

MODEL : RPS-60-12

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 60 mVp-p (Max)	I/P: 230VAC O/P:FULL LOAD Ta:25°C	V1: 46 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 11.4V~ 13.2V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	10.97 V~ 13.52 V/ 230 VAC 10.97 V~ 13.52 V/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 2 %~ -2 % (Max)	I/P: 115 VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25°C	V1: 0.1 %~ -0.1 %	P
4	LINE REGULATION	V1: 0.5 %~ -0.5 % (Max)	I/P: 115VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0.05 %~ -0.05 %	P
5	LOAD REGULATION	V1: 1%~ -1 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0.1 %~ -0.1 %	P
6	SET UP TIME	230VAC: 500 ms (Max) 115 VAC: 500 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 396 ms 115VAC/ 377 ms	P
7	RISE TIME	230VAC: 30 ms (Max) 115VAC: 30 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 9 ms 115VAC/ 7 ms	P
8	HOLD UP TIME	230VAC: 50 ms (TYP) 115VAC: 14 ms (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 71 ms 115VAC/ 14.13 ms	P
9	OVER/UNDERSHOOT TEST	< +5%	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: <5 %	P
10	DYNAMIC LOAD	V1: 1200 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	250 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90VAC~264 VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	68 V~264V	P
			I/P: LOW-LINE-3V= 87 V HIGH-LINE+15%=300 V O/P:FULL/MIN LOAD ON: 30 Sec . OFF: 30 Sec 10MIN (AC POWER ON/OFF NO DAMAGE)	TEST: OK	
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE OSC	I/P: 90VAC ~ 264 VAC O/P:FULL ~MIN LOAD Ta:25°C	TEST: OK	P
3	EFFICIENCY	83% (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	83.4 %	P
4	INPUT CURRENT	230V/ 1 A (TYP) 115V/ 1.8 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 0.7 A/ 230 VAC I = 1.11 A/ 115 VAC 1	P
5	INRUSH CURRENT	230V/ 60 A (TYP) 115V/ 30 A(TYP) COLD START	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 51 A/ 230 VAC I = 26 A/ 115 VAC	P
6	LEAKAGE CURRENT	< 130 uA/ 264 VAC for earth leakage current	I/P: 264 VAC O/P:Min LOAD Ta:25°C	L-FG: 117 uA N-FG: 117 uA	P
		< 100 uA/264 VAC for touch leakage current	I/P: 264 VAC O/P:Min LOAD Ta:25°C	L-V+ : 79 uA L-V-: 79 uA N-V+: 79 uA N-V-: 79 uA	

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	115 %~ 150 %	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25°C	136 %/ 230 VAC 139 %/ 115 VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1: 13.8 V~ 16.2 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	15.17 V/ 230 VAC 15.17 V/ 115 VAC Shunt down Re- power ON	P
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264 VAC O/P:FULL LOAD Ta:25°C	NO DAMAGE Hiccup Mode	P

ONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	No load power consumption	<0.75W	I/P: 240 VAC O/P:NO LOAD	0.44W/240VAC	P

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																							
1	TEMPERATURE RISE TEST	MODEL : RPS-60-12 1. ROOM AMBIENT BURN-IN : 2HRS I/P: 230VAC O/P: FULL LOAD Ta= 34.5 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 48.8 °C <table><tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta=34.5℃</th><th>HIGH AMBIENT Ta= 48.8 °C</th></tr><tr><td>1</td><td>BD1</td><td>US4K 4A/800V SHI</td><td>72.0℃</td><td>84.1℃</td></tr><tr><td>2</td><td>D1</td><td>EGP20J 2A/600V ZOW</td><td>107.8℃</td><td>119.6℃</td></tr><tr><td>3</td><td>Q1</td><td>2SK2545 2A/600V TOS</td><td>103.3℃</td><td>114.5℃</td></tr><tr><td>4</td><td>ZD1</td><td>P6KE100A PAN</td><td>90.5℃</td><td>101.4℃</td></tr><tr><td>5</td><td>C36</td><td>100U/50V NCC 105℃ KY</td><td>71.5℃</td><td>83.4℃</td></tr><tr><td>6</td><td>T1 COIL</td><td>TF-1415 LS</td><td>91.6℃</td><td>103.4℃</td></tr><tr><td>7</td><td>D100</td><td>20CTQ150 20A/150V IR</td><td>91.3℃</td><td>103.1℃</td></tr><tr><td>8</td><td>C105</td><td>560u/35V NCC 105℃ KY</td><td>74.7℃</td><td>86.0℃</td></tr><tr><td>9</td><td>L100</td><td>RB023D</td><td>69.3℃</td><td>80.6℃</td></tr><tr><td>10</td><td>U1</td><td>NCP1230D</td><td>78.6℃</td><td>90.9℃</td></tr></table>			NO	Position	P/N	ROOM AMBIENT Ta=34.5℃	HIGH AMBIENT Ta= 48.8 °C	1	BD1	US4K 4A/800V SHI	72.0℃	84.1℃	2	D1	EGP20J 2A/600V ZOW	107.8℃	119.6℃	3	Q1	2SK2545 2A/600V TOS	103.3℃	114.5℃	4	ZD1	P6KE100A PAN	90.5℃	101.4℃	5	C36	100U/50V NCC 105℃ KY	71.5℃	83.4℃	6	T1 COIL	TF-1415 LS	91.6℃	103.4℃	7	D100	20CTQ150 20A/150V IR	91.3℃	103.1℃	8	C105	560u/35V NCC 105℃ KY	74.7℃	86.0℃	9	L100	RB023D	69.3℃	80.6℃	10	U1	NCP1230D	78.6℃	90.9℃	P
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 230 VAC O/P: 125 % LOAD Ta:25℃	TEST : OK	P																																																							
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 230 VAC O/P:100 % LOAD Ta= -20℃	TEST : OK	P																																																							
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE	I/P: 272 VAC O/P:FULL LOAD Ta= 50℃ HUMIDITY= 95 %R.H	TEST : OK	P																																																							
5	TEMPERATURE COEFFICIENT	± 0.03 %(0~50℃)	I/P: 230 VAC O/P:FULL LOAD	± 0.01 %(0~50℃)	P																																																							
6	VIBRATION TEST	1 Carton & 1 Set (1) Waveform: Sine Wave (2) Frequency:10~500Hz (3) Sweep Time:10min/sweep cycle (4) Acceleration:2G (5) Test Time:1 hour in each axis (X.Y.Z) (6) Ta:25℃		TEST : OK	P																																																							

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 4 KVAC/min I/P-FG: 2 KVAC/min O/P-FG: 1.5 KVAC/min	I/P-O/P: 4.2 KVAC/min I/P-FG: 2.4 KVAC/min O/P-FG: 1.8 KVAC/min Ta:25°C	I/P-O/P: 2.14 mA I/P-FG: 1.54 mA O/P-FG: 1.57 mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ I/P-FG: 500VDC>100MΩ O/P-FG:500VDC>100MΩ	I/P-O/P: 500 VDC I/P-FG: 500 VDC O/P-FG: 500 VDC Ta:25°C	I/P-O/P: 30 GΩ I/P-FG: 30 GΩ O/P-FG: 30 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	8 mΩ	P
4	APPROVAL	TUV: Certificate NO : R 50112371 UL: File NO : E227340			P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	PASS	P
2	CONDUCTION	EN55022 EN55011 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab	P
3	RADIATION	EN55022 EN55011 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25°C	PASS Test by certified Lab	P
4	E.S.D	EN61000-4-2 MEDICAL AIR:8KV / Contact:6KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
5	E.F.T	EN61000-4-4 MEDICAL INPUT: 2KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
6	SURGE	IEC61000-4-5 MEDICAL L-N :1KV L,N-PE:2KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
7	Test by certified Lab & Test Report Prepare				

M.T.B.F & LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	SUPPOSE C105 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 122610 HRS I/P: 230VAC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 26651 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 353.6K HRS			P
3	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure : Above 30,000 hours @ TA 50°C			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated K2545 : 600V 6A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Output Short Ta:25℃	(1) 558 V (2) 592 V	P
2	Diode Peak Voltage	D100 Rated 20CTQ150 : 150V 20A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2)Output Short Ta:25℃	(1) 117 V (2) 116 V	P
3	Clamp Diode Peak Voltage	D1 Rated EGP20J : 600V 2A	I/P:High-Line +3V = 267 V O/P: (1) Dynamic Load 90%Duty/1KHz Ta:25℃	(1) 464 V	P
4	Input Capacitor Voltage	C5 Rated :100u / 400V/ 105℃	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta:25℃	(1) 370 V (2) 374 V (3) 370 V	P
5	Control IC Voltage Test	U1 Rated 1230D : 18 V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta:25℃	(1) 15.2 V (2) 13.4 V (3) 15.2 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2006/4/3	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2006/6/2	PRODUCT SAMPLE W0605A17	PASS	VINCENT TSENG	MAX LIN
2006/7/20	PRODUCT SAMPLE W0607A12	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023