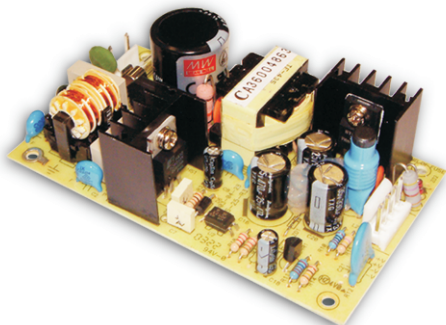




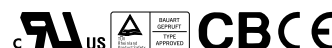
25W Single Output Switching Power Supply

PS-25 series



■ Features :

- Universal AC input / Full range
- Low leakage current <0.5mA
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- 100% full load burn-in test
- Fixed switching frequency at 100KHz
- Low cost
- High reliability
- 2 years warranty

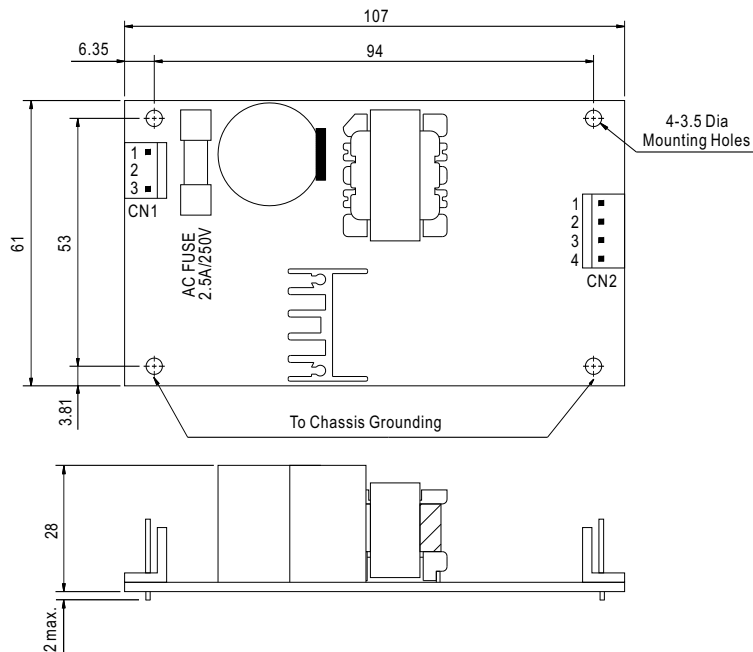


SPECIFICATION

MODEL		PS-25-3.3	PS-25-5	PS-25-7.5	PS-25-12	PS-25-13.5	PS-25-15	PS-25-24	PS-25-27	PS-25-48
OUTPUT	DC VOLTAGE	3.3V	5V	7.5V	12V	13.5V	15V	24V	27V	48V
	RATED CURRENT	5A	5A	3.3A	2.1A	1.9A	1.7A	1A	0.9A	0.5A
	CURRENT RANGE	0 ~ 5A	0 ~ 5A	0 ~ 3.3A	0 ~ 2.1A	0 ~ 1.9A	0 ~ 1.7A	0 ~ 1A	0 ~ 0.9A	0 ~ 0.5A
	RATED POWER	16.5W	25W	24.8W	25.2W	25.7W	25.5W	24W	24.3W	24W
	RIPPLE & NOISE (max.) Note.2	80mVp-p	80mVp-p	80mVp-p	100mVp-p	100mVp-p	100mVp-p	240mVp-p	240mVp-p	350mVp-p
	VOLTAGE TOLERANCE Note.3	±3.0%	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.3%	±0.3%	±0.3%	±0.2%	±0.2%	±0.2%
	LOAD REGULATION	±2.5%	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME	200ms, 20ms/230VAC 200ms, 30ms/115VAC at full load								
HOLD UP TIME (Typ.)	100ms/230VAC 20ms/115VAC at full load									
INPUT	VOLTAGE RANGE	85 ~ 264VAC 120 ~ 370VDC								
	FREQUENCY RANGE	47 ~ 63Hz								
	EFFICIENCY(Typ.)	66%	74%	76%	78%	78%	78%	79%	79%	79%
	AC CURRENT (Typ.)	0.6A/115VAC 0.4A/230VAC								
	INRUSH CURRENT (Typ.)	COLD START 36A								
	LEAKAGE CURRENT	<0.5mA / 240VAC								
PROTECTION	OVERLOAD	Above 105% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed								
	OVER VOLTAGE	3.8 ~ 4.46V	5.75 ~ 6.75V	8.6 ~ 10.1V	13.8 ~ 16.2V	15.5 ~ 18.2V	17.3 ~ 20.3V	27.6 ~ 32.4V	31 ~ 36.5V	55.2 ~ 64.8V
		Protection type : Shut off o/p voltage, clamping by zener diode								
	OVER TEMPERATURE	Tj 135℃ typically (U1) detect on main control IC Protection type : Shut down o/p voltage, re-power on to recover								
ENVIRONMENT	WORKING TEMP.	-10 ~ +60℃ (Refer to output load derating curve)								
	WORKING HUMIDITY	20 ~ 90% RH non-condensing								
	STORAGE TEMP., HUMIDITY	-20 ~ +85℃, 10 ~ 95% RH								
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)								
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min.each along X, Y, Z axes								
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 approved								
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC								
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC								
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B								
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3								
OTHERS	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5, light industry level, criteria A								
	MTBF	576.4Khrs min. MIL-HDBK-217F (25℃)								
	DIMENSION	107*61*28mm (L*W*H)								
	PACKING	0.14Kg; 96pcs/15Kg/1.3CUFT								
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.									

Mechanical Specification

Unit:mm



AC Input Connector (CN1) : Molex 41791-03 or equivalent

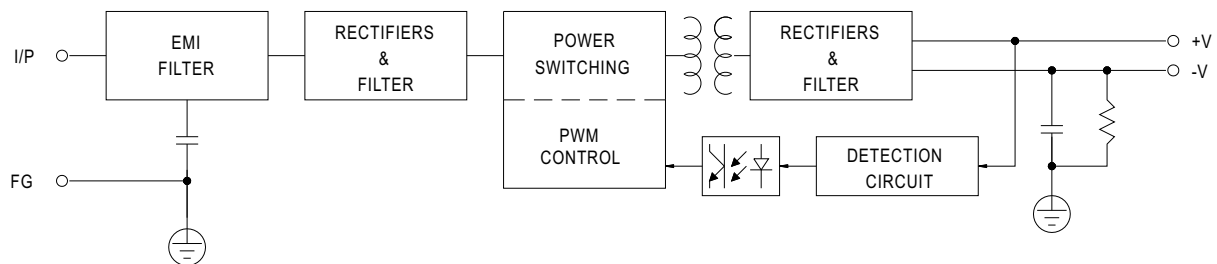
Pin No.	Assignment	Mating Housing	Terminal
1	AC/L	Molex 2139 or equivalent	Molex 2478 or equivalent
2	No Pin		
3	AC/N		

DC Output Connector (CN2) : Molex 41791-04 or equivalent

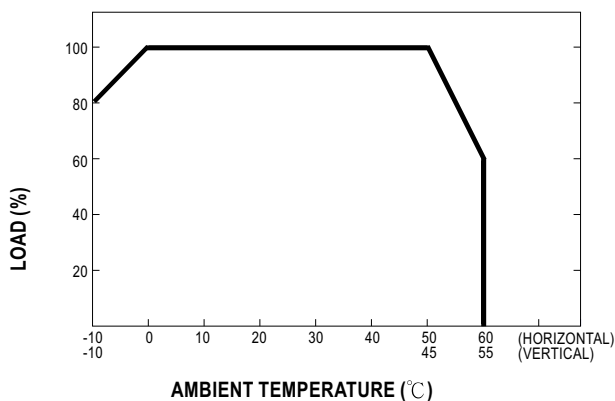
Pin No.	Assignment	Mating Housing	Terminal
1,2	+V	Molex 2139 or equivalent	Molex 2478 or equivalent
3,4	-V		

Block Diagram

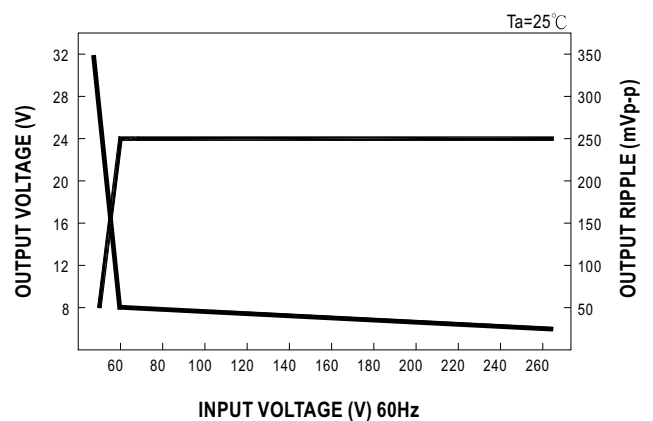
fosc : 100KHz



Derating Curve



Static Characteristics (24V)



Quality Engineering Test Report

SERIES: PS-25 25W AC-DC SIGLE OUTPUT SWITCHING POWER SUPPLY OPEN FRAME TYPE

SAMPLE: A.PS-25-3.3 3.3V / 5A D.PS-25-12 12V /2.1A G.PS-25-24 24V /1A
 B.PS-25-5 5V /5A E.PS-25-13.5 13.5V /1.9A H.PS-25-27 27V /0.9A
 C.PS-25-7.5 7.5V /3.3A F.PS-25-15 15V /1.7A I.PS-25-48 48V /0.5A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:85~264VAC O/P:FULL LOAD	A:74VAC~267VAC	P
2	LINE REGULATION	I/P:85~264VAC SPEC: A: $\pm 0.5\%$ O/P:FULL LOAD B: $\pm 0.5\%$ C: $\pm 0.5\%$ D: $\pm 0.3\%$ E: $\pm 0.3\%$ F: $\pm 0.3\%$ G: $\pm 0.2\%$ H: $\pm 0.2\%$ I: $\pm 0.2\%$	A: 0 % ~ 0.183% B: 0 % ~ 0.1% C: 0% ~ 0% D: 0 % ~ 0.05% E: -0.04% ~ 0 % F: 0 % ~ 0 % G: -0.03% ~ 0 % H: 0% ~ 0 % I: -0.03% ~ 0.01%	P
3	LOAD REGULATION	I/P:230VAC SPEC: A: $\pm 2.5\%$ O/P: B: $\pm 2\%$ MIN. TO FULL LOAD C: $\pm 2\%$ D: $\pm 1\%$ E: $\pm 1\%$ F: $\pm 1\%$ G: $\pm 0.5\%$ H: $\pm 0.5\%$ I: $\pm 0.5\%$	A: -0..36% ~ 0.54% B: -0.24% ~ 0.12% C: -0.158% ~ 0.238% D: 0 % ~ 0.05% E: -0.04 % ~ 0.08% F: 0 % ~ 0.04% G: -0.03% ~ 0 % H: -0.022% ~ 0.022% I: -0 % ~ 0.01%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:85~264VAC SPEC: A: $\pm 3\%$ O/P: B: $\pm 2\%$ MIN. TO FULL LOAD C: $\pm 2\%$ D: $\pm 2\%$ E: $\pm 2\%$ E: $\pm 2\%$ E: $\pm 2\%$ E: $\pm 2\%$	A: -0.96% ~ 0% B: -0.25% ~ 0.12% C: -0.4% ~ 0.09% D: -0.05% ~ 0.06% E: -0.06% ~ +0.10% F: -0.04% ~ 0.04% G: -0.06% ~ 0.08% H: -0.069% ~ 0.25% I: -0.04% ~ 0.1%	P
5	RIPPLE& NOISE	I/P:230VAC SPEC: A:80mV O/P: FULL LOAD B:80mV C:80mV D:100mV E:100mV F:100mV G:240mV H:240mV I:350mV	A: 11mV B: 12mV C: 7mV D: 11mV E: 10mV F: 11mV G: 14mV H: 8mV I: 65mV	P
6	AC INPUT CURRENT	I/P:230VAC SPEC: 0.4A O/P:FULL LOAD	A:0.222A	P
7	MAX. INRUSH CURRENT	I/P:230VAC SPEC: 40A O/P:FULL LOAD	A:31.781A	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC SPEC:FIXED O/P:MIN. LOAD	A:3.325V B:5.08V C:7.593V D:12.06V E:13.512V F:14.96V G:24.03V H:27.237V I:47.98V	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION		RESULT	VERDICT
9	SET UP TIME	I/P:230VAC O/P:FULL LOAD	SPEC:200ms	A:94.38mS	P
10	HOLD UP TIME	I/P:230VAC O/P:FULL LOAD	SPEC:80mS	A:202.969mS	P
11	EFFICIENCY	I/P:230VAC O/P: FULL LOAD	SPEC: A: 66% B: 74% C: 76% D: 78% E: 78% F: 78% G: 79% H: 79% I : 79%	A: 68.59% B: 75.87% C: 78.51% D: 79.70% E: 79.1% F: 81.19% G: 83.11% H: 80.2% I : 80.58%	P
12	OVER LOAD PROTECTION	I/P:230VAC O/P: TESTING	SPEC: ABOVE 105% FOLDBACK CURRENT SHUTDOWN AUTO RECOVERY	A: 205% B: 180% C: 187% D: 209% E: 211% F: 187% G: 325% H: 322% I : 320%	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC O/P:TESTING	SPEC:115~135%	A: 127.3% B: 124% C: 118.6% D: 118% E: 128% F: 116% G: 119% H: 135% I: 119%	P
14	OVER TEMPERATURE PROTECTION & FAN ON/OFF TEST	I/P:230VAC O/P:FULL LOAD	SPEC: U1 Tj 135°C TYPICAL	B:OTP:121°C	P
15	GROUND LEAKAGE CURRENT	I/P:240VAC	SPEC: L-FG--<0.5mA N-FG--<0.5mA	A: L-FG:0.25 mA N-FG:0.24mA	P
16	INSULATION RESISTANCE	SPEC: I/P-O/P 500VDC/100M Ohms MIN. I/P-FG 500VDC/100M Ohms MIN.		A: O/P-FG >100M Ohms I/P-O/P >100M Ohms	P
17	DIELECTRIC / WITHSTAND VOLTAGE	SPEC: I/P- O/P: 3000VAC/ 1 sec(10mA CUT-OFF) I/P - FG: 1500VAC/ 1 sec(10mA CUT-OFF)		A: I/P-O/P :0.881mA I/P-FG :1.531mA	P
18	BURN-IN TEST	I/P: 230VAC O/P:FULL LOAD TA:25.3°C BURN-IN DURATION : 1 hrs		B:NON BREAK	P
19	ENVIRONMENT TEST (SAMPLE B:)	1.LOW TEMPERATURE TEST I/P:80 VAC O/P:FULL LOAD AMBIENT TEMPERATURE:-9.0°C		AFTER 1.5 hrs POWER ON OK	P
		2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:55.1°C		AFTER 40 hrs NON BREAK	
		3.ACCELERATED LIFE TEST I/P:265VAC O/P:FULL LOAD POWER ON :3 min POWER OFF :5 sec AMBIENT TEMPERATURE:85°C AMBIENT HUMIDITY:95%		AFTER 16 hrs NON BREAK	

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT																																
20	TEMPERATURE RISE TESTT rise OF PARTS	I/P :230VAC AFTER 1 hr BURN-IN O/P :FULL LOAD TA:25.3°C <table><tr><th>POSITION</th><th>P/N</th><th>TEMP</th><th>T rise</th></tr><tr><td>BD1</td><td>BRIDGE DIODE</td><td>54.3°C</td><td>29.0°C</td></tr><tr><td>U1</td><td>MAIN TRANSISTOR</td><td>51.2°C</td><td>25.9°C</td></tr><tr><td>T1</td><td>MAIN TRANSFORMER</td><td>62.6°C</td><td>37.3°C</td></tr><tr><td>D7</td><td>O/P DIODE</td><td>67.9°C</td><td>42.6°C</td></tr><tr><td>C17</td><td>O/P FILTER CAPACITOR</td><td>54.5°C</td><td>29.2°C</td></tr><tr><td>C5</td><td>I/P FILTER CAPACITOR</td><td>38.7°C</td><td>13.4°C</td></tr><tr><td>D5</td><td>CLAMP DIODE</td><td>53.2°C</td><td>27.9°C</td></tr></table>	POSITION	P/N	TEMP	T rise	BD1	BRIDGE DIODE	54.3°C	29.0°C	U1	MAIN TRANSISTOR	51.2°C	25.9°C	T1	MAIN TRANSFORMER	62.6°C	37.3°C	D7	O/P DIODE	67.9°C	42.6°C	C17	O/P FILTER CAPACITOR	54.5°C	29.2°C	C5	I/P FILTER CAPACITOR	38.7°C	13.4°C	D5	CLAMP DIODE	53.2°C	27.9°C		P
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D5	CLAMP DIODE	53.2°C	27.9°C																																	
21	LIFE CYCLE	B: SUPPOSE C17 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULL LOAD Ta:25°C Tc17:54°C Life: 169368 hrs I/P:230VAC O/P:FULL LOAD Ta:50°C Tc17:74°C Life: 42342 hrs		P																																
22	CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)	B: FUSE : 2.5A/250VAC CQ GTE BRIDGE DIODE : LT KBP208G(GLASS) LINE FILTER : TF-416 ET-20V TRANSFOMER : SF TF-433 EI-28 POWER SWITCHER : PHIL TOP223Y OUTPUT DIODE : C82-004 TO-220 OUTPUT CAPACITOR : N.C.C 2200uF/10V , 105°C, RJH INPUT CAPACITOR : HITACHI 82uF/400V,85°C HP3 P.C.B : PS-25,CEM-1 2 OZ 61mm x 107mm																																		
DATE	SAMPLE	TEST RESULT	TEST	APPROVAL																																
19980417	PS-25	PASS	H.C.LIOU	Max Lin																																
20010226	PS-25-3.3,7.5,13.5,27	PASS	SAM	Max Lin																																