

Quality Engineering Test Report

SERIES: D-60

60W AC-DC DUAL OUTPUT SWITCHING POWER SUPPLY

**SAMPLE: A.D-60A +V1: 5V / 4A
+V2:12V / 3A**

**B.D-60B +V1: 5V / 3A
+V2:24V / 1.8A**

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:85~264VAC O/P:FULL LOAD	A:63VAC~264VAC	P
2	LINE REGULATION	I/P:85~264VAC SPEC: O/P:FULL LOAD A :+V1 :±0.5% +V2 :±1% B :+V1 :±0.5% +V2 :±0.5%	A: +V1: 0%~0% +V2: -0.05%~+0.1% B: +V1: -0.12%~+0.12% +V2: -0.02%~+0.18%	P
3	LOAD REGULATION	I/P:230VAC SPEC: O/P:MIN. TO FULL LOAD A : +V1 : ±0.5% +V2 : ±4% B : +V1 : ±0.5% +V2 : ±4%	A: +V1: 0%~0% +V2: -0.15%~+0.56% B: +V1: 0%~0% +V2: -0.57%~+0.78%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:230VAC SPEC: O/P:MIN. TO FULL LOAD A : +V1 : ±2% +V2 : ±6% B : +V1 : ±2% +V2 : ±5%	A: +V1: 0%~+0.12% +V2: -1.62%~+4.12% B: +V1: -0.12%~+0.12% +V2: -1.44%~+3.52%	P
5	RIPPLE&NOISE	I/P:230VAC SPEC: O/P:FULL LOAD A :+V1 :75mV +V2 :150mV B :+V1 :75mV +V2 :150mV	A: +V1: 23mV +V2: 13mV B: +V1: 25mV +V2: 20mV	P
6	AC INPUT CURRENT	I/P:230VAC SPEC:1A O/P:FULL LOAD	A:0.71A	P
7	MAX. INRUSH CURREN	I/P:230VAC SPEC:60A O/P: FULL LOAD	A:36.9A	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC SPEC: O/P:MIN. LOAD A:+V1 -5%~+10% B:+V1 -5%~+10%	A: +V1: 4.48V~5.86V +V2: 10.60V~13.91V B: +V1: 4.38V~5.75V +V2: 20.75V~27.08V	P
9	SET UP TIME	I/P:230VAC SPEC:300mS O/P:FULL LOAD	A: +V1:230.2mS	P
10	HOLD UP TIME	I/P:230VAC SPEC:80mS O/P:FULL LOAD	A: +V1:101.3mS	P
11	EFFICIENCY	I/P:230VAC SPEC: A:73% O/P:FULL LOAD B:76%	A:74.43% B:76.45%	P
12	OVER LOAD PROTECTION	I/P:230VAC SPEC:105%~150% O/P:TESTING	A:138% B:141%	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC SPEC:+V1:5.75~6.75V O/P:FULL LOAD	A : +V1:6.3V B : +V1:6.2V	P
14	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG--<1mA N-FG--<1mA	A: L-FG:1.91 mA N-FG:1.85mA	P
15	INSULATION RESISTANCE	SPEC: O/P-FG 500VDC/100M Ohms MIN. I/P-O/P 500VDC/100M Ohms MIN. I/P-FG 500VDC/100M 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/ 1 min. (10mA CUT-OFF)	A: I/P-O/P :4.2mA I/P-FG :6.3mA O/P-FG :2.5mA	P

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17	EMS TEST	EFT TEST: EN50082-1 IEC1000-4-4	A: CRITERIA A OK	P																																												
		SURGE TEST: EN50082-1 IEC1000-4-5	A: CRITERIA A OK	P																																												
18	BURN-IN TEST	I/P: 230VAC O/P:FULL LOAD TA:22.5°C BURN-IN DURATION : 4 hrs	NON BREAK	P																																												
19	ENVIRONMENT TEST (SAMPLE A:)	1.LOW TEMPERATURE TEST I/P:80 VAC O/P:FULL LOAD AMBIENT TEMPERATURE:-10°C	AFTER 1 hrs POWER ON OK	P																																												
		2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:45°C	AFTER 15 hrs NON BREAK																																													
		3.ACCELERATED LIFE TEST I/P:267VAC O/P:FULL LOAD POWER ON :3 min POWER OFF :5 sec AMBIENT TEMPERATURE:85°C AMBIENT HUMIDITY:95%	AFTER 14 hrs NON BREAK																																													
20	TEMPERATURE RISE TEST T rise OF PARTS	<p>A: I/P :230VAC O/P :FULL LOAD TA:22.5°C</p> <p>AFTER 4 hr BURN-IN</p> <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>82.1C</td> <td>59.6C</td> </tr> <tr> <td></td> <td>Q1</td> <td>MAIN TRANSISTOR</td> <td>70.7°C</td> <td>48.2°C</td> </tr> <tr> <td></td> <td>T1</td> <td>MAIN TRANSFORMER</td> <td>85.9°C</td> <td>63.2°C</td> </tr> <tr> <td></td> <td>D4</td> <td>O/P DIODE</td> <td>75.2°C</td> <td>52.7°C</td> </tr> <tr> <td></td> <td>C21</td> <td>O/P FILTER CAPACITOR</td> <td>71.6°C</td> <td>49.1°C</td> </tr> <tr> <td></td> <td>L2</td> <td>O/P CHOCK</td> <td>70.4°C</td> <td>47.9°C</td> </tr> <tr> <td></td> <td>C5</td> <td>I/P FILTER CAPACITOR</td> <td>81.7°C</td> <td>59.2°C</td> </tr> <tr> <td>*</td> <td>D1</td> <td>FLY DIODE</td> <td>98.3°</td> <td>75.8°C</td> </tr> </tbody> </table>		POSITION	P/N	TEMP	T rise		BD1	BRIDGE DIODE	82.1C	59.6C		Q1	MAIN TRANSISTOR	70.7°C	48.2°C		T1	MAIN TRANSFORMER	85.9°C	63.2°C		D4	O/P DIODE	75.2°C	52.7°C		C21	O/P FILTER CAPACITOR	71.6°C	49.1°C		L2	O/P CHOCK	70.4°C	47.9°C		C5	I/P FILTER CAPACITOR	81.7°C	59.2°C	*	D1	FLY DIODE	98.3°	75.8°C	* NOTE1
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21	LIFE CYCLE	A: SUPPOSE C21 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULL LOAD Ta:22.5°C Tc21:71.6°C Life: 49811 hrs I/P:230VAC O/P:FULL LOAD Ta:44.6°C Tc21:90.6°C Life: 15437 hrs		P																																												
22	CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)	A: FUSE :3AL/250V BRIDGE DIODE :LT 4A/800V GLASS LINE FILTER :EE-25 TF096C1 TRANSFOMER :EER-35 TF156-1-R1 POWER SWITCHER :2SK727 TO-3P OUTPUT DIODE :D10SC4M TO-220 OUTPUT CAPACITOR :ELNA 1000uF/25V R.JH 105°C INPUT CAPACITOR :JAMICON 150uF/400V 85°C P.C.B :D-60N-R3 CEM-1 2 OZ SS																																														
DATE	SAMPLE	TEST RESULT	TEST	APPROVAL																																												
19980418	D-60A	NOTE1:working temperature \geq 45°C should derating	H.C.LIOU	Max Lin																																												
19990510	D-60A	PASS	H.C.LIOU	Max Lin																																												