Quality Engineering Test Report

SERIES: 45W DUAL OUTPUT OPEN FRAME SWITCHING POWER SUPPLY

SAMPLE: **A.PD-45A** **V1:+5V / 3.2A**
V2:+12V / 2A

B.PD-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:90~264VAC O/P:FULL LOAD	61.82VAC~267VAC	P
2	LINE REGULATION	I/P:85~264VAC SPEC: O/P:FULL LOAD A : V1 :±1% V2 :±2% 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 : ±3% V2 : ±4% B : V1 : ±3% V2 : ±4%	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 : V1:4% V2:7% B : V1:4% V2:7%	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 :150mV	A: V1: 12mV V2: 81mV B: V1: 4mV V2: 30mV	P
6	AC INPUT CURRENT	I/P:230VAC SPEC:0.7A O/P:FULL LOAD	A:0.474A	P
7	MAX. INRUSH CURREN	I/P:230VAC SPEC:40A O/P: FULL LOAD COLD START	A:28.656A	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC SPEC:CH1:4.75V~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	A:58.726W B:70.784W	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC SPEC:5.75V~6.75VDC O/P:FULL LOAD ON CH1	A : V1:6.05V B : V2:6.00V	P
14	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG---<0.5mA N-FG---<0.5mA	A: L-FG:0.415mA N-FG:0.418mA	P

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>TEST CONDITION / SPECIFICATION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>15</td><td>INSULATION RESISTANCE</td><td>SPEC:
O/P-FG 500VDC / 50M Ohms MIN.
I/P-O/P 500VDC / 50M Ohms MIN.
I/P-FG 500VDC / 50M Ohms MIN.</td><td>A: O/P-FG: >1000M Ohms
I/P-O/P: >1000M Ohms
I/P-FG : >1000M Ohms</td><td>P</td></tr>
<tr><td>16</td><td>DIELECTRIC / WITHSTAND VOLTAGE</td><td>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)</td><td>A: NO BREAK
I/P-O/P :4mA
I/P-FG :3.4 mA
O/P-FG :4.6 mA</td><td>P</td></tr>
<tr><td>17</td><td>BURNIN TEST</td><td>I/P: 230VAC O/P:FULL LOAD
TA:25.5ºC BURN-IN DURATION:4hrs</td><td>NO BREAK</td><td>P</td></tr>
<tr><td rowspan="3">18</td><td rowspan="3">ENVIRONMENT TEST</td><td>1.LOW TEMPERATURE TEST
I/P:83VAC O/P:FULL LOAD
AMBIENT TEMPERATURE:-10ºC</td><td>A:
AFTER 1.5 hrs
POWER ON OK</td><td rowspan="3">P</td></tr>
<tr><td>2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST
I/P:230 VAC O/P:FULL LOAD
AMBIENT TEMPERATURE:50ºC</td><td>A:
AFTER 1 hrs
NON BREAK</td></tr>
<tr><td>3.ACCELERATED LIFE TEST
I/P:267 VAC O/P:FULL LOAD
POWER ON :3 min POWER OFF :5 sec
AMBIENT TEMPERATURE:85º C
AMBIENT HUMIDITY:95%</td><td>A:
AFTER 14 hrs
NON BREAK</td></tr>
<tr><td>19</td><td>TEMPERATURE RISE T rise OF PARTS</td><td colspan="2">A: I/P :230VAC AFTER 4hrs BURN-IN
O/P :FULL LOAD TA:25.5ºC
<table>
<tr><th></th><th>POSITION</th><th>P/N</th><th>TEMP</th><th>T rise</th></tr>
<tr><td></td><td>BD1</td><td>BRIDGE DIODE</td><td>50.6ºC</td><td>25.6ºC</td></tr>
<tr><td></td><td>Q1</td><td>MAIN TRANSISTOR</td><td>63.4ºC</td><td>38.4ºC</td></tr>
<tr><td></td><td>D1</td><td>CLAMPING DIODE</td><td>73.1ºC</td><td>48.1ºC</td></tr>
<tr><td></td><td>C5</td><td>I/P CAP</td><td>52.1ºC</td><td>27.1ºC</td></tr>
<tr><td></td><td>T1</td><td>MAIN TRANSFORMER</td><td>75.4ºC</td><td>50.3ºC</td></tr>
<tr><td></td><td>D4</td><td>O/P DIODE</td><td>74.1ºC</td><td>49.1ºC</td></tr>
<tr><td>*</td><td>D5</td><td>O/P DIODE</td><td>77.8ºC</td><td>52.8ºC</td></tr>
<tr><td></td><td>C22</td><td>O/P CAP</td><td>66.5ºC</td><td>41.5ºC</td></tr>
</table></td><td>*
NOTE1</td></tr>
<tr><td>20</td><td>LIFE CYCLE</td><td colspan="2">SUPPOSE C22 IS THE MOST CRITICAL COMPONENT
I/P:230VAC O/P:FULL LOAD Ta:25ºC C22:66.5ºC Life:81468 hrs
I/P:230VAC O/P:FULL LOAD Ta:50ºC C22:83ºC Life:25842 hrs</td><td>P</td></tr>
<tr><td>21</td><td>CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)</td><td colspan="3">FUSE : CQ GFE 3A/250V
BRIDGE DIODE : LT KBJ 408G. (GLASS)
LINE FILTER : TF484 ET-20V
TRANSFOMER : ER-28 TF449
POWER SWITCHER : K2545 6A/600V TO-220F
OUTPUT DIODE : BYQ-26-200 10A/200V TO-220F
OUTPUT CAPACITOR : ELNA 820uf/16V 105ºC(M) RJH
INPUT CAPACITOR : RNBYCON 100uf/400V 85ºC USP
P.C.B : 128mm x 76mm 2 0Z CEM-3</td></tr>
<tr><th>DATE</th><th>SAMPLE</th><th>TEST RESULT</th><th>TEST</th><th>APPROVAL</th></tr>
<tr><td>971127</td><td>PD-45</td><td>.NOTE1:WORKING TEMPERATURE >= 45ºC OUTPUT SHOULD DERATING.</td><td>H.C.LIOU</td><td>Max Lin</td></tr>
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