%, V1 only
Overtemperature Protection	• Auto reset
Short Circuit Protection	• Constant current characteristic
Temp. Coefficient	• 0.05% / °C
Remote Sense	• Compensates for 0.5 V total voltage drop
Remote On/Off	• Uncommitted isolated optocoupler diode, powered diode inhibits V1 and fan supply ⁽¹⁾
Current Share	• Single wire current share ⁽¹⁾

General

Efficiency	• 85% typical
Isolation	• 4000 VAC In to Out, 2 x MOPP, 1500 VAC In to Earth, 1 x MOPP, 500 VDC Out to Earth
Switching Frequency	• PFC 70 kHz, main converter 200 kHz, standby 130 kHz typical
Power Density	• 650 W: 8.2 W/in ³ , 1000 W: 8.9 W/in ³
Signals	• AC OK, remote on/off, current share ⁽¹⁾
MTBF	• 260 KHrs to MIL-HDBK-217F at 25 °C, GB

Environmental

Operating Temperature	• -20 °C to +70 °C, derate linearly from +50 °C at 2.5% / °C to 50% at +70 °C, 1000 W: -40 °C start up
Cooling	• 650 W: Forced cooled, '-TF' & '-EF' models have integral dual voltage level fan, which is load dependant, U Channel requires 5.5 m/s minimum airflow, 1000 W: Forced cooled via integral quad voltage level fan which is load dependant ⁽¹⁾
Operating Humidity	• 95% RH, non-condensing
Storage Temperature	• -40 °C to +85 °C
Operating Altitude	• 3000 m
Shock	• 30 g pk, half sine, 6 axes
Vibration	• 2 g rms, 5 Hz to 500 kHz, 3 axes

EMC & Safety

Emissions	• EN55022/EN55011 class B conducted EN55022/EN55011 class A radiated
Harmonic Currents	• EN61000-3-2 class A, 650 W: class C for loads \geq 20% 1000 W: class C for loads \geq 10%
Voltage Flicker	• EN61000-3-3
ESD Immunity	• EN61000-4-2, level 3 contact, level 3 air, Perf Criteria A
Radiated Immunity	• EN61000-4-3, level 3 Perf Criteria A
EFT/Burst	• EN61000-4-4, level 3 Perf Criteria A
Surge	• EN61000-4-5, installation class 3, Perf Criteria A
Conducted Immunity	• EN61000-4-6, level 3, Perf Criteria A
Dips & Interruptions	• EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms, Perf Criteria A, B, B, EN60601-1-2, 30% 500 ms, 60% 100 ms, 100% 10 ms, 100% 5000 ms, Perf Criteria A, A, A, B. Consult longform for 115 VAC operation
Safety Approvals	• IEC60601-1 CB report, CSA 22.2 No.60601-1, ANSI/AAMI ES60601-1, TUV, EN60601-1 Including Risk Management

⁽¹⁾ See longform datasheet for more information

Models and Ratings

MHP650 XP

Output Voltage V1	Output Current V1	Fan Supply V2 ⁽⁴⁾	Standby Supply V3	Output Power ⁽³⁾	Model Number ^(1,2)
12 V	50 A	12 V / 0.5 A	5 V / 0.2 A	607 W	MHP650PS12-EF
15 V	40 A	12 V / 0.5 A	5 V / 0.2 A	607 W	MHP650PS15-EF
24 V	27 A	12 V / 0.5 A	5 V / 0.2 A	655 W	MHP650PS24-EF
28 V	23 A	12 V / 0.5 A	5 V / 0.2 A	655 W	MHP650PS28-EF
36 V	18 A	12 V / 0.5 A	5 V / 0.2 A	655 W	MHP650PS36-EF
48 V	13.5 A	12 V / 0.5 A	5 V / 0.2 A	655 W	MHP650PS48-EF

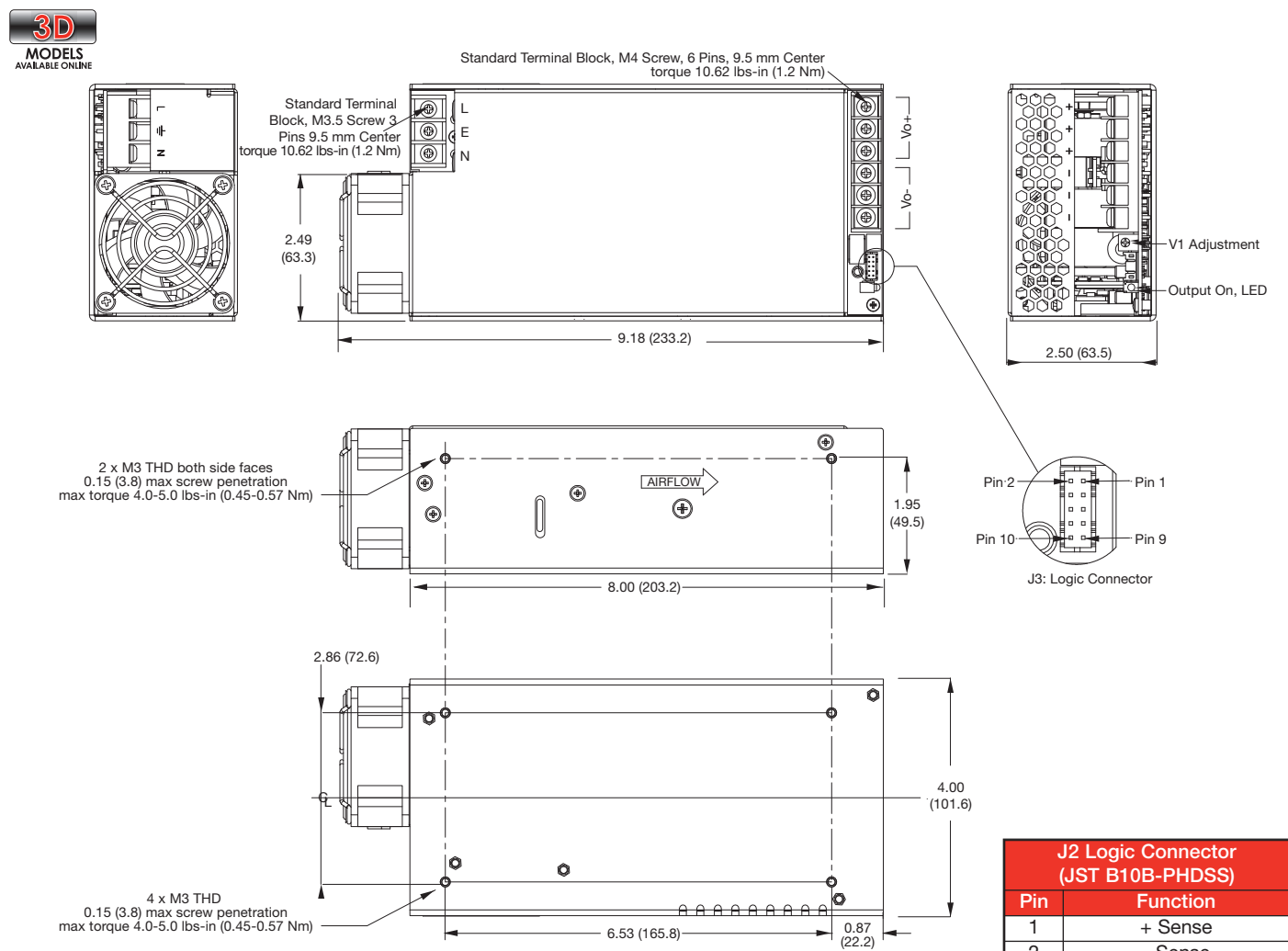
Notes

- For top fan version replace '-EF' in model number with '-TF', e.g. MHP650PS12-TF
- For U Channel version remove suffix.

- U Channel models require a minimum of 5.5 m/s airflow from the system.
- Not available for '-TF' and '-EF' models as used by integral fan.

Mechanical Details

End Fan (See Longform Datasheet for U-Channel Version)



Notes

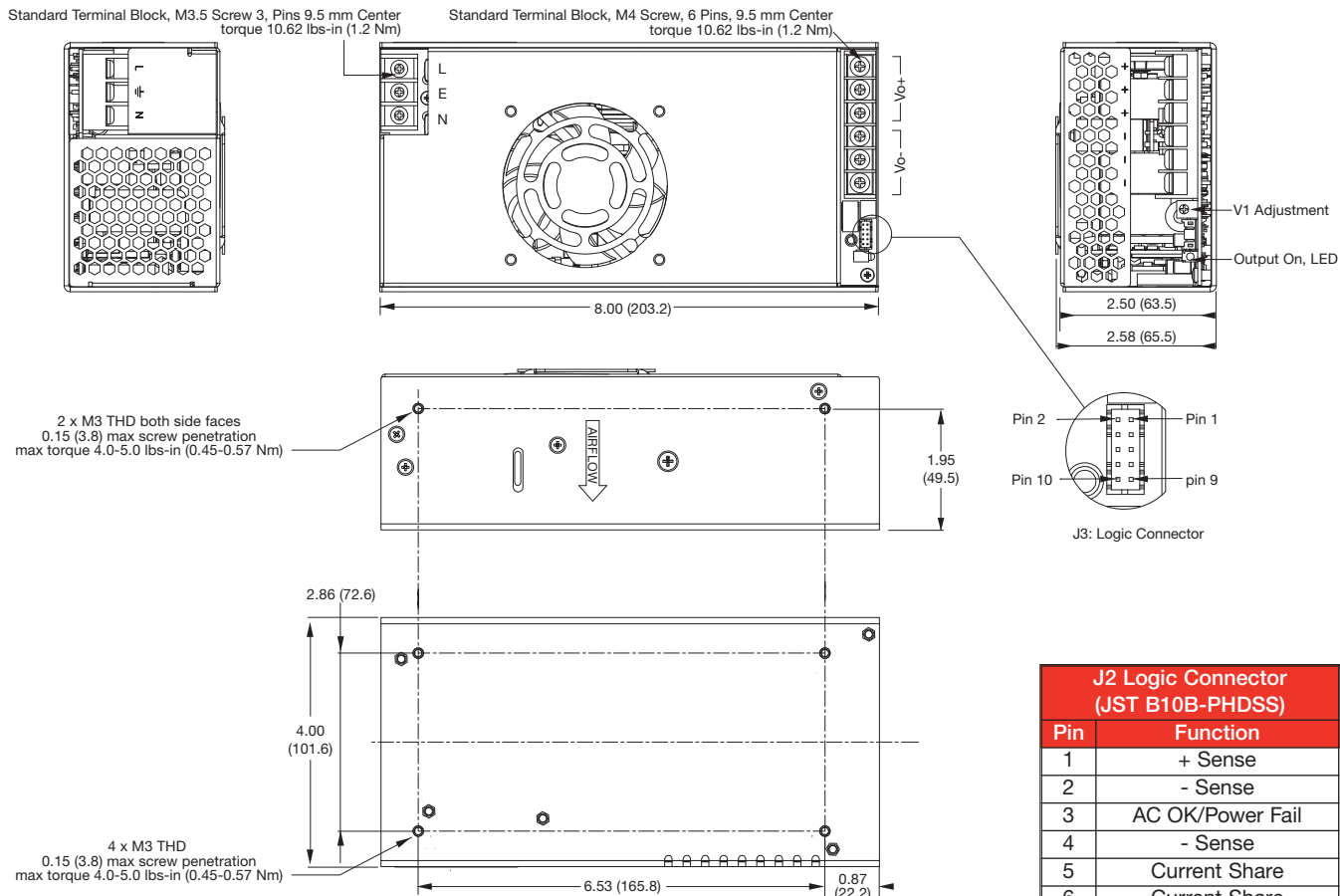
- Dimensions shown in inches (mm).
- Weight: 2.8 lb (1.27 kg).

- J2 Mating plug: JST part no. PHDR-10VS, contact: 26-22 AWG JST part no. SPHD-001T-P0.5.



Mechanical Details

Top Fan (Suffix -TF)



J2 Logic Connector (JST B10B-PHDSS)	
Pin	Function
1	+ Sense
2	- Sense
3	AC OK/Power Fail
4	- Sense
5	Current Share
6	Current Share
7	+ Inhibit (Anode)
8	- Inhibit (Cathode)
9	+5V Standby (V3)
10	5V Standby Return (V3)

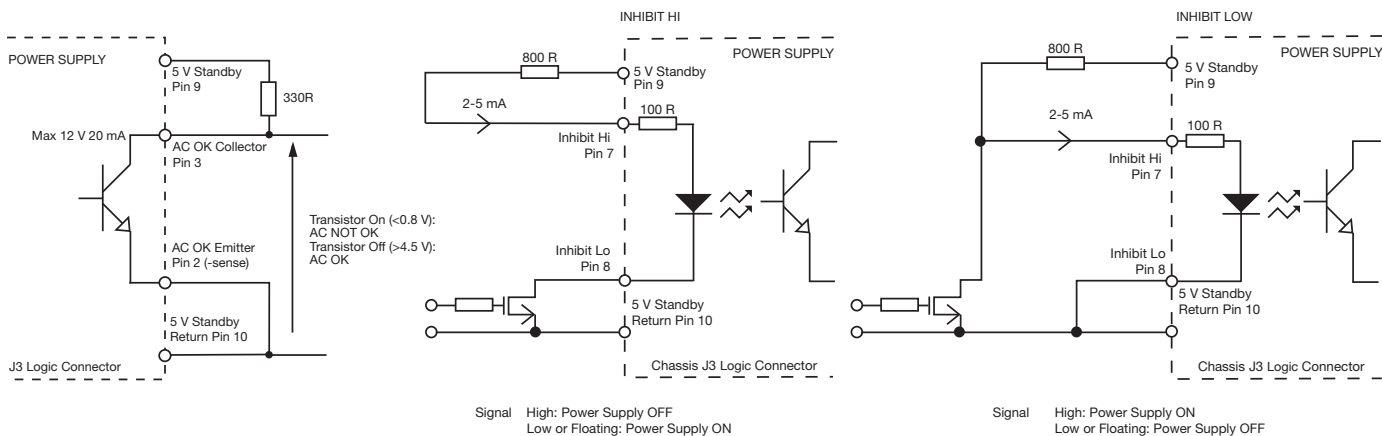
Notes

- Dimensions shown in inches (mm).
- Weight: 2.8 lb (1.27 kg).
- J2 Mating plug: JST part no. PHDR-10VS, contact: 26-22 AWG JST part no. SPHD-001T-P0.5.

Signals

AC OK/Power Fail

Remote On/Off (Inhibit)



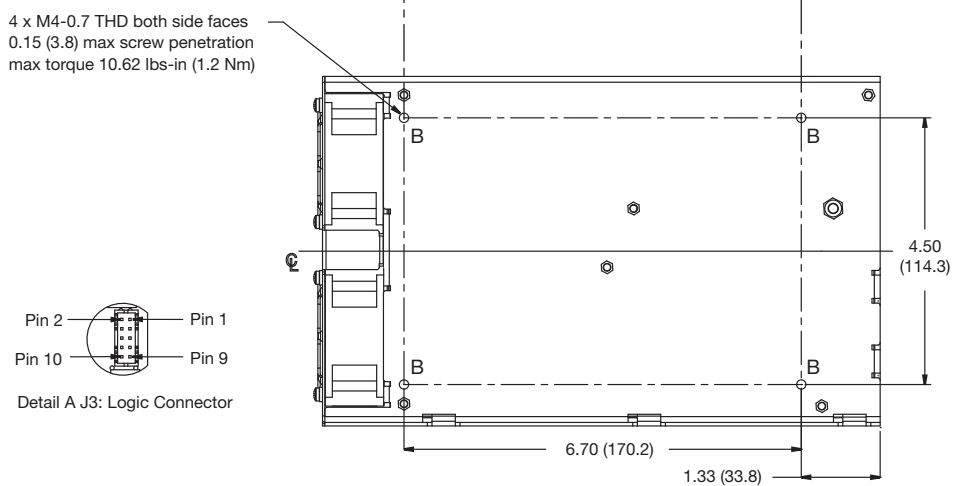
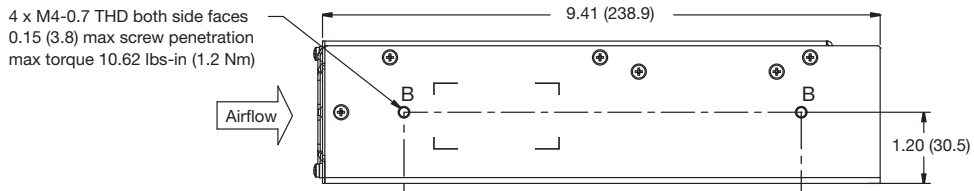
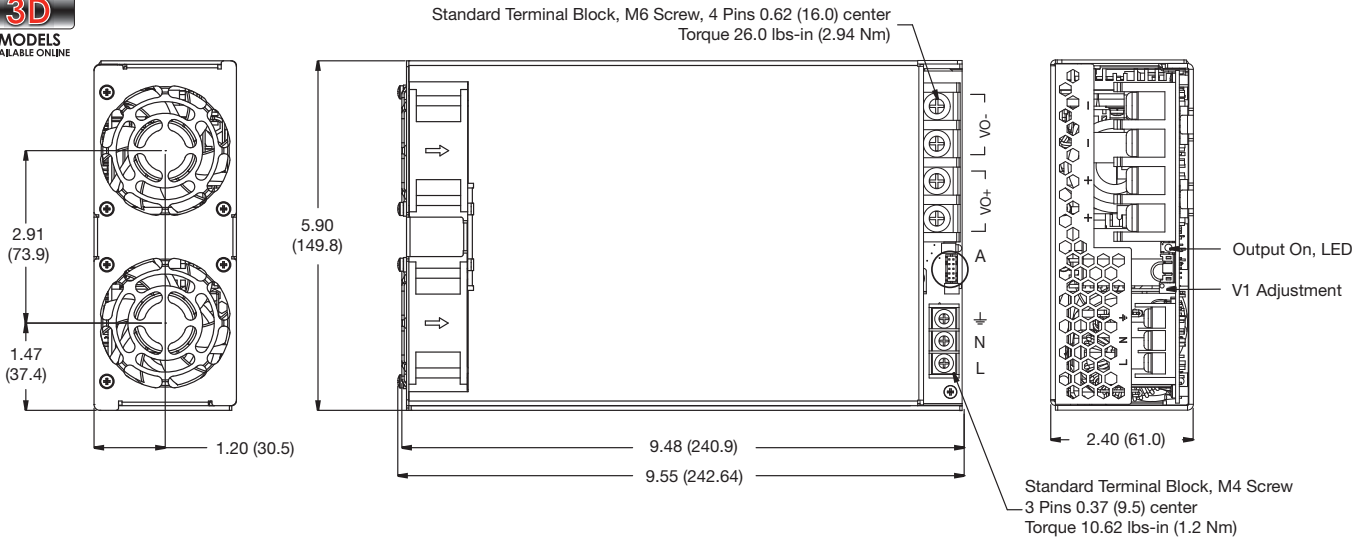
For U Channel and Thermal Considerations please see longform datasheet.



Models and Ratings

Output Voltage V1	Output Current V1		Standby Supply V2	Output Power		Model Number
	<180 VAC	>180 VAC		<180 VAC	>180 VAC	
12 V	83.0 A		5 V / 1.0 A	1000 W		MHP1000PS12
15 V	67.0 A		5 V / 1.0 A	1010 W		MHP1000PS15
24 V	42.0 A	50.0 A	5 V / 1.0 A	1013 W	1200 W	MHP1000PS24
28 V	36.0 A	43.0 A	5 V / 1.0 A	1013 W	1200 W	MHP1000PS28
36 V	28.0 A	34.0 A	5 V / 1.0 A	1013 W	1200 W	MHP1000PS36
48 V	21.0 A	25.0 A	5 V / 1.0 A	1013 W	1200 W	MHP1000PS48

Mechanical Details



J3 Logic Connector (JST B10B-PHDSS)	
Pin	Function
1	+ Sense
2	- Sense
3	AC OK/Power Fail
4	- Sense
5	Current Share
6	Current Share
7	+ Inhibit
8	- Inhibit
9	+5 V Standby
10	-5 V Standby

Notes

- Dimensions shown in inches (mm).
- Weight: 4.6 lb (2.08 kg)
- J3 Mating plug: JST part no. PHDR-10VS, contact: 26-22 AWG JST part no. SPHD-001T-P0.5.

