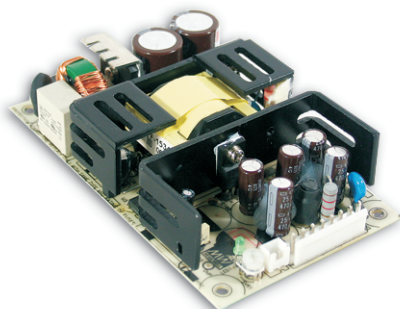




75W Single Output Medical Type

RPS-75 series



■ Features :

- Universal AC input/Full range
- Low leakage current<200uA
- Protections: Short circuit / Overload / Over voltage
- Free air convection for rated power and 23.5CFM forced air convection for peak load
- UL60601-1/IEC60601-1/EN60601-1 medical safety approved
- No load power consumption<0.75W
- Fixed switching frequency at 65KHz
- 3 years warranty

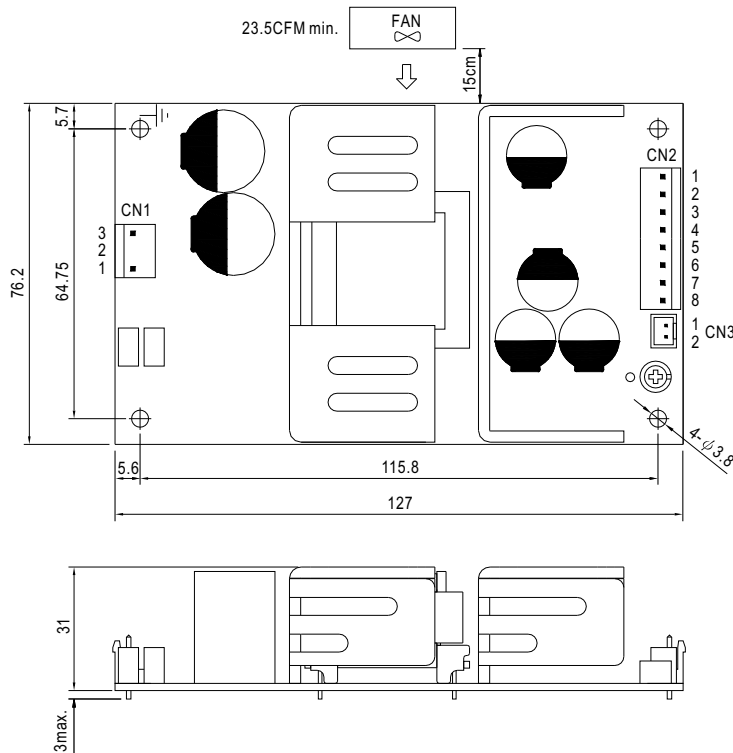


SPECIFICATION

MODEL		RPS-75-3.3	RPS-75-5	RPS-75-12	RPS-75-15	RPS-75-24	RPS-75-36	RPS-75-48
OUTPUT	DC VOLTAGE	3.3V	5V	12V	15V	24V	36V	48V
	RATED CURRENT	15A	14A	6.3A	5A	3.2A	2.1A	1.6A
	CURRENT RANGE	0 ~ 20A	0 ~ 18.7A	0 ~ 8.3A	0 ~ 6.7A	0 ~ 4.2A	0 ~ 2.8A	0 ~ 2.1A
	RATED POWER	49.5W	70W	75.6W	75W	76.8W	75.6W	76.8W
	PEAK LOAD (23.5CFM)	66W	94W	99.6W	100.5W	100.8W	100.8W	100.8W
	RIPPLE & NOISE (max.) Note.2	80mVp-p	80mVp-p	120mVp-p	150mVp-p	240mVp-p	300mVp-p	300mVp-p
	VOLTAGE ADJ. RANGE	2.9 ~ 3.6V	4.75 ~ 5.5V	11.4 ~ 13.2V	13.5 ~ 16.5V	22.8 ~ 27.6V	34.2 ~ 39.6V	45.6 ~ 52.8V
	VOLTAGE TOLERANCE Note.3	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±1.5%	±1.5%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	SETUP, RISE TIME	500ms, 30ms/230VAC 500ms, 30ms/115VAC at full load						
	HOLD UP TIME (Typ.)	80ms/230VAC 20ms/115VAC at full load						
INPUT	VOLTAGE RANGE	90 ~ 264VAC		127 ~370VDC				
	FREQUENCY RANGE	47 ~ 63Hz						
	EFFICIENCY(Typ.)	73%	78%	82%	83%	85%	86%	86%
	AC CURRENT (Typ.)	1.5A/115VAC 1A/230VAC						
	INRUSH CURRENT (Typ.)	COLD START 25A/115VAC 50A/230VAC						
	LEAKAGE CURRENT	Earth leakage current <200uA / 264VAC, Patient leakage current <100uA/264VAC						
PROTECTION	OVERLOAD	140 ~ 180% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed.						
	OVER VOLTAGE	3.8 ~ 4.46V	5.75 ~ 6.75V	13.8 ~ 16.2V	17.25 ~ 20.25V	27.6 ~ 32.4V	41.4 ~ 48.6V	55.2 ~ 64.8V
		Protection type : Shut down o/p voltage, re-power to recover						
ENVIRONMENT	WORKING TEMP.	-20 ~ +70℃ (Refer to output load derating curve)						
	WORKING HUMIDITY	20 ~ 90% RH non-condensing						
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH						
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 45℃)						
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes						
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL60601-1, TUV EN60601-1, IEC60601-1 approved						
	WITHSTAND VOLTAGE	I/P-O/P:4KVAC I/P-FG:1.5KVAC O/P-FG:1.5KVAC						
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC						
	EMI CONDUCTION & RADIATION	Compliance to EN55011 (CISPR11), EN55022 (CISPR22) Class B						
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3						
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, EN60601-1-2, EN61000-6-2, EN61204-3, heavy industry level, EN61204-3 medical level, criteria A						
OTHERS	MTBF	446.8K hrs min. MIL-HDBK-217F (25℃)						
	DIMENSION	127*76.2*31mm (L*W*H)						
	PACKING	0.23Kg; 63pcs/15.5Kg/1.35CUFT						
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 5. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.							

Mechanical Specification

Unit:mm



AC Input Connector (CN1) : JST B3P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	AC/N	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
2	No Pin		
3	AC/L		

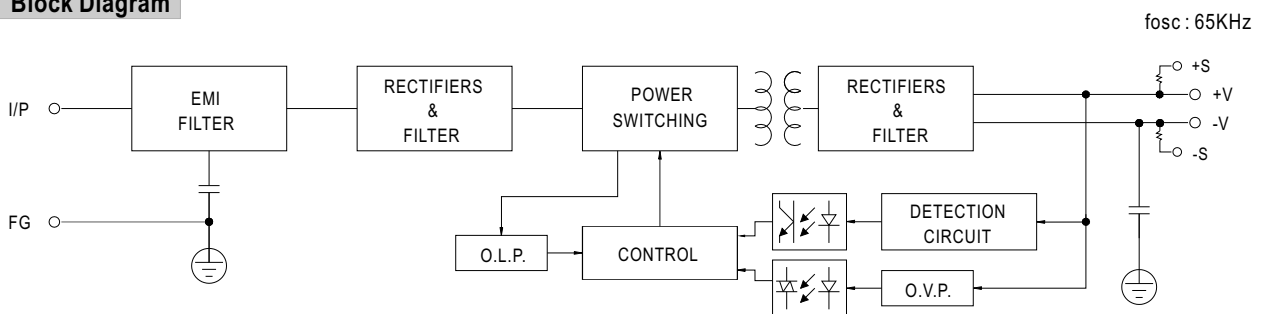
DC Output Connector (CN2) : JST B8P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1,2,3,4	+V	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
5,6,7,8	-V		

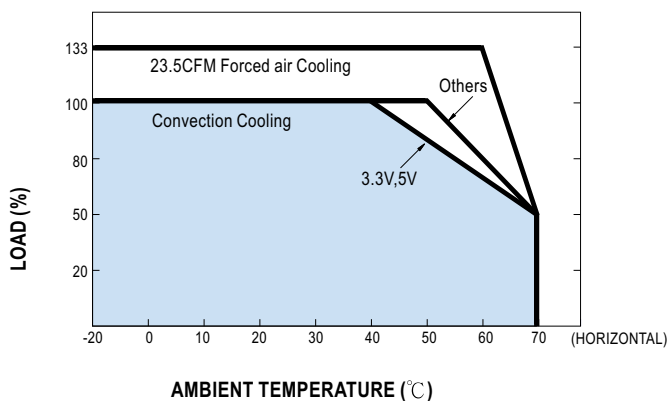
Remote Sense(CN3) : JST B2B-XH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	RS+	JST XHP or equivalent	JST SXH-001T-P0.6 or equivalent
2	RS-		

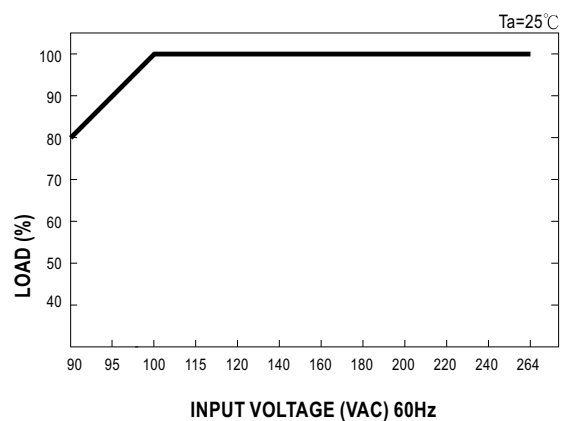
Block Diagram



Derating Curve



Output Derating VS Input Voltage



MODEL : RPS-75-24

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 240 mVp-p (Max)	I/P: 230VAC O/P:FULL LOAD Ta:25°C	V1: 23 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 22.8V~ 27.6V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	21.44 V~ 28.25 V/ 230 VAC 21.44 V~ 28.25 V/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 1 %~ -1 % (Max)	I/P: 100VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25°C	V1: 1.1 %~ -1.1 %	P
4	LINE REGULATION	V1: 0.5 %~ -0.5 % (Max)	I/P: 100VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0 %~ 0 %	P
5	LOAD REGULATION	V1: 1 %~ -1 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0.09 %~ -0.09 %	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/ 354 ms 115VAC/ 298 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/ 11 ms 115VAC/ 11 ms	P
8	HOLD UP TIME	230VAC: 80 ms (TYP) 115VAC: 20 ms (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 105 ms 115VAC/ 22.6 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: 2400 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	236 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	51 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	85 % (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	86.2 %	P
4	INPUT CURRENT	230V/ 1 A (TYP) 115V/ 1.5 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 0.73 A/ 230 VAC I = 1.34 A/ 115 VAC	P
5	INRUSH CURRENT	230V/ 50 A (TYP) 115V/ 25 A(TYP) COLD START	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 40 A/ 230 VAC I = 20 A/ 115 VAC	P
6	LEAKAGE CURRENT	< 200 uA / 264 VAC	I/P: 264 VAC O/P:Min LOAD Ta:25°C	L-FG: 119 uA N-FG: 119 uA	P
		< 100 uA/264 VAC for patient	I/P: 264 VAC O/P:Min LOAD Ta:25°C	L-FG: 43 uA N-FG 43 uA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	140%~ 180 %	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25°C	156%/ 230 VAC 148%/ 115 VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1: 27.6 V~ 32.4 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	29.5V/ 230 VAC 29.5V/ 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	0.7 W/240VAC	P
2	Remote sense	>0.3V	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	> 0.3 V	P

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																						
1	TEMPERATURE RISE TEST	MODEL : RPS-75-24 WITH FAN 1. ROOM AMBIENT BURN-IN : 1HRS I/P: 230VAC O/P: FULL LOAD Ta= 31 °C 2. HIGH AMBIENT BURN-IN : 2.5 HRS I/P: 230VAC O/P: FULL LOAD Ta= 60.7 °C <table><tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta= 31°C</th><th>HIGH AMBIENT Ta= 60.7°C</th></tr><tr><td>1</td><td>LF2</td><td>TR-719</td><td>47.0°C</td><td>75.9°C</td></tr><tr><td>2</td><td>BD1</td><td>US4K80 4A/800V SHI</td><td>45.4°C</td><td>74.7°C</td></tr><tr><td>3</td><td>C6</td><td>100U/400V NCC 105°C</td><td>36.6°C</td><td>65.7°C</td></tr><tr><td>4</td><td>C36</td><td>100U/50V NCC 105°C KY</td><td>39.4°C</td><td>68.4°C</td></tr><tr><td>5</td><td>T1 COIL</td><td>TF-1535 JSI</td><td>63.1°C</td><td>89.6°C</td></tr><tr><td>6</td><td>Q1</td><td>STP9NK70ZFP 7.5A/700V</td><td>48.2°C</td><td>79.6°C</td></tr><tr><td>7</td><td>ZD1</td><td>P6KE220A LT</td><td>50.2°C</td><td>77.8°C</td></tr><tr><td>8</td><td>D1</td><td>HER306 3A/600V REC</td><td>30.5°C</td><td>76.6°C</td></tr><tr><td>9</td><td>D100</td><td>FMX-12S 10A/200V SAN</td><td>51.5°C</td><td>78.3°C</td></tr><tr><td>10</td><td>C105</td><td>330U/35V NCC 105°C KY</td><td>39.0°C</td><td>66.5°C</td></tr><tr><td>11</td><td>R6</td><td>330Ω/3W R/MO</td><td>56.6°C</td><td>86.7°C</td></tr><tr><td>12</td><td>R3</td><td>68KΩ/2W R/MO</td><td>40.9°C</td><td>68.0°C</td></tr><tr><td>13</td><td>U1</td><td>NCP1230D165R2 ON</td><td>38.4°C</td><td>66.8°C</td></tr></table>			NO	Position	P/N	ROOM AMBIENT Ta= 31°C	HIGH AMBIENT Ta= 60.7°C	1	LF2	TR-719	47.0°C	75.9°C	2	BD1	US4K80 4A/800V SHI	45.4°C	74.7°C	3	C6	100U/400V NCC 105°C	36.6°C	65.7°C	4	C36	100U/50V NCC 105°C KY	39.4°C	68.4°C	5	T1 COIL	TF-1535 JSI	63.1°C	89.6°C	6	Q1	STP9NK70ZFP 7.5A/700V	48.2°C	79.6°C	7	ZD1	P6KE220A LT	50.2°C	77.8°C	8	D1	HER306 3A/600V REC	30.5°C	76.6°C	9	D100	FMX-12S 10A/200V SAN	51.5°C	78.3°C	10	C105	330U/35V NCC 105°C KY	39.0°C	66.5°C	11	R6	330Ω/3W R/MO	56.6°C	86.7°C	12	R3	68KΩ/2W R/MO	40.9°C	68.0°C	13	U1	NCP1230D165R2 ON	38.4°C	66.8°C	P
NO	Position	P/N	ROOM AMBIENT Ta= 31°C	HIGH AMBIENT Ta= 60.7°C																																																																							
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5	T1 COIL	TF-1535 JSI	63.1°C	89.6°C																																																																							
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13	U1	NCP1230D165R2 ON	38.4°C	66.8°C																																																																							
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 230 VAC O/P: 159 % LOAD Ta:25°C	TEST : OK	P																																																																						
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 230 VAC O/P:100 % LOAD Ta= -20°C	TEST : OK	P																																																																						
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTRO 60°C NO DAMAGE	I/P: 272 VAC O/P:FULL LOAD Ta= 60°C HUMIDITY= 95 %R.H	TEST : OK	P																																																																						
5	TEMPERATURE COEFFICIENT	± 0.03 %(0~50°C)	I/P: 230 VAC O/P:FULL LOAD	± 0.01 %(0~50°C)	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°C		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: 1.5 KVAC/min O/P-FG: 1.5 KVAC/min	I/P-O/P: 4.2 KVAC/min I/P-FG: 1.8 KVAC/min O/P-FG: 1.8 KVAC/min Ta:25°C	I/P-O/P: 2.18 mA I/P-FG: 1.39 mA O/P-FG: 1.44 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: 20 GΩ I/P-FG: 24 GΩ O/P-FG: 30 GΩ NO DAMAGE	P
3	APPROVAL	TUV: Certificate NO : TA 50096088 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 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab	P
3	RADIATION	EN55022 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	RPS-75-24 : SUPPOSE C105 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25°C LIFE TIME= 1101254 HRS I/P: 230VAC O/P:FULL LOAD Ta= 60°C LIFE TIME= 113398 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 446.8K HRS			P
3	ORT (Ongoing Reliability test)	I/P : 230VAC O/P : FULL LOAD TA=50°C Sample=20pcs TEST TIME=552HRS			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 STP9NK70Z : 700V 7.5A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Output Short Ta:25℃	(1) 628 V (2) 676 V	P
2	Diode Peak Voltage	D100 Rated FMX-12SL : 200V 10A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2)Output Short Ta:25℃	(1) 194 V (2) 183 V	P
3	Clamp Diode Peak Voltage	D1 Rated HER308 : 1000V 3A	I/P:High-Line +3V = 267 V O/P: (1) Dynamic Load 90%Duty/1KHz Ta:25℃	(1) 572 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) 376 V (2) 384 V (3) 384 V	P
5	Control IC Voltage Test	U1 Rated 1230D165 : 18 V (max)	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) 11.13 V (2) 9.53 V (3) 11.13 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2006/9/4	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2006/11/14	PRODUCT SAMPLE W0610A12	PASS	VINCENT TSENG	MAX LIN
2007/1/5	PRODUCT SAMPLE W0612B06	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023