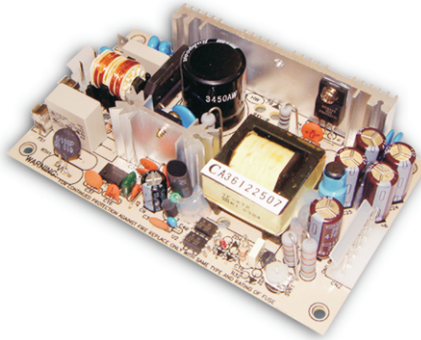


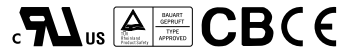


45W Triple Output Switching Power Supply

PT-45 series

**■ Features :**

- Universal AC input/Full range
- Low leakage current<0.5mA
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- 100% full load burn-in test
- Fixed switching frequency at 65KHz
- 2 years warranty

**SPECIFICATION**

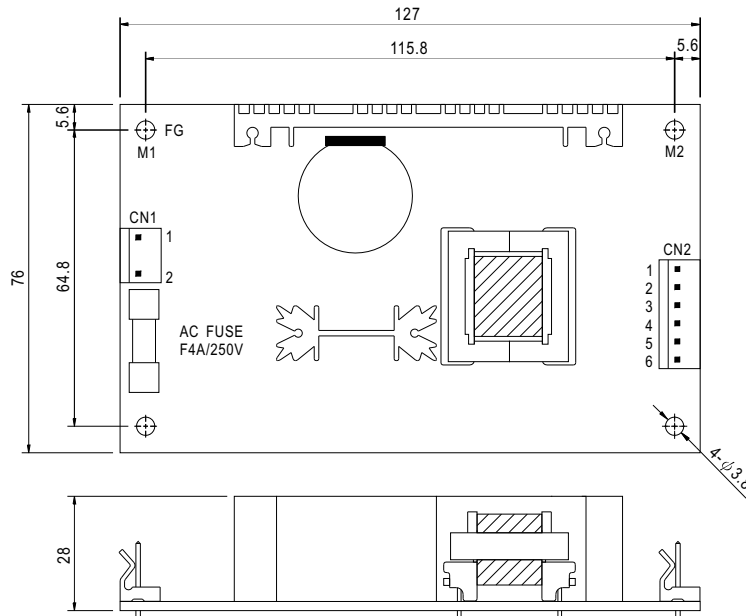
MODEL		PT-45A			PT-45B			PT-45C		
OUTPUT	OUTPUT NUMBER	CH1	CH2	CH3	CH1	CH2	CH3	CH1	CH2	CH3
	DC VOLTAGE	5V	12V	-5V	5V	12V	-12V	5V	15V	-15V
	RATED CURRENT	3A	2A	0.3A	3A	2A	0.3A	3A	1.6A	0.3A
	CURRENT RANGE	0.4 ~ 5A	0.2 ~ 2.5A	0 ~ 0.5A	0.4 ~ 5A	0.2 ~ 2.5A	0 ~ 0.5A	0.4 ~ 5A	0.2 ~ 2.3A	0 ~ 0.5A
	RATED POWER	40.5W			42.6W			43.5W		
	OUTPUT POWER (max.)	Rated output power for convection; 52W with 18CFM min. Forced air								
	RIPPLE & NOISE (max.) Note.2	50mVp-p	120mVp-p	50mVp-p	50mVp-p	120mVp-p	100mVp-p	50mVp-p	120mVp-p	100mVp-p
	VOLTAGE ADJ. RANGE	CH1:4.75 ~ 5.5V								
	VOLTAGE TOLERANCE Note.3	±4.0%	±7.0%	±5.0%	±4.0%	±7.0%	±5.0%	±4.0%	±7.0%	±5.0%
	LINE REGULATION	±1.0%	±2.0%	±1.0%	±1.0%	±2.0%	±1.0%	±1.0%	±2.0%	±1.0%
	LOAD REGULATION	±3.0%	±4.0%	±1.0%	±3.0%	±4.0%	±1.0%	±3.0%	±4.0%	±1.0%
	SETUP, RISE TIME	800ms, 20ms at full load								
HOLD UP TIME (Typ.)	60ms at full load									
INPUT	VOLTAGE RANGE	90 ~ 264VAC		127 ~370VDC						
	FREQUENCY RANGE	47 ~ 440Hz								
	EFFICIENCY (Typ.)	75%			75%			75%		
	AC CURRENT (Typ.)	1A/115VAC		0.7A/230VAC						
	INRUSH CURRENT (Typ.)	COLD START 15A/115VAC			30A/230VAC					
	LEAKAGE CURRENT	<0.75mA								
PROTECTION	OVERLOAD	53 ~ 75W rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed.								
	OVER VOLTAGE	CH1: 5.75 ~ 6.75VDC Protection type : Hiccup mode, recovers automatically after fault condition is removed.								
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	±0.04%/°C (0 ~ 50°C) on +5V output								
	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 1min.								
	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								
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, Light industry level, criteria A								
OTHERS	MTBF	288.1K hrs min. MIL-HDBK-217F (25°C)								
	DIMENSION	127*76*28mm (L*W*H)								
	PACKING	0.21Kg; 72pcs/17Kg/1.35CUFT								
NOTE	<ol style="list-style-type: none"> 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C 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. 									



45W Triple Output Switching Power Supply

Unit:mm

Mechanical Specification



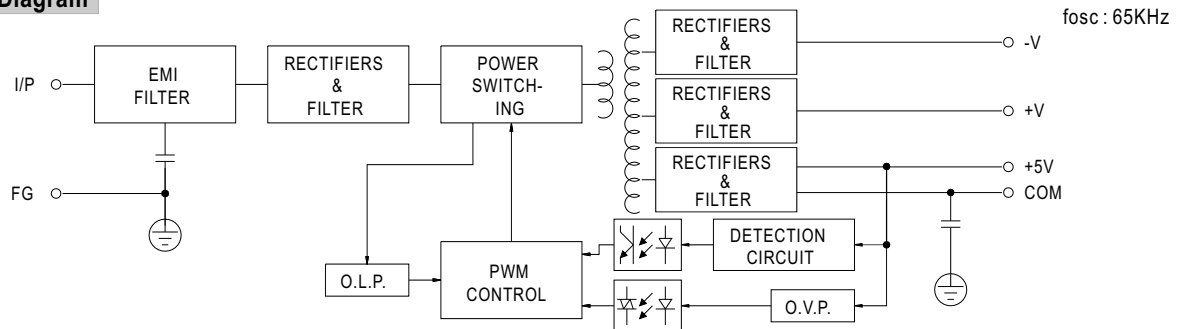
AC Input Connector (CN1) : Molex 5277-02 or equivalent

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

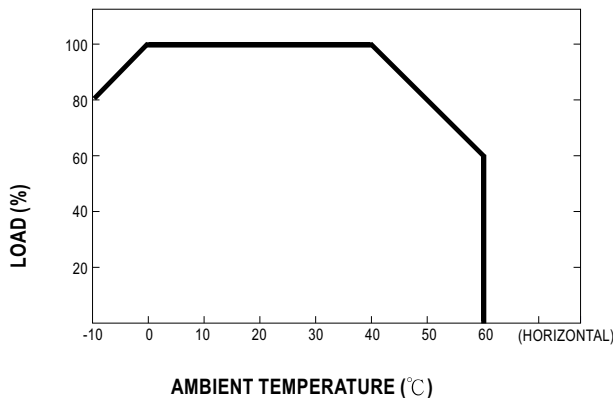
DC Output Connector (CN2) : Molex 5273-06 or equivalent

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

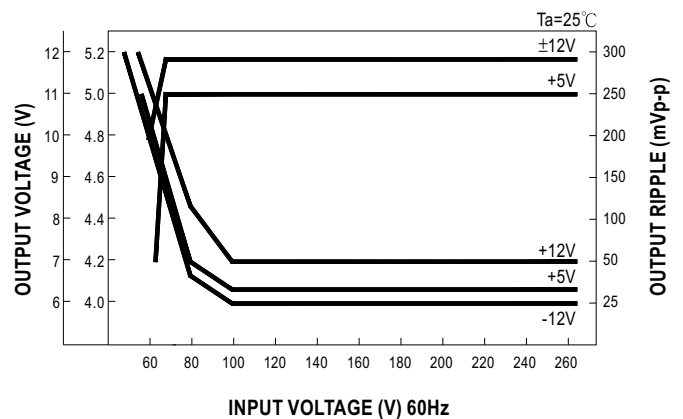
Block Diagram



Derating Curve



Static Characteristics (B)



Quality Engineering Test Report

SERIES: 45W TRIPLE OUTPUT OPEN FRAME SWITCHING POWER SUPPLY

SAMPLE: A.PT-45A V1:+5V / 3A V2:+12V / 2A V3:- 5V / 0.3A **B.PT-45B V1:+5V / 3A V2:+12V / 2A V3:- 12V / 0.3A** **C.PT-45C V1:+5V / 3A V2:+15V / 1.6A V3:- 15V / 0.3A**

NO	TEST ITEM	TEST CONDITION/SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC90~264VAC O/P:FULL LOAD	65VAC~267VAC	P
2	LINE REGULATION	I/P:85~264VAC SPEC: O/P:FULL LOAD A: V1:±1% V2:±2% V3:±1% B: V1:±1% V2:±2% V3:±1% C: V1:±1% V2:±2% V3:±1%	A: V1: 0% ~ -0.24% V2: -0.05% ~ 0.7% V3: % ~ -0.12% B: V1: 0% ~ 0.2% V2: 0% ~ 0.7% V3: 0.04% ~ 0.04% C: V1: 0% ~ -0.21% V2: -0.08% ~ 0.74% V3: 0.04% ~ 0.04%	P
3	LOAD REGULATION	I/P:85~264VAC SPEC: O/P: MIN. TO MAX. LOAD A: V1:±3% V2:±4% V3:±1% B: V1:±3% V2:±4% V3:±1% C: V1:±3% V2:±4% V3:±1%	A: V1: 0.23% ~ 0.0% V2: 0.49% ~ -0.1% V3: 0% ~ 0% B: V1: 0% ~ 0.1% V2: -0.1% ~ 0.2% V3: 0.04% ~ 0% C: V1: -0.36% ~ 0.12% V2: 0.92% ~ -0.17% V3: 0.04% ~ 0%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:85~264VAC SPEC: O/P: MIN. TO MAX. LOAD A: V1:±4% V2:±7% V3:±5% B: V1:±4% V2:±7% V3:±5% C: V1:±4% V2:±7% V3:±5%	----	N
5	RIPPLE&NOISE	I/P:230VAC SPEC: O/P: FULL LOAD A: V1:50mV V2:120mV V3:50mV B: V1:50mV V2:120mV V3:100mV C: V1:50mV V2:120mV V3:100mV	A: V1: 12mV V2: 96mV V3: 11mV B: V1: 8mV V2: 28mV V3: 11mV C: V1: 7mV V2: 23mV V3: 11mV	P
6	AC INPUT CURRENT	I/P:230VAC SPEC:0.7A O/P:FULL LOAD	A:0.536A	P
7	MAX. INRUSH CURREN	I/P:230VAC SPEC:40A O/P: FULL LOAD COLD START	A:34.679A	P

NO	TEST ITEM	TEST CONDITION/SPECIFICATION	RESULT	VERDICT																																													
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC SPEC: O/P:MIN. LOAD V1 : 4.75V~5.5V (-5%~+10%)	A:4.2V~6.1V (-16%~22%)	P																																													
9	SET UP TIME	I/P:230VAC/60Hz SPEC:800mS O/P:FULL LOAD (V1~V3)	A: V1: 549mS V2: 548mS V3: 546mS	P																																													
10	HOLD UP TIME	I/P:230VAC/60Hz SPEC:20mS MIN. O/P:FULL LOAD	A: V1: 83.8mS V2: 84.5mS V3: 89.1mS	P																																													
11	EFFICIENCY	I/P:230VAC SPEC: A:75% B:75% C:75%	A: 76.6% B: 76.9% C 77.09%	P																																													
12	OVER LOAD PROTECTION	I/P:230VAC SPEC:53W~75W O/P:TESTING	A:68W	P																																													
13	OVER VOLTAGE PROTECTION	I/P:230VAC SPEC:5.75V~6.75VDC O/P:FULL LOAD ON V1	A:6.1V	P																																													
14	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG---<0.5mA N-FG---<0.5mA	A: L-FG:0.35mA N-FG:0.35mA	P																																													
15	INSULATION RESISTANCE	SPEC: O/P-FG 500VDC/50M Ohms MIN. I/P-O/P 500VDC/50M Ohms MIN. I/P-FG 500VDC/50M Ohms MIN.	A: O/P-FG: >100M Ohms I/P-O/P: >100M Ohms I/P-FG : >100M Ohms	P																																													
16	DIELECTRIC / WITHSTAND VOLTAGE	SPEC: I/P- O/P: 3000VAC/ 1 MIN (10mA CUT-OFF) I/P - FG: 1500VAC/ 1 MIN (10mA CUT-OFF) O/P - FG : 500VAC/1MIN (10mA CUT-OFF)	A: NO BREAK I/P-O/P :3.8mA I/P-FG :3.2 mA O/P-FG :2.4 mA	P																																													
17	BURNIN TEST	I/P: 230VAC O/P:FULL LOAD TA:24.4°C BURN-IN DURATION:1.5hrs	NO BREAK	P																																													
18	ENVIRONMENT TEST	1.LOW TEMPERATURE TEST I/P:83VAC O/P:FULL LOAD AMBIENT TEMPERATURE:-10°C	A: AFTER 2 hrs POWER ON OK	P																																													
		2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230 VAC O/P:FULL LOAD AMBIENT TEMPERATURE:50°C	A: AFTER 3 hrs NON BREAK																																														
		3.ACCELERATED LIFE TEST I/P:267 VAC O/P:FULL LOAD POWER ON :3 min POWER OFF :5 sec AMBIENT TEMPERATURE:85 °C AMBIENT HUMIDITY:95%	A: AFTER 15 hrs NON BREAK																																														
19	TEMPERATURE RISE T rise OF PARTS	B: I/P :230VAC AFTER 1.5hrs BURN-IN O/P :FULL LOAD TA:24.4°C	<table border="1"> <thead> <tr> <th></th> <th>POSITION</th> <th>P/N</th> <th>TEMP</th> <th>T rise</th> </tr> </thead> <tbody> <tr> <td></td> <td>BD1</td> <td>BRIDGE DIODE</td> <td>54.4°C</td> <td>29.6°C</td> </tr> <tr> <td></td> <td>Q1</td> <td>MAIN TRANSISTER</td> <td>65.9°C</td> <td>40.9°C</td> </tr> <tr> <td></td> <td>D1</td> <td>CLAMPING DIODE</td> <td>72.3°C</td> <td>47.3°C</td> </tr> <tr> <td></td> <td>T1</td> <td>MAIN TRANSFORMER</td> <td>85.7°C</td> <td>60.7°C</td> </tr> <tr> <td></td> <td>D4</td> <td>O/P DIODE</td> <td>76.1°C</td> <td>51.1°C</td> </tr> <tr> <td>*</td> <td>D5</td> <td>O/P DIODE</td> <td>80°C</td> <td>55°C</td> </tr> <tr> <td></td> <td>C22</td> <td>O/P FILTER CAPACITOR</td> <td>69.6°C</td> <td>44.6°C</td> </tr> <tr> <td></td> <td>C5</td> <td>I/P FILTER CAPACITOR</td> <td>55.1°C</td> <td>30.1°C</td> </tr> </tbody> </table>		POSITION	P/N	TEMP	T rise		BD1	BRIDGE DIODE	54.4°C	29.6°C		Q1	MAIN TRANSISTER	65.9°C	40.9°C		D1	CLAMPING DIODE	72.3°C	47.3°C		T1	MAIN TRANSFORMER	85.7°C	60.7°C		D4	O/P DIODE	76.1°C	51.1°C	*	D5	O/P DIODE	80°C	55°C		C22	O/P FILTER CAPACITOR	69.6°C	44.6°C		C5	I/P FILTER CAPACITOR	55.1°C	30.1°C	* NOTE 1
	POSITION	P/N	TEMP	T rise																																													
	BD1	BRIDGE DIODE	54.4°C	29.6°C																																													
	Q1	MAIN TRANSISTER	65.9°C	40.9°C																																													
	D1	CLAMPING DIODE	72.3°C	47.3°C																																													
	T1	MAIN TRANSFORMER	85.7°C	60.7°C																																													
	D4	O/P DIODE	76.1°C	51.1°C																																													
*	D5	O/P DIODE	80°C	55°C																																													
	C22	O/P FILTER CAPACITOR	69.6°C	44.6°C																																													
	C5	I/P FILTER CAPACITOR	55.1°C	30.1°C																																													

20	LIFE CYCLE	SUPPOSE C22 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULLLOAD Ta:25°C T _{c22} :70.2°C Life time:63448 hrs I/P:230VAC O/P:FULLLOAD Ta:45°C T _{c22} :80.6°C Life time:30856 hrs		P
21	CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)	FUSE : CQ 3A/250V UL BRIDGE DIODE : LT KBJ 408G. (GLASS) LINE FILTER : TF484 ET-20V TRANSFOMER : LS ER-28 TF444 POWER SWITCHER : K2545 6A/600V TO-220F OUTPUT DIODE : BYQ-26-200 10A/200V TO-220F OUTPUT CAPACITOR : ELNA 820uf/16V 105°C(M) RJH INPUT CAPACITOR : RNBYCON 100uf/400V 85°C USP P.C.B : 128mm x 77mm 2 OZ CEM-3 PT-45		
DATE	SAMPLE	TEST RESULT	TEST	APPROVAL
971015	PT-45A	.NOTE1WORKING TEMPERATURE>=40°C, OUTPU SHOULD COOLING FAN.	H.C.LIOU	Max Lin