

# 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

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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
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20	LIFE CYCLE	SUPPOSE C22 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULLLOAD Ta:25°C T <sub>c22</sub> :70.2°C Life time:63448 hrs I/P:230VAC O/P:FULLLOAD Ta:45°C T <sub>c22</sub> :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