

Quality Engineering Test Report

SERIES: IT-60 60W AC-DC SINGLE OUTPUT SWITCHING POWER SUPPLY

SAMPLE: A: IT-60D V1: 5V / 3A B:IT-60F V1: 5V / 3A
V2: 12V / 0.8A V2: 15V / 0.8A
V3: 24V / 1.4A V3: 24V / 1.3A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	MAX. INRUSH CURREN	I/P:230VAC SPEC: 50A O/P:FULL LOAD	A: 36.414A B: 36.484A	P
2	SET UP TIME	I/P:230VAC SPEC:300mS O/P:FULL LOAD	A: 141.598mS B: 128.921mS	P
3	RISE TIME	I/P:230VAC SPEC:20mS O/P:FULL LOAD	A: 7.749 mS B: 9.599 mS	P
4	HOLD UP TIME	I/P:230VAC SPEC:50mS O/P:FULL LOAD	A: 118.5mS B: 114.67mS	P
5	LINE REGULATION	I/P:90~264VAC SPEC:A:V1:± 1 % O/P:FULL LOAD V2:± 2 % V3:± 2 % B:V1:± 1 % V2:± 2 % V3:± 2 %	A: V1: -0.00% ~ +0.00% V2: -0.1% ~ +1.41% V3: -0.074% ~ +1.05% B: V1: +0.00% ~ -0.118% V2: -0.08% ~ +1.396% V3: -0.049% ~ +1.132%	P
6	LOAD REGULATION	I/P:90~264VAC SPEC:A: V1: ± 2 % O/P:FULL LOAD V2: ± 5 % V3: ± 5 % B: V1: ± 2 % V2: ± 5 % V3: ± 5 %	A: V1: -0.118% ~ +0.00% V2: -0.79% ~ +1.27% V3: -0.83% ~ +1.198% B: V1: -0.118 % ~ +0.118 % V2: -0.687 % ~ +1.37 % V3: -0.7 % ~ +1.25 %	P
7	OUTPUT VOLTAGE TOLERANCE	I/P:90~264VAC SPEC: A: V1: ± 3 % O/P:FULL LOAD V2: ± 8 % V3: ± 8 % B: V1: ± 3 % V2: ± 8 % V3: ± 8 %	A: V1: -0.257% ~ +0.000% V2: -0.969% ~ +5.896% V3: -1.02% ~ +4.97% B: V1: -0.237% ~ +0.118% V2: -0.955% ~ +5.446% V3: -1.078% ~ +4.667%	P
8	OVER LOAD PROTECTION	I/P:230VAC SPEC: A: 72W ~ 90W O/P:TESTING B: 72W ~ 90W	A: 77.782W B: 78.472W	P
9	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:90~264VAC O/P:FULL LOAD	A. 55.112 V ~ 264 VAC B. 58.887 V ~ 264 VAC	P
10	RIPPLE&NOISE	I/P:230VAC SPEC:A: V1: 80mVp-p O/P:FULL LOAD V2: 120mVp-p V3: 240mVp-p B:V1: 80mVp-p V2: 150mVp-p V3: 240mVp-p	A: V1: 3mVp-p V2: 13mVp-p V3: 18mVp-p B: V1: 2mVp-p V2: 8mVp-p V3: 12mVp-p	P
11	AC INPUT CURRENT	I/P:230VAC SPEC:0.9A O/P:FULL LOAD	A: 0.653 A B: 0.650 A	P
12	EFFICIENCY	I/P:230VAC SPEC: A: 76% O/P:FULL LOAD B: 76%	A: 79.21% B: 79.30%	P

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13	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG-<1mA N-FG-<1mA	<table border="1"> <tr> <td>A:</td> <td>L-FG:</td> <td>0.74mA</td> </tr> <tr> <td></td> <td>N-FG:</td> <td>0.78mA</td> </tr> <tr> <td>B:</td> <td>L-FG:</td> <td>0.74mA</td> </tr> <tr> <td></td> <td>N-FG:</td> <td>0.78mA</td> </tr> </table>	A:	L-FG:	0.74mA		N-FG:	0.78mA	B:	L-FG:	0.74mA		N-FG:	0.78mA	P																												
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14	DIELECTRIC / WITHSTAND VOLTAGE	SPEC: I/P- O/P: 3KVAC/ 1 min. (10mA CUT-OFF) I/P - FG: 1.5KVAC/ 1 min. (10mA CUT-OFF) O/P -FG: 0.5KVAC/ 1 min. (10mA CUT-OFF)	<table border="1"> <tr> <td>A:</td> <td>I/P-O/P:</td> <td>4.9mA</td> </tr> <tr> <td></td> <td>I/P-FG:</td> <td>4mA</td> </tr> <tr> <td></td> <td>O/P-FG:</td> <td>3.4mA</td> </tr> <tr> <td>B:</td> <td>I/P-O/P:</td> <td>4.57mA</td> </tr> <tr> <td></td> <td>I/P-FG:</td> <td>3.85mA</td> </tr> <tr> <td></td> <td>O/P-FG:</td> <td>3.41mA</td> </tr> </table>	A:	I/P-O/P:	4.9mA		I/P-FG:	4mA		O/P-FG:	3.4mA	B:	I/P-O/P:	4.57mA		I/P-FG:	3.85mA		O/P-FG:	3.41mA	P																						
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15	INSULATION RESISTANCE	SPEC: I/P-O/P: 500VDC/100MOhms MIN. I/P-FG: 500VDC/100MOhms MIN. O/P-FG: 500VDC/100MOhms MIN.	<table border="1"> <tr> <td>A:</td> <td>TEST OK</td> </tr> <tr> <td>B:</td> <td>TEST OK</td> </tr> </table>	A:	TEST OK	B:	TEST OK	P																																				
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16	BURN-IN TEST	I/P: 230VAC O/P: FULL LOAD TA:29.4°C BURN-IN DURATION : 17 hrs	B:NON BREAK	P																																								
17	ENVIRONMENT TEST	1.LOW TEMPERATURE TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:-9.0°C	B:AFTER 17 hrs POWER ON OK	P																																								
		2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:48.3°C	B:AFTER 4.5 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 15 hrs POWER ON NON BREAK																																									
18	TEMPERATURE RISE TEST Trise OF PARTS	B: I/P :230VAC AFTER 17 hr BURN-IN O/P :FULL LOAD TA:29.4°C	<table border="1"> <thead> <tr> <th></th> <th>POSITION</th> <th>P/N</th> <th>TEMP</th> <th>Trise</th> </tr> </thead> <tbody> <tr> <td></td> <td>BD1</td> <td>BRIDGE DIODE</td> <td>60.3°C</td> <td>30.9°C</td> </tr> <tr> <td></td> <td>Q1</td> <td>MAIN TRANSISTOR</td> <td>54.0°C</td> <td>24.6°C</td> </tr> <tr> <td></td> <td>T1</td> <td>MAIN TRANSFORMER WIRE</td> <td>75.2°C</td> <td>45.8°C</td> </tr> <tr> <td></td> <td>D53</td> <td>O/P DIODE</td> <td>57.0°C</td> <td>27.6°C</td> </tr> <tr> <td></td> <td>C55</td> <td>O/P FILTER CAPACITOR</td> <td>69.3°C</td> <td>39.9°C</td> </tr> <tr> <td></td> <td>C5</td> <td>I/P FILTER CAPACITOR</td> <td>61.4°C</td> <td>32.0°C</td> </tr> <tr> <td></td> <td>LF1</td> <td>I/P FILTER TRANSFORMER</td> <td>47.1°C</td> <td>17.7°C</td> </tr> </tbody> </table>		POSITION	P/N	TEMP	Trise		BD1	BRIDGE DIODE	60.3°C	30.9°C		Q1	MAIN TRANSISTOR	54.0°C	24.6°C		T1	MAIN TRANSFORMER WIRE	75.2°C	45.8°C		D53	O/P DIODE	57.0°C	27.6°C		C55	O/P FILTER CAPACITOR	69.3°C	39.9°C		C5	I/P FILTER CAPACITOR	61.4°C	32.0°C		LF1	I/P FILTER TRANSFORMER	47.1°C	17.7°C	P
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19	CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)	B: FUSE :3A/250V BRIDGE DIODE :D3SB60 4A/600V LINE FILTER :42T21070H 7mH TRANSFOMER TF845 POWER SWITCHER :2SK2545 6A/600V OUTPUT DIODE :SF10SC6 10A/60V OUTPUT CAPACITOR :RUBYCON 1000uF/10V YXG 105°C INPUT CAPACITOR HITACHI 150u/400V 85°C P.C.B :IQ-60-R1 CEM-1 2OZ SS																																										
20	LIFE CYCLE	B: SUPPOSE C55 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULL LOAD Ta:25°C Tc55:64.9°C Life: 92471.4hrs I/P:230VAC O/P:FULL LOAD Ta:50°C Tc55:84.6°C Life:23591.4hrs		P																																								

DATE	SAMPLE	TEST RESULT	TEST	APPROVAL
20021009	RD SAMPLE IT-60D IT-60F	PASS	VINCENT	MAX LIN
20021207	PRODUCT SAMPLE A209A12 IT-60D IT-60F	PASS	VINCENT	MAX LIN