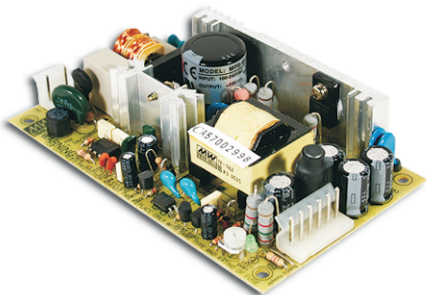




45W Dual Output Medical Type

MPD-45 series



■ Features :

- Universal AC input / Full range
- Low leakage current $\leq 0.3\text{mA}$
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- 100% full load burn-in test
- Fixed switching frequency at 45KHz
- 3 years warranty

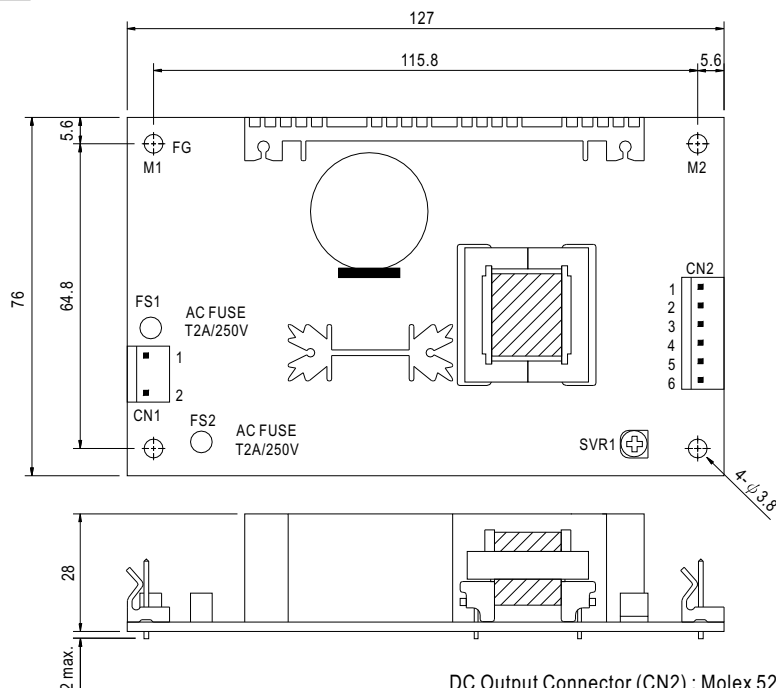


SPECIFICATION

MODEL		MPD-45A		MPD-45B	
OUTPUT	OUTPUT NUMBER	CH1	CH2	CH1	CH2
	DC VOLTAGE	5V	12V	5V	24V
	RATED CURRENT	3.2A	2A	3.2A	1.2A
	CURRENT RANGE	0.4 ~ 5A	0.2 ~ 2.5A	0.4 ~ 5A	0.2 ~ 1.8A
	RATED POWER	40W		44.8W	
	OUTPUT POWER (max.)	52W with 18CFM min. Forced air convection			
	RIPPLE & NOISE (max.) Note.2	60mVp-p	120mVp-p	60mVp-p	150mVp-p
	VOLTAGE ADJ. RANGE	CH1:4.5 ~ 5.5V		CH1:4.5 ~ 5.5V	
	VOLTAGE TOLERANCE Note.3	±4.0%	±7.0%	±4.0%	±7.0%
	LINE REGULATION	±1.0%	±2.0%	±1.0%	±2.0%
	LOAD REGULATION	±3.0%	±4.0%	±3.0%	±4.0%
SETUP, RISE TIME	800ms, 20ms/230VAC 800ms, 20ms/115VAC at full load				
HOLD UP TIME (Typ.)	50ms/230VAC 16ms/115VAC at full load				
INPUT	VOLTAGE RANGE	90 ~ 264VAC 127 ~ 370VDC			
	FREQUENCY RANGE	47 ~ 440Hz			
	EFFICIENCY(Typ.)	76%		78%	
	AC CURRENT (Typ.)	1.2A/115VAC 0.7A/230VAC			
	INRUSH CURRENT (Typ.)	COLD START 15A/115VAC 30A/230VAC			
	LEAKAGE CURRENT	<0.3mA / 264VAC			
PROTECTION	OVERLOAD	53 ~ 75W rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed			
	OVER VOLTAGE	5.75 ~ 6.75V on CH1 Protection type : Hiccup mode, recovers automatically after fault condition is removed			
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	±0.04%/℃ (0 ~ 50℃) on +5V output			
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes			
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL2601-1, TUV EN60601-1, IEC60601-1 approved			
	WITHSTAND VOLTAGE	I/P-O/P:4KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC			
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG:100M Ohms/500VDC			
	EMI CONDUCTION & RADIATION	Compliance to EN55011 (CISPR11) Class B			
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3			
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN60601-1-2, medical level, criteria A			
OTHERS	MTBF	291.3Khrs min. MIL-HDBK-217F (25℃)			
	DIMENSION	127*76*28mm (L*W*H)			
	PACKING	0.2Kg; 72pcs/17.4Kg/1.35CUFT			
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. 5. Mounting holes M1 and M2 should be grounded for EMI purposes.				

Mechanical Specification

Unit:mm



AC Input Connector (CN1) : Molex 5277-02 or equivalent

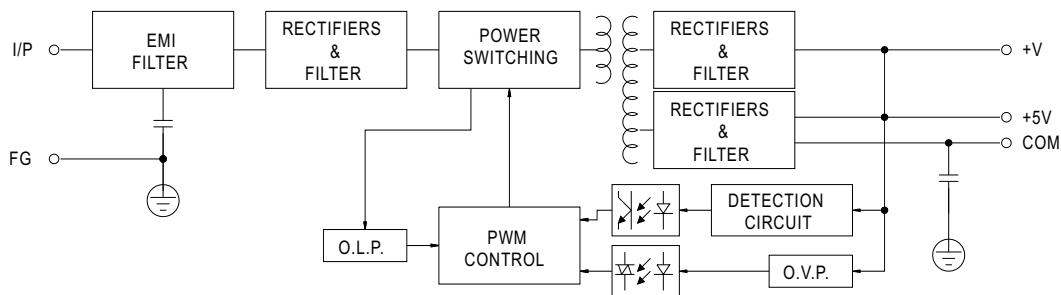
Pin No.	Assignment	Mating Housing	Terminal
1	AC/N	Molex 5195 or equivalent	Molex 5194 or equivalent
2	AC/L		

DC Output Connector (CN2) : Molex 5273-06 or equivalent

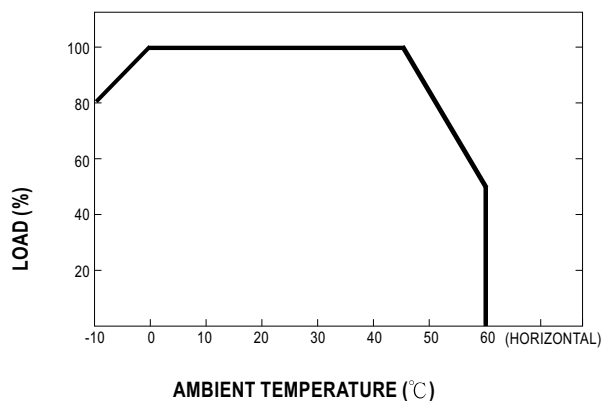
Pin No.	Assignment	Mating Housing	Terminal
1	+V	Molex 5195 or equivalent	Molex 5194 or equivalent
2,3	+5V		
4,5	COM		
6	NC		

Block Diagram

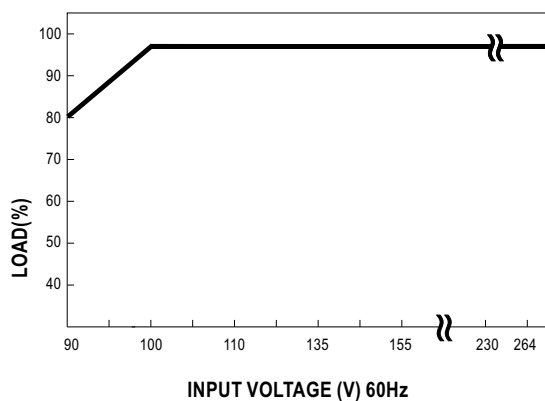
fosc : 45KHz



Derating Curve



Static Characteristics



Quality Engineering Test Report					
SERIES: 45W DUAL OUTPUT OPEN FRAME SWITCHING POWER SUPPLY					
SAMPLE:		A.MPD-45A	V1:+5V / 3.2A V2:+12V / 2A		
		B.MPD-45B	V1:+5V /3.2A V2:+24V /1.2A		
NO	TEST ITEM	TEST CONDITION / SPECIFICATION		RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:85~264VAC O/P:FULL LOAD		61.82VAC~267VAC	P
2	LINE REGULATION	I/P:85~264VAC SPEC: O/P:FULL LOAD A : V1 :±0.5% V2 :±1.5% B : V1 :±1% V2 :±2%		A: V1: +0.12%~-0.24% V2: +0.05%~-0.87% B: V1: +0 %~-0.62% V2: -0.11%~-1.37%	P
3	LOAD REGULATION	I/P:230VAC SPEC: O/P:MIN. TO FULL LOAD A : V1 : ±1% V2 : ±2% B : V1 : ±1% V2 : ±3%		A: V1: -0.12%~+0.12% V2: +0.51%~-0.26% B: V1: -0.49 %~+0.24% V2: +1.18%~-0.59%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:85~264VAC SPEC: A : V1 : 2% V2 : 5% O/P: EVERY OUTPUT 20% ~ FULL LOAD CHANGE V1: SET 5.0V		A: V1: +1 %~-1.88% V2: +3.06%~-3.49%	P
5	RIPPLE&NOISE	I/P:230VAC SPEC: O/P:FULL LOAD A : V1 :50mV V2 :120mV B : V1 :50mV V2 :180mV		A: V1: 12mV V2: 81mV B: V1: 4mV V2: 30mV	P
6	AC INPUT CURRENT	I/P:230VAC SPEC:230VAC---0.7A.RMS O/P:FULL LOAD		A:0.474A	P
7	MAX. INRUSH CURREN	I/P:230VAC SPEC:230VAC---40A.MAX O/P: FULL LOAD COLD START		A:28.656A	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC SPEC:4.75V~5.5V O/P:MIN. LOAD (-5%~+10%)		A:3V~6V	P
9	SET UP TIME	I/P:230VAC\60Hz SPEC:800ms O/P:FULL LOAD		A: V1:601.659mS V2:601.451mS	P
10	HOLD UP TIME	I/P:230VAC\60Hz SPEC:20mS O/P:FULL LOAD		A: V1:94.309mS V2:94.955mS	P
11	EFFICIENCY	I/P:230VAC SPEC: A:77% O/P:FULL LOAD B:78%		A:78.8% B:80.212%	P
12	OVER LOAD PROTECTION	I/P:230VAC SPEC:53W~75W O/P:TESTING OUTPUT POWER		A:58.726W B:70.784W	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC SPEC:5.5V~6.5VDC O/P:FULL LOAD ON V1		A : V1:6.05V B : V2:6.00V	P
14	GROUND LEAKAGE CURRENT	I/P:264VAC SPEC: L-FG---<0.3mA N-FG---<0.3mA		A: L-FG:0.26mA N-FG:0.26mA	P

NO	TEST ITEM		TEST CONDITION/SPECIFICATION				RESULT	VERDICT																																								
18	ENVIRONMENT TEST		HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230 VAC O/P:FULL LOAD AMBIENT TEMPERATURE:45°C				A: AFTER4hrs NONBREAK	P																																								
19	TEMPERATURE RISE T rise OF PARTS		A: I/P :230VAC AFTER 4 hrs BURN-IN O/P :FULL LOAD TA:25°C <table><tr><td></td><td>POSITION</td><td>P/N</td><td>TEMP</td><td>T rise</td></tr><tr><td></td><td>BD1</td><td>BRIDGE DIODE</td><td>55.5°C</td><td>30.5°C</td></tr><tr><td></td><td>Q1</td><td>MAIN TRANSISTER</td><td>65.1°C</td><td>40.1°C</td></tr><tr><td></td><td>T1</td><td>MAIN TRANSFORMER</td><td>74.3°C</td><td>49.3°C</td></tr><tr><td></td><td>D4</td><td>O/P DIODE</td><td>82.3°C</td><td>57.3°C</td></tr><tr><td></td><td>C22</td><td>O/P FILTER CAPACITOR</td><td>73.2°C</td><td>48.2°C</td></tr><tr><td></td><td>D1</td><td>CLAMPING DIODE</td><td>77.5°C</td><td>52.5°C</td></tr><tr><td></td><td>L1</td><td>O/P CHOKE</td><td>83.1°C</td><td>58.1°C</td></tr></table>						POSITION	P/N	TEMP	T rise		BD1	BRIDGE DIODE	55.5°C	30.5°C		Q1	MAIN TRANSISTER	65.1°C	40.1°C		T1	MAIN TRANSFORMER	74.3°C	49.3°C		D4	O/P DIODE	82.3°C	57.3°C		C22	O/P FILTER CAPACITOR	73.2°C	48.2°C		D1	CLAMPING DIODE	77.5°C	52.5°C		L1	O/P CHOKE	83.1°C	58.1°C	P
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20	LIFE CYCLE		SUPPOSE C22 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULL LOAD Ta:25°C Tc22:73.2°C Life time:47578hrs I/P:230VAC O/P:FULL LOAD Ta:45°C Tc22:85.1°C Life time:20853hrs					P																																								
21	CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)		FUSE																																													