**■ Features :**

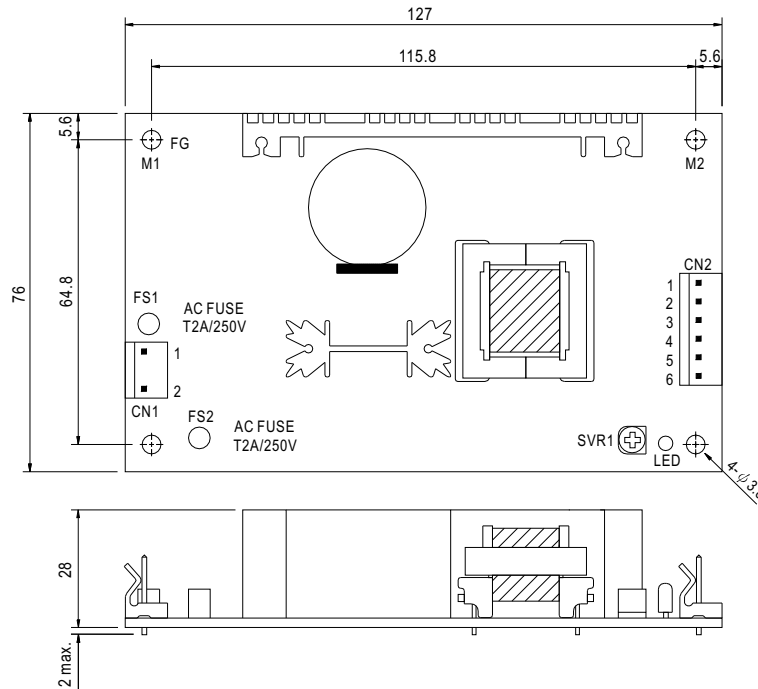
- Universal AC input / Full range
- Low leakage current  $\leq 0.3\text{mA}$
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- 100% full load burn-in test
- Fixed switching frequency at 45KHz
- 3 years warranty

**SPECIFICATION**

MODEL		MPS-45-3.3	MPS-45-5	MPS-45-7.5	MPS-45-12	MPS-45-13.5	MPS-45-15	MPS-45-24	MPS-45-27	MPS-45-48	
OUTPUT	DC VOLTAGE	3.3V	5V	7.5V	12V	13.5V	15V	24V	27V	48V	
	RATED CURRENT	8A	8A	5.4A	3.7A	3.3A	3A	1.9A	1.7A	1A	
	CURRENT RANGE	0 ~ 10.7A	0 ~ 10.5A	0 ~ 7A	0 ~ 4.4A	0 ~ 3.9A	0 ~ 3.5A	0 ~ 2.2A	0 ~ 1.95A	0 ~ 1.1A	
	RATED POWER	26.4W	40W	40.5W	44.4W	44.6W	45W	45.6W	45.9W	48W	
	OUTPUT POWER (max.)	52W(+3.3V:35W)with 18CFM min. Forced air convection									
	RIPPLE & NOISE (max.) Note.2	80mVp-p	100mVp-p	100mVp-p	100mVp-p	100mVp-p	100mVp-p	100mVp-p	100mVp-p	100mVp-p	100mVp-p
	VOLTAGE ADJ. RANGE	2.97 ~ 3.63V	4.5 ~ 5.5V	6.75 ~ 8.25V	10.8 ~ 13.2V	12.2 ~ 14.85V	13.5 ~ 16.5V	21.6 ~ 26.4V	24.3 ~ 29.7V	43.2 ~ 52.8V	
	VOLTAGE TOLERANCE Note.3	$\pm 3.0\%$	$\pm 3.0\%$	$\pm 3.0\%$	$\pm 2.0\%$	$\pm 2.0\%$	$\pm 2.0\%$	$\pm 2.0\%$	$\pm 2.0\%$	$\pm 2.0\%$	$\pm 2.0\%$
	LINE REGULATION	$\pm 1.0\%$	$\pm 1.0\%$	$\pm 1.0\%$	$\pm 1.0\%$	$\pm 1.0\%$	$\pm 1.0\%$	$\pm 1.0\%$	$\pm 1.0\%$	$\pm 1.0\%$	$\pm 1.0\%$
	LOAD REGULATION	$\pm 3.0\%$	$\pm 3.0\%$	$\pm 3.0\%$	$\pm 2.0\%$	$\pm 2.0\%$	$\pm 2.0\%$	$\pm 2.0\%$	$\pm 2.0\%$	$\pm 2.0\%$	$\pm 2.0\%$
SETUP, RISE TIME	800ms, 30ms/230VAC      1200ms, 30ms/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.)	65%	72%	75%	76%	76%	77%	78%	78%	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 (3.3V:36 ~ 55W) rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed									
	OVER VOLTAGE	3.8 ~ 4.46V	5.75 ~ 6.75V	8.63 ~ 10.1V	13.8 ~ 16.2V	15.5 ~ 18.2V	17.25 ~ 20.25V	27.6 ~ 32.4V	31 ~ 36.45V	55.2 ~ 64.8V	
ENVIRONMENT	WORKING TEMP.	-10 ~ +60°C (Refer to output load derating curve)									
	WORKING HUMIDITY	20 ~ 90% RH non-condensing									
	STORAGE TEMP., HUMIDITY	-20 ~ +85°C, 10 ~ 95% RH									
	TEMP. COEFFICIENT	$\pm 0.04\%/^{\circ}\text{C}$ (0 ~ 50°C)									
	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									
OTHERS	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN60601-1-2, medical level, criteria A									
	MTBF	366.1Khrs min. MIL-HDBK-217F (25°C)									
	DIMENSION	127*76*28mm (L*W*H)									
	PACKING	0.18Kg; 72pcs/15.1Kg/1.35CUFT									
NOTE	<ol style="list-style-type: none"> <li>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</li> <li>3. Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>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.</li> <li>5. Mounting holes M1 and M2 should be grounded for EMI purposes.</li> </ol>										

### Mechanical Specification

Unit:mm



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

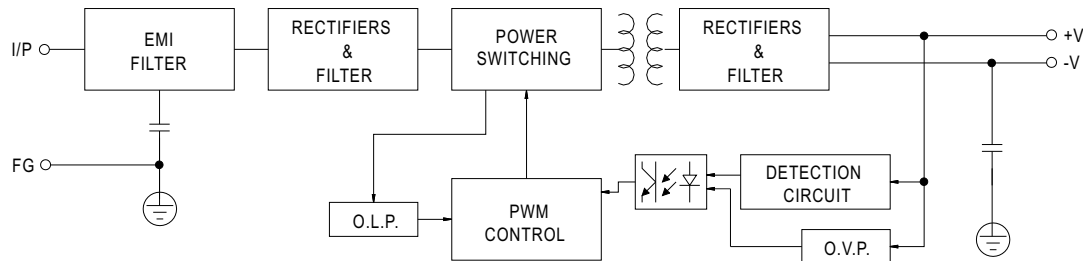
Pin No.	Assignment	Mating Housing	Terminal
1	AC/N	Molex 5195 or equivalent	Molex 5194 or equivalent
2	AC/L	Molex 5195 or equivalent	Molex 5194 or equivalent

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

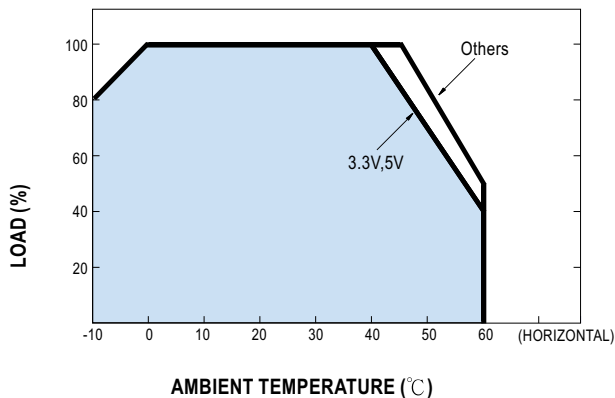
Pin No.	Assignment	Mating Housing	Terminal
1,2,3	+V	Molex 5195 or equivalent	Molex 5194 or equivalent
4,5,6	-V	Molex 5195 or equivalent	Molex 5194 or equivalent

### Block Diagram

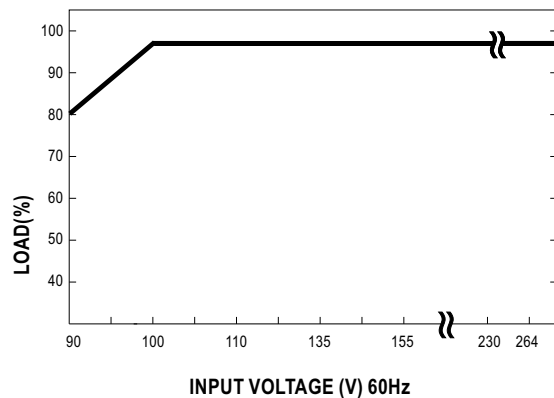
fosc : 45KHz



### Derating Curve



### Static Characteristics



# Quality Engineering Test Report

SERIES: MPS-45 45W WATTS SIGLE OUTPUT SWITCHING POWER SUPPLY OPEN FRAME TYPE

SAMPLE: A.MPS-45-3.3 :3.3V/8A    D.MPS-45-12 :12V/3.7A    G.MPS-45-24 :24V/1.9A  
 B.MPS-45-5 :5V/8A    E.MPS-45-13.5:13.5V/3.3A    H.MPS-45-27 :27V/1.7A  
 C.MPS-45-7.5 :7.5V/5.4A    F.MPS-45-15 :15V/3A    I.MPS-45-48 :48V/1A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING            SPEC:90-264VAC O/P:FULL LOAD	A:50.875VAC~264VAC	P
2	LINE REGULATION	I/P:90~264VAC    SPEC: A: ±1% O/P:FULL LOAD    B: ±1% C: ±1% D: ±1% E: ±1% F: ±1% G ±1% H: ±1% I: ±1%	A: -0.00% ~ +0.00% B: +0.12% ~ +0.12% C: -0.00% ~ +0.00% D: +0% ~ +0.05% E: +0.00% ~ +0.00% F: +0.00% ~ +0.04% G: +0.00% ~ +0.0% H: +0.00% ~ +0.00% I: -0.01% ~ +0.00%	P
3	LOAD REGULATION	I/P:230VAC        SPEC: A: ±3% O/P: MIN. TO FULL LOAD    B: ±3% C: ±3% D: ±2% E: ±2% F: ±2% G: ±2% H: ±2% I: ±2%	A: +0.179% ~ +0.179% B: -0% ~ +0.24% C: -0.24% ~ +0.08% D: -0.05% ~ +0.05% E: -0.08% ~ +0.04% F: -0.00% ~ +0.00% G: -0.025% ~ +0.025% H: -0.00% ~ +0.00% I: -0.01% ~ +0.00%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:90~264VAC    SPEC: A: ±3% O/P: MIN. TO FULL LOAD    B: ±3% C: ±3% D: ±2% E: ±2% F: ±2% G:±2% H: ±2% I: ±2%	A: +0.00% ~ +0.179% B: -0.36% ~ +0.00% C: -0.33% ~ +0.00% D: -0.11% ~ +08% E: -0.14% ~ 0.00% F: -0.04% ~ +0.00% G: -0.05% ~ +0.025% H: -0.048% ~ +0.00% I: -0.04% ~ +0.00%	P
5	RIPPLE & NOISE	I/P:230VAC        SPEC: A:80mV O/P: FULL LOAD    B:100mV C:100mV D:100mV E:100mV F:100mV G:100mV H:100mV I:100mV	A: <u>13mV</u> B: <u>14mV</u> C: <u>7mV</u> D: <u>13mV</u> E: <u>7mV</u> F: <u>16mV</u> G: <u>9mV</u> H: <u>5mV</u> I: <u>10mV</u>	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
6	AC INPUT CURRENT	I/P:230VAC SPEC: 0.7A O/P:FULL LOAD	<u>A:0.381A</u>	P
7	MAX. INRUSH CURRENT	I/P:230VAC SPEC: 40A O/P:FULL LOAD	<u>A:27.41A</u>	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC SPEC: ±10% O/P:MIN. LOAD A:2.97V~3.63V B:4.5V~5.5V C:6.75V~8.25V D:10.8V~13.2V E:12.15V~14.85V F:13.5V~16.5V G:21.6V~26.4V H:24.3V~29.7V I:43.2V~52.8V	A:2.701V~4.016V B:4.3V~6.03V C:6.6V~9.01V D:10.155V~13.659V E:11.25V~16.29V F:12.43V~17.518V G:20.04V~27.33V H:22.28V~32.74V I:40.21V~55.42V	P
9	SET UP TIME	I/P:230VAC SPEC:800ms O/P:FULL LOAD	<u>A:280.26mS</u>	P
10	HOLD UP TIME	I/P:230VAC SPEC:20mS O/P:FULL LOAD	<u>A:120.3mS</u>	P
11	EFFICIENCY	I/P:230VAC SPEC: A:65% O/P: FULL LOAD B:72% C:75% D:76% E:76% F:77% G:78% H:78% I:78%	A: <u>66.69%</u> B: <u>74.19%</u> C: <u>76.89%</u> D: <u>77.69%</u> E: <u>78.62%</u> F: <u>79.95%</u> G: <u>81.3%</u> H: <u>81.97%</u> I: <u>82.72%</u>	P
12	OVER LOAD PROTECTION	I/P:230VAC SPEC: A: 36~55W O/P: TESTING B: 53~75W C: 53~75W D: 53~75W E: 53~75W F: 53~75W G: 53~75W H: 53~75W I: 53~75W	A: <u>45.86W</u> B: <u>66.29W</u> C: <u>66.38W</u> D: <u>68.42W</u> E: <u>63.86W</u> F: <u>65W</u> G: <u>60.89W</u> H: <u>68.25W</u> I: <u>66.47W</u>	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC SPEC: 115%~135% O/P:TESTING A : 3.795V~4.455V B : 5.75V~6.75V C : 8.625V~10.125V D : 13.8V~16.2V E : 15.525V~18.225V F : 17.25V~20.25V G : 27.6V~32.4V H : 31.05V~36.45V I : 55.2V~64.8V	A: <u>4.3V</u> B: <u>6.06V</u> C: <u>9.45V</u> D: <u>15.1V</u> E: <u>16.6V</u> F: <u>18.4V</u> G: <u>31.8V</u> H: <u>33.4V</u> I: <u>56.52V</u>	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT																																								
14	GROUND LEAKAGE CURRENT	I/P:264VAC SPEC: L-FG--<0.3mA N-FG--<0.3mA	A: L-FG: 0.234mA N-FG: 0.236mA	P																																								
15	INSULATION RESISTANCE	SPEC: O/P-FG 500VDC/100MOhms MIN. I/P-O/P 500VDC/100MOhms MIN. I/P-FG 500VDC/100MOhms MIN.	A: O/P-FG >100MOhms I/P-O/P >100MOhms I/P-FG >100MOhms	P																																								
16	DIELECTRIC / WITHSTAND VOLTAGE	SPEC: I/P- O/P: 4000VAC/ 1 sec I/P - FG: 1500VAC/ 1 sec O/P - FG : 500VAC/1sec	A: I/P-O/P :2.1mA I/P-FG :1.3mA O/P- FG 2.9mA	P																																								
17	BURN-IN TEST	I/P: 230VAC O/P:FULL LOAD TA:25°C BURN-IN DURATION :2hrs	A: NON BREAK	P																																								
18	ENVIRONMENT TEST (SAMPLE B)	1.LOW TEMPERATURE TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:-10.1°C	AFTER 3.5 hrs POWER ON <u>OK</u>	P																																								
		2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:40.5°C	AFTER 5 hrs NON BREAK																																									
		3.High Humidity High Voltage On/Off Test I/P:267VAC O/P:FULL LOAD AMBIENT TEMPERATURE: 25 °C AMBIENT HUMIDITY: 95 %	AFTER 18 hrs POWER ON NON BREAK																																									
19	TEMPERATURE RISE TEST Trise OF PARTS	I/P :230VAC O/P :FULL LOAD AFTER 3 hrs BURN-IN TA:30.4°C	<table border="1"> <thead> <tr> <th>POSITION</th> <th>P/N</th> <th>TEMP</th> <th>Trise</th> </tr> </thead> <tbody> <tr> <td>BD1</td> <td>BRIDGE DIODE</td> <td>67.4C</td> <td>37°C</td> </tr> <tr> <td>Q1</td> <td>MAIN TRANSISTOR</td> <td>74.6C</td> <td>44.2°C</td> </tr> <tr> <td>T1</td> <td>MAIN TRANSFORMER COIL</td> <td>78.0°C</td> <td>47.6°C</td> </tr> <tr> <td>D40</td> <td>O/P DIODE</td> <td>95.8°C</td> <td>65.4°C</td> </tr> <tr> <td>C5</td> <td>I/P FILTER CAPACITOR</td> <td>81.3°C</td> <td>50.9°C</td> </tr> <tr> <td>C41</td> <td>O/P FILTER CAPACITOR</td> <td>58.8°C</td> <td>28.4°C</td> </tr> <tr> <td>T1</td> <td>MAIN TRANSFORMER CORE</td> <td>84.0°C</td> <td>53.6°C</td> </tr> <tr> <td>D1</td> <td>CLAMP DIODE</td> <td>91.2°C</td> <td>60.8°C</td> </tr> <tr> <td>LF1</td> <td>LINE FILTER</td> <td>49.3°C</td> <td>18.9°C</td> </tr> </tbody> </table>	POSITION	P/N	TEMP	Trise	BD1	BRIDGE DIODE	67.4C	37°C	Q1	MAIN TRANSISTOR	74.6C	44.2°C	T1	MAIN TRANSFORMER COIL	78.0°C	47.6°C	D40	O/P DIODE	95.8°C	65.4°C	C5	I/P FILTER CAPACITOR	81.3°C	50.9°C	C41	O/P FILTER CAPACITOR	58.8°C	28.4°C	T1	MAIN TRANSFORMER CORE	84.0°C	53.6°C	D1	CLAMP DIODE	91.2°C	60.8°C	LF1	LINE FILTER	49.3°C	18.9°C	P
POSITION	P/N	TEMP	Trise																																									
BD1	BRIDGE DIODE	67.4C	37°C																																									
Q1	MAIN TRANSISTOR	74.6C	44.2°C																																									
T1	MAIN TRANSFORMER COIL	78.0°C	47.6°C																																									
D40	O/P DIODE	95.8°C	65.4°C																																									
C5	I/P FILTER CAPACITOR	81.3°C	50.9°C																																									
C41	O/P FILTER CAPACITOR	58.8°C	28.4°C																																									
T1	MAIN TRANSFORMER CORE	84.0°C	53.6°C																																									
D1	CLAMP DIODE	91.2°C	60.8°C																																									
LF1	LINE FILTER	49.3°C	18.9°C																																									
20	LIFE CYCLE	SUPPOSE C41 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULL LOAD Ta:25°C Tc41:58.8°C Life: 155727 hrs I/P:230VAC O/P:FULL LOAD Ta:40°C Tc41:68.2°C Life: 57804 hrs		P																																								
21	CRITICAL COMPONENT RECORD ( FOR QC INSPECTION REFERENCE ONLY )	FUSE :4A/250VAC MET BRIDGE DIODE :D3SB60 LINE FILTER :TF-484. TRANSFOMER :LS TF-757 POWER SWITCHER :2SK2545 OUTPUT DIODE :MBR1545CT OUTPUT CAPACITOR : 1000uF/16V , 105°C INPUT CAPACITOR :HITACHI 150uF/400V,85°C P.C.B :MPS-65,CEM-3 2OZ SS																																										

DATE	SAMPLE	TEST RESULT	TEST	PROVAL
20010605	RD SAMPLE MPS-45 3.3V,5V,7.5V,12V 13.5V,24V,27V,48V	PASS	VINCENT	Max Lin
20010824	PRODUCT A107C28 MPS-45 3.3V,5V,7.5V,12V 13.5V,24V,27V,48V	PASS	VINCENT	Max Lin
20020411	PRODUCT A203B04 MPS-45 5V,12V	PASS	VINCENT	Max Lin
20020618	PRODUCT A206B03 MPS-45 15V,27V	PASS	VINCENT	Max Lin
20020919	PRODUCT A208A02 MPS-45-3.3V	PASS	VINCENT	Max Lin