VPM-S500 Switching Power Supply

Model	Output	Output Current Minimum	Maximum	Max. Power	Regulation	Ripple & Noise* (Vpp)
VPM-S500-03R	2 – 3.3 V	0 A	80 A	264 W	+/- 1%	50 mV
VPM-S500-05R	5 - 6 V	0 A	80 A	400 W	+/- 1%	50 mV
VPM-S500-12R	12 - 15 V	0 A	41.67 A	500 W	+/- 1%	1%
VPM-S500-18R	16 - 21 V	0 A	31.25 A	500 W	+/- 1%	1%
VPM-S500-24R	22 - 30 V	0 A	22.73 A	500 W	+/- 1%	1%
VPM-S500-36R	31 - 47 V	0 A	16.13 A	500 W	+/- 1%	1%
VPM-S500-48R	48 - 56 V	0 A	10.42 A	500 W	+/- 1%	1%

Input

Parameter	Conditions/Description	Min	Nom	Max	Units
Input frequency		47		63	Hz
Input voltage	At full range	90		264	VAC
Input current	At 90 VAC, full load			8	A
Inrush current	Peak, measured at 230 VAC at full load, cold start			70	A
PFC	Active power factor correction meets EN61000-3-2 class D				

Output

Parameter	Conditions/Description	Min	Nom	Max	Units
Transient response	Output voltage returns to within 1% in less than 2.5 mS for a 50% load change. Peak transient does not exceed 5%.				
Overshoot	Turn-on and turn-off overshoot shall not exceed 5% over nominal voltage.				
Efficiency	At 230 V and full load				
	3.3 V model:	70%			
	5 V model:	75%			
	12 V model:	80%			
	All other models:	82%			
Turn on delay	At 120 VAC			1	second
Hold up time	At 120 VAC and 80% of rated maximim load	20			mS
Adjustability	Output user adjustable	+/- 5%			
Remote sense	Designated as RS+ and RS- on the CN3. Total voltage compensation for cable losses with respect to the main output.				
Remote inhibit	Defined RSW on CN3, requiring a TTL low signal to inhibit output.				
LED display (LED 1)	Green - the power supply is operating normally Orange - when any protection occurs or RSW is low.				
Power good	Designated as PG on the CN3. This signal will go high 100-500 mS after the output reaches regulation. It goes low at least 1 mS before loss of regulation.				
Output rating	Measured at output power connector (see chart above)				

* Output is fully isolated
* Ripple and noise is measured from 10 KHz to 20 MHz at output terminals with a 0.1 µF ceramic capacitor and a 22 µF electrolytic capacitor in parallel.

Protection Circuit

Parameter	Conditions/Description
Input circuit (primary)	Built-in ac fuse. A blown fuse usually indicates permanent damage to the power supply serviceable by factory only.
Input voltage protection	Power supply shuts down when ac input is under 80 VAC. When ac line reappears over 86 +/- 5 VAC, the power supply restarts automatically.
Overcurrent protection	Current limiting starts at 110-140% of the rated output current and recovers automatically.
Short circuit protection	Short circuit can be continuous. Recovers automatically upon removal of short.
Overvoltage protection	Output is protected agaist overvoltage. Unit shuts down and latches when voltage at output terminals exceeds 130%. AC input needs to be reset to restart the power supply.
Over temp. protection	Power supply shuts down when temperature is in excess of 85 ºC. Auto recovery.

Mechanical

Parameter	Conditions/Description	Min	Nom	Max	Units
Weight				1450	grams
Enclosure	9.17(L) x 4.25(W) x 2.5(H)				inches
Mounting inserts	4 Places, 6-32. Maximum Penetration				

Mating Connector - Pin Header Version

Parameter	Conditions/Description
AC input (CON1)	IEC320 or equivalent Snap-in mounting type
Output (CON2)	Mating Molex Part No. 09-91-2000 (20 pin)
Output pin assignment	VO+ (Pins 1-10), VO- (Pins 11-20)

Mating Connector - Pin Header Version

Parameter	Conditions/Description
AC input (CON1)	DINKLE Terminal block Part No. DT-35-A02W-03 (3 pin)
Output (CON2)	Howder Terminal block Part No. HD-121-8P (8 pin)
Output pin assignment	VO+ (Pins 1-10), VO- (Pins 11-20)

Mating Connector - Logic and Fan

Parameter	Conditions/Description
Logic	JST XHP-7 or equivalent (CHYAO SHIUNN JS-2001-07)
Fan	JST XHP-2 or equivalent (CHYAO SHIUNN JS-2001-02)

Environmental

Parameter	Conditions/Description	Min	Nom	Max	Units
Operating temp.		0		50	ºC
Storage temp.		-20		85	ºC
Operating humid.	Non-condensing	5%		90%	RH
Storage humid.	Non-condensing	5%		95%	RH
Derating	Derates linearly from 100% load at 50 ºC to 50% load at 70 ºC.				

Safety and EMI

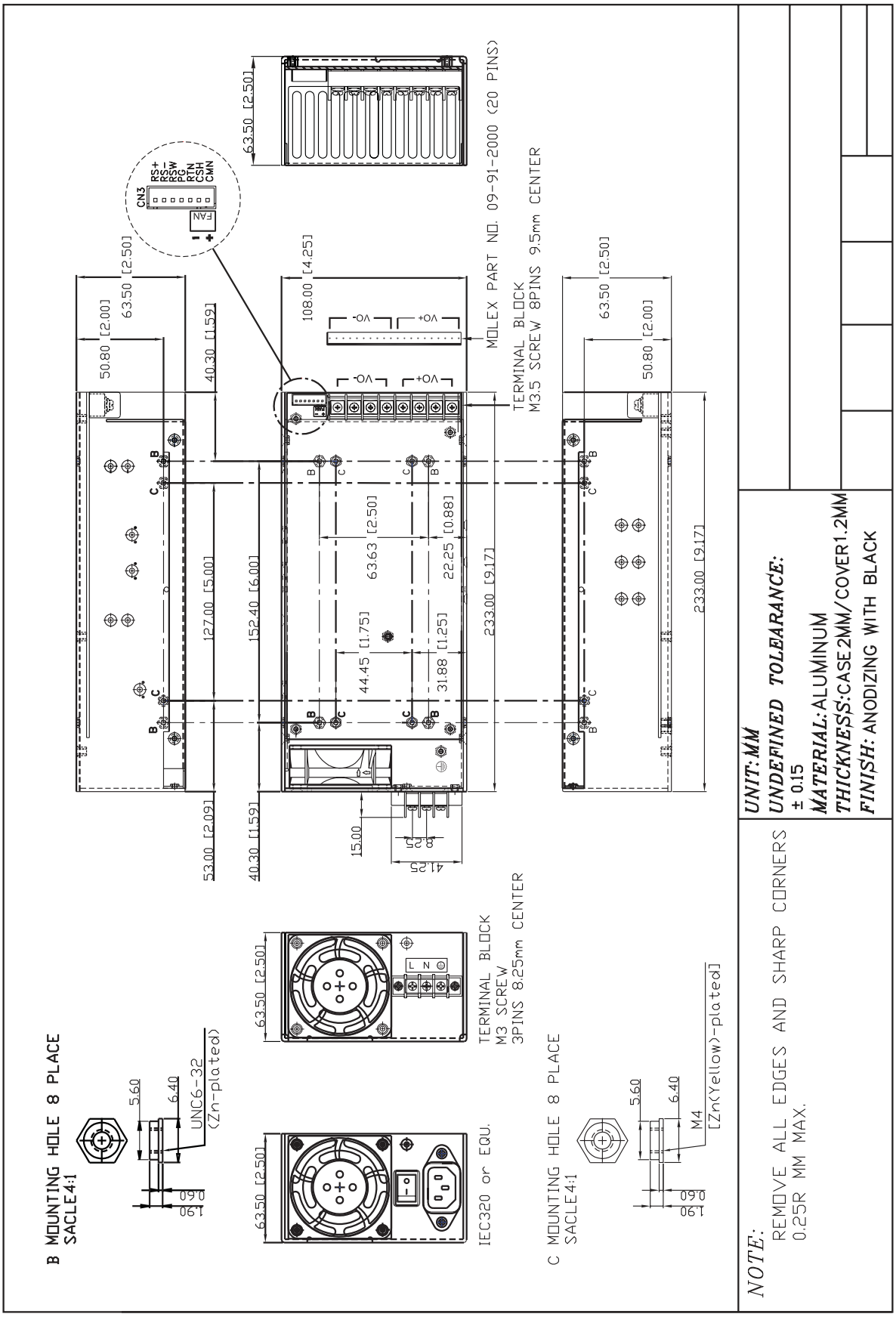
Parameter	Conditions/Description	Min	Nom	Max	Units
EMI requirement	Pass FCC Part 15 Subject J Class B, CISPR 22 class B, CE marked				
Safety regulation	Approved to UL60950, CSA C22.2 No. 950-95, TUV EN60950 and CB.				
Leakage Current	When the power supply is connected to a voltage equal to the upper limit of the rated voltage.			3.5	mA
HI-POT	Applied for 3 seconds				
	Primary to secondary:	3000			VAC
	Primary to transformer core:	1500			VAC
	Primary to earth ground:	1500			VAC
Grounding Test	Allowable resistance measured when 25 A current is applied from the ground pin of the three prong plug to the far most earthed connection point.			0.1	Ohm

Reliability and MTBF

Parameter	Conditions/Description	Min	Nom	Max	Units
Warranty	Standard warranty length			2	years
MTBF	According to MIL-HBK-217 at 30 °C	150,000			hours

Burn in

Parameter	Conditions/Description	Min	Nom	Max	Units
Burn-in condition	Full load, at 45 +/- 5 °C, 230 VAC. Burn-in for up to eight hours in early productions. Time reduced gradually as product matures.	1		8	hour


CN3
RS+
RS-
PSW
PG
RTN
CSH
CMN
FAN
63.50 [2.50]
108.00 [4.25]
MOLEX PART NO. 09-91-2000 (20 PINS)
TERMINAL BLOCK
M3.5 SCREW 8PINS 9.5mm CENTER
50.80 [2.00]
40.30 [1.59]
127.00 [5.00]
152.40 [6.00]
63.63 [2.50]
22.25 [0.88]
44.45 [1.75]
31.88 [1.25]
233.00 [9.17]
53.00 [2.09]
15.00
8.25
41.25
TERMINAL BLOCK
M3 SCREW
3PINS 8.25mm CENTER
IEC320 or EQU.
B MOUNTING HOLE 8 PLACE
SACLE4:1
5.60
6.40
UNC6-32
(Zn-plated)
C MOUNTING HOLE 8 PLACE
SACLE4:1
M4
[Zn(Yellow)-plated]
NOTE:
REMOVE ALL EDGES AND SHARP CORNERS
0.25R MM MAX.
UNIT:MM
UNDEFINED TOLEARANCE:
± 0.15
MATERIAL:ALUMINUM
THICKNESS:CASE2MM/COVER1.2MM
FINISH: ANODIZING WITH BLACK