



Features:

- Universal AC input / Full range
- Built-in active PFC function
- Protections: Short circuit / Overload / Over voltage / Over temperature
- 5"x3" compact size
- Free air convection for 100W and 145W with 20.5 CFM forced air
- With power good and fail signal output
- No load power consumption under 0.75W by PS-ON control (G model)
- Standby 5V@0.8A with fan, @0.6A without fan (G model)
- 3 years warranty

**G: With 5Vsb & no load power consumption < 0.75 W**      RPT **G** - 160A  
**Blank: Basic function (without 5Vsb)**

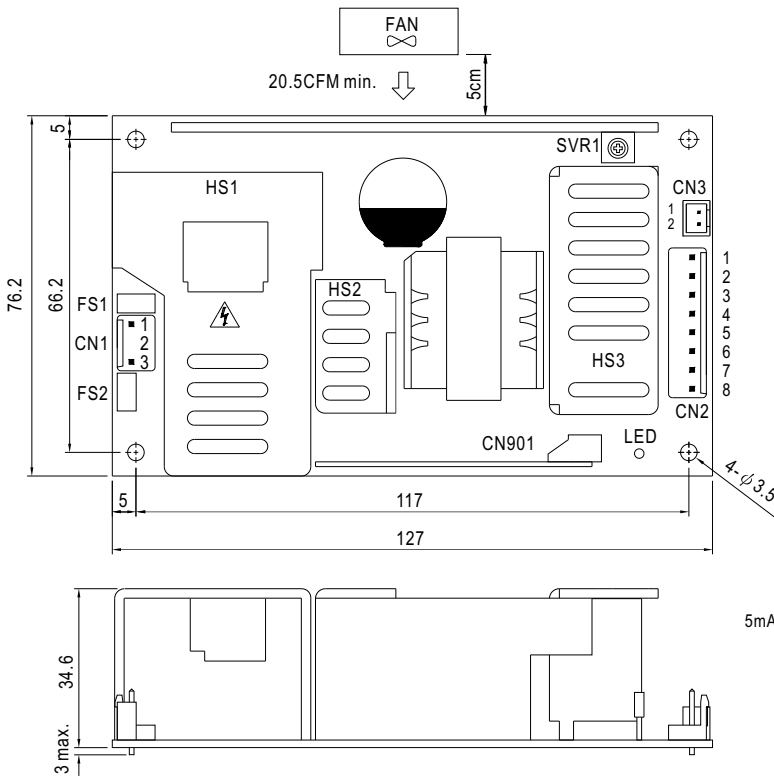


**SPECIFICATION**

| MODEL                                   | RPT□-160A   |            |              | RPT□-160B                        |            |            | RPT□-160C |            |            | RPT□-160D |            |             |  |  |  |
|---|---|------------|--------------|----------------------------------|------------|------------|-----------|------------|------------|-----------|------------|-------------|--|--|--|
| OUTPUT NUMBER                           | CH1   | CH2        | CH3          | CH1                              | CH2        | CH3        | CH1       | CH2        | CH3        | CH1       | CH2        | CH3         |  |  |  |
| <b>DC VOLTAGE</b>                       | 5V  | 12V        | -5V          | 5V                               | 12V        | -12V       | 5V        | 15V        | -15V       | 5V        | 12V        | 24V         |  |  |  |
| <b>RATED CURRENT (20.5CFM)</b>          | 14A   | 5.5A       | 1A           | 14A                              | 5A         | 1A         | 14A       | 3.6A       | 1A         | 11A       | 5A         | 1.2A        |  |  |  |
| <b>CURRENT RANGE (convection)</b>       | 0.6 ~ 9A  | 0.2 ~ 3.8A | 0.1 ~ 0.6A   | 0.6 ~ 9A                         | 0.2 ~ 3.4A | 0.1 ~ 0.8A | 0.6 ~ 9A  | 0.1 ~ 2.6A | 0.1 ~ 0.8A | 0.3 ~ 8A  | 0.2 ~ 2.6A | 0.15 ~ 1A   |  |  |  |
| <b>CURRENT RANGE (20.5CFM)</b>          | 0.6 ~ 14A   | 0.2 ~ 5.5A | 0.1 ~ 1A     | 0.6 ~ 14A                        | 0.2 ~ 5A   | 0.1 ~ 1A   | 0.6 ~ 14A | 0.1 ~ 3.6A | 0.1 ~ 1A   | 0.3 ~ 11A | 0.2 ~ 5A   | 0.15 ~ 1.2A |  |  |  |
| <b>RATED POWER (convection) Note.7</b>  | 98.6W   |            |              | 98.4W                            |            |            | 99W       |            |            | 98.2W     |            |             |  |  |  |
| <b>RATED POWER (20.5CFM) Note.8</b>     | 145W  |            |              | 146W                             |            |            | 143W      |            |            | 147.8W    |            |             |  |  |  |
| <b>RIPPLE &amp; NOISE (max.) Note.2</b> | 100mVp-p  | 120mVp-p   | 120mVp-p     | 100mVp-p                         | 120mVp-p   | 120mVp-p   | 100mVp-p  | 150mVp-p   | 150mVp-p   | 100mVp-p  | 120mVp-p   | 200mVp-p    |  |  |  |
| <b>VOLTAGE ADJ. RANGE</b>               | CH1:5 ~ 5.5V  |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>VOLTAGE TOLERANCE Note.3</b>         | ±2.0%   | ±5.0%      | -5,+7%       | ±2.0%                            | ±5.0%      | -4,+5%     | ±2.0%     | ±4.0%      | +8.0%      | ±2.0%     | ±5.0%      | +7,-5%      |  |  |  |
| <b>LINE REGULATION</b>                  | ±0.5%   | ±1.0%      | ±1.0%        | ±0.5%                            | ±1.0%      | ±1.0%      | ±0.5%     | ±1.0%      | ±1.0%      | ±0.5%     | ±1.0%      | ±1.0%       |  |  |  |
| <b>LOAD REGULATION</b>                  | ±1.5%   | ±3.0%      | -5,+6%       | ±1.5%                            | ±3.0%      | -4,+5%     | ±2.0%     | ±3.0%      | ±8.0%      | ±1.5%     | ±3.0%      | -3,+4%      |  |  |  |
| <b>SETUP, RISE TIME</b>                 | 1200ms, 30ms/230VAC   |            |              | 2500ms, 30ms/115VAC at full load |            |            |           |            |            |           |            |             |  |  |  |
| <b>HOLD UP TIME (Typ.)</b>              | 16ms/230VAC/115VAC at full load   |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>VOLTAGE RANGE Note.6</b>             | 90 ~ 264VAC   |            | 127 ~ 370VDC |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>FREQUENCY RANGE</b>                  | 47 ~ 63Hz   |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>POWER FACTOR (Typ.)</b>              | PF>0.93/230VAC  |            |              | PF>0.98/115VAC at full load      |            |            |           |            |            |           |            |             |  |  |  |
| <b>EFFICIENCY (Typ.)</b>                | 84%   |            |              | 84%                              |            |            | 83%       |            |            | 83%       |            |             |  |  |  |
| <b>AC CURRENT (Typ.)</b>                | 1.8A/115VAC   |            | 0.9A/230VAC  |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>INRUSH CURRENT (Typ.)</b>            | COLD START 35A/115VAC   |            |              | 70A/230VAC                       |            |            |           |            |            |           |            |             |  |  |  |
| <b>LEAKAGE CURRENT</b>                  | Earth leakage current <300uA / 264VAC, Patient leakage current <100uA/264VAC  |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>OVERLOAD</b>                         | 105 ~ 135% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed   |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>OVER VOLTAGE</b>                     | CH1: 5.75 ~ 6.75V<br>Protection type : Shut down o/p voltage, re-power on to recover  |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>OVER TEMPERATURE</b>                 | 105°C (TSW1) detect on heatsink of power transistor<br>90°C (TSW2) detect on heatsink of power transistor<br>Protection type : (TSW1) Shut down o/p voltage, recovers automatically after temperature goes down<br>Protection type : (TSW2) Shut down o/p voltage, re-power on to recover   |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>5V STANDBY (G model)</b>             | 5VSB : 5V@0.6A without fan, 0.8A with fan 20.5CFM ; tolerance ± 2%, ripple : 50mVp-p(max.)  |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>PS-ON INPUT SIGNAL (G model)</b>     | Power on: PS-ON = "Hi" or " > 2 ~ 5V" ; Power off: PS-ON = "Low" or " < 0 ~ 0.5V"   |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>POWER GOOD / POWER FAIL</b>          | 500ms>PG>10ms      PF>1ms   |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>WORKING TEMP.</b>                    | -20 ~ +70°C (Refer to output load derating curve)   |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>WORKING HUMIDITY</b>                 | 20 ~ 90% RH non-condensing  |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>STORAGE TEMP., HUMIDITY</b>          | -40 ~ +85°C, 10 ~ 95% RH  |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>TEMP. COEFFICIENT</b>                | ±0.03%/°C (0 ~ 50°C)  |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>VIBRATION</b>                        | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes  |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>SAFETY STANDARDS</b>                 | UL60601-1, TUV EN60601-1 approved   |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>WITHSTAND VOLTAGE</b>                | I/P-O/P:4KVAC    I/P-FG:1.5KVAC    O/P-FG:0.5KVAC   |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>ISOLATION RESISTANCE</b>             | I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH  |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>EMI CONDUCTION &amp; RADIATION</b>   | Compliance to EN55011 (CISPR11), EN55022 (CISPR22) Class B  |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>HARMONIC CURRENT</b>                 | Compliance to EN61000-3-2,-3  |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>EMS IMMUNITY</b>                     | Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, EN60601-1-2, EN61204-3, medical level, criteria A  |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>MTBF</b>                             | 191.4Khrs min.    MIL-HDBK-217F (25°C)  |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>DIMENSION</b>                        | 127*76.2*34.6mm (L*W*H)   |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>PACKING</b>                          | 0.33Kg; 36pcs/12.9Kg/0.79CUFT   |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |
| <b>NOTE</b>                             | <p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</p> <p>2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</p> <p>3. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>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.</p> <p>5. HS1,HS2 &amp; HS3 can not be shorted.</p> <p>6. Derating may be needed under low input voltages. Please check the derating curve for more details.</p> <p>7. The rated power includes 5Vsb @ 0.6A.</p> <p>8. The rated power includes 5Vsb @ 0.8A.</p> |            |              |                                  |            |            |           |            |            |           |            |             |  |  |  |

**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 | COM        | JST VHR or equivalent | JST SVH-21T-P1.1 or equivalent |
| 5,6     | CH1        |                       |                                |
| 7       | CH2        |                       |                                |
| 8       | CH3        |                       |                                |

Power Good Connector(CN3):JST B2B-XH or equivalent

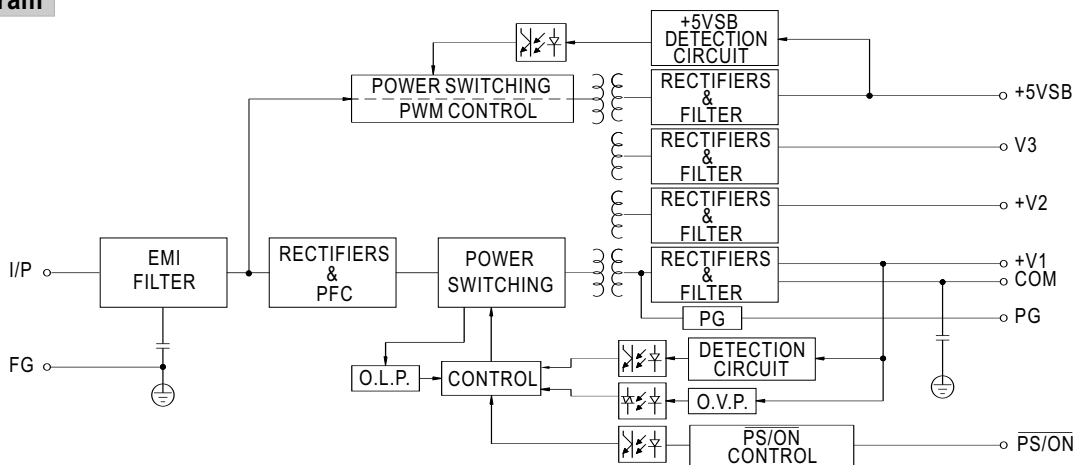
| Pin No. | Status | Mating Housing        | Terminal                        |
|---------|--------|-----------------------|---------------------------------|
| 1       | PG     | JST XHP or equivalent | JST SXH-001T-P0.6 or equivalent |
| 2       | GND    |                       |                                 |

5VSB Connector(CN901) : JST B-XH or equivalent

| Pin No. | Assignment | Mating Housing        | Terminal                   |
|---------|------------|-----------------------|----------------------------|
| 1       | PS/ON      | JST XHP or equivalent | JST SXH-001T or equivalent |
| 2,4     | GND        |                       |                            |
| 3       | 5VSB       |                       |                            |

⚠ HS1,HS2,HS3 can not be shorted

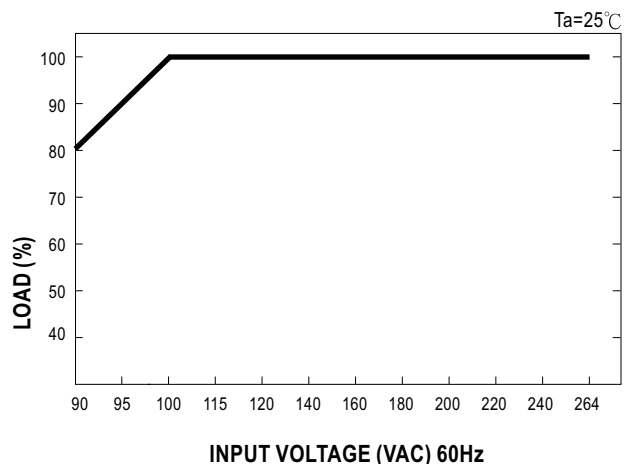
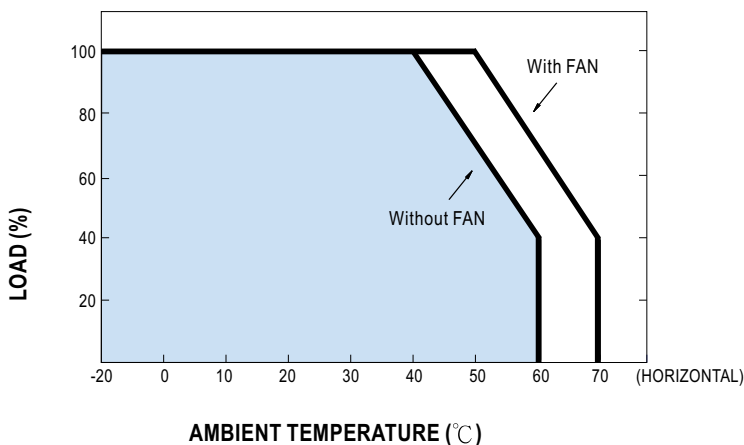
**Block Diagram**



fosc :100KHz

**Derating Curve**

**Output Derating VS Input Voltage**



MODEL : RPT-160D

## OUTPUT FUNCTION TEST

| NO | TEST ITEM                   | SPECIFICATION  | TEST CONDITION   | RESULT  | VERDICT |
|----|-----------------------------|--|--|---|---------|
| 1  | RIPPLE & NOISE              | V1 : 100 mVp-p (Max)<br>V2 : 120 mVp-p (Max)<br>V3 : 200 mVp-p (Max)     | I/P : 230VAC<br>O/P : FULL LOAD<br>Ta : 25°C   | V1 : 50.8 mVp-p (Max)<br>V2 : 64 mVp-p (Max)<br>V3 : 42 mVp-p (Max) | P       |
| 2  | OUTPUT VOLTAGE ADJUST RANGE | CH1 : 5 V- 5.5 V   | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : MIN LOAD<br>Ta : 25°C                          | 4.802 V- 5.620 V/ 230 VAC<br>4.805 V- 5.628 V/ 115 VAC              | P       |
| 3  | OUTPUT VOLTAGE TOLERANCE    | V1 : 2 %- -2 % (Max)<br>V2 : 5 %- -5 % (Max)<br>V3 : 7 %- -5 % (Max)     | I/P : 100 VAC / 264 VAC<br>O/P : FULL/ MIN LOAD<br>Ta : 25°C                           | V1 : 1.4 %- -1.4 %<br>V2 : 3.8 %- -3.8 %<br>V3 : 4.5 %- -4.5 %      | P       |
| 4  | LINE REGULATION             | V1 : 0.5 %- -0.5 % (Max)<br>V2 : 1 %- -1 % (Max)<br>V3 : 1 %- -1 % (Max) | I/P : 100 VAC ~ 264 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                | V1 : 0 %- 0 %<br>V2 : 0.15 %- -0.15 %<br>V3 : 0.63 %- -0.63 %       | P       |
| 5  | LOAD REGULATION             | V1 : 1.5 %- -1.5 % (Max)<br>V2 : 3 %- -3 % (Max)<br>V3 : 4 %- -3 % (Max) | I/P : 230 VAC<br>O/P : FULL -MIN LOAD<br>Ta : 25°C                                     | V1 : 0.5 %- -0.5 %<br>V2 : 0.8 %- -0.8 %<br>V3 : 2 %- -2 %          | P       |
| 6  | CROSS REGULATION            | V1 : 1.5 %- -1.5 % (Max)<br>V2 : 3 %- -3 % (Max)<br>V3 : 4 %- -3 % (Max) | I/P : 230 VAC<br>O/P : Testing O/P 60%LOAD<br>Other O/P 40%LOAD<br>Change<br>Ta : 25°C | V1 : 0.24 %- -0.24 %<br>V2 : 1.5 %- -1.5 %<br>V3 : 2.8 %- -1.5 %    | P       |
| 7  | SET UP TIME                 | 230VAC : 1200 ms (Max)<br>115 VAC : 2500 ms (Max)                        | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                         | 230VAC/ 924 ms<br>115VAC/ 1848 ms                                   | P       |
| 8  | RISE TIME                   | 230VAC : 30 ms (Max)<br>115VAC : 30 ms (Max)                             | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                         | 230VAC/ 6.8 ms<br>115VAC/ 6.6 ms                                    | P       |
| 9  | HOLD UP TIME                | 230VAC : 16 ms (TYP)<br>115VAC : 16 ms (TYP)                             | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                         | 230VAC/ 35 ms<br>115VAC/ 25 ms                                      | P       |
| 10 | OVER/UNDERSHOOT TEST        | < ±5%  | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C  | TEST : < 5 %  | P       |
| 11 | DYNAMIC LOAD                | V1 : 1000 mVp-p  | I/P : 230 VAC<br>O/P : FULL /Min LOAD<br>90%DUTY/1KHZ<br>Ta : 25°C                     | 63 mVp-p  | P       |

## INPUT FUNCTION TEST

| NO | TEST ITEM             | SPECIFICATION  | TEST CONDITION  | RESULT   | VERDICT |
|----|-----------------------|--|---|--|---------|
| 1  | INPUT VOLTAGE RANGE   | 90VAC-264 VAC  | I/P : TESTING<br>O/P : FULL LOAD<br>Ta : 25°C   | 72 V-264V  | P       |
|    |                       |  | I/P :<br>LOW-LINE-3V= 87 V<br>HIGH-LINE+15%=300 V<br>O/P : FULL/MIN LOAD<br>ON : 30 Sec . OFF : 30 Sec 10MIN<br>( AC POWER ON/OFF NO DAMAGE ) | TEST : OK  |         |
| 2  | INPUT FREQUENCY RANGE | 47HZ -63 HZ<br>NO DAMAGE OSC   | I/P : 100 VAC ~ 264 VAC<br>O/P : FULL-MIN LOAD<br>Ta : 25°C   | TEST : OK  | P       |
| 3  | POWER FACTOR          | 0.93 / 230 VAC(TYP)<br>0.98 / 115 VAC(TYP)                               | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C  | PF= 0.946 / 230 VAC<br>PF= 0.996 / 115 VAC   | P       |
| 4  | EFFICIENCY            | 83% (TYP)  | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C   | 84 %   | P       |
| 5  | INPUT CURRENT         | 230V/ 0.9 A (TYP)<br>115V/ 1.8 A (TYP)                                   | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C  | I = 0.77 A/ 230 VAC<br>I = 1.52 A/ 115 VAC   | P       |
| 6  | INRUSH CURRENT        | 230V/ 70 A (TYP)<br>115V/ 35 A (TYP)<br>COLD START                       | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C  | I = 68 A/ 230 VAC<br>I = 34 A/ 115 VAC   | P       |
| 7  | LEAKAGE CURRENT       | EARTH LEAKAGE<br>CURRENT<300 uA<br><br>PATIENT LEAKAGE<br>CURRENT<100 uA | I/P : 264 VAC<br>O/P : Min LOAD<br>Ta : 25°C  | FOR EARTH :<br>L-FG : 132.9 uA<br>N-FG : 132.9 uA<br><br>FOR PATIENT<br>L-FG : 82.1 uA<br>N-FG : 81.9 uA | P       |

## PROTECTION FUNCTION TEST

| NO | TEST ITEM                   | SPECIFICATION   | TEST CONDITION  | RESULT  | VERDICT |
|----|-----------------------------|---|---|---|---------|
| 1  | OVER LOAD PROTECTION        | 105 %~ 135 %  | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : TESTING<br>Ta : 25°C  | 115 %/ 230 VAC<br>116 %/ 115 VAC<br>Hiccup Mode   | P       |
| 2  | OVER VOLTAGE PROTECTION     | CH1 : 5.75 V~ 6.75 V  | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : MIN LOAD<br>Ta : 25°C | 6.34 V/ 230 VAC<br>6.33 V/ 115 VAC<br>Shut down Re- power ON  | P       |
| 3  | OVER TEMPERATURE PROTECTION | SPEC :<br>TSW1 : 105 ± 5°C detect on heatsink of power transistor<br><br>TSW2 : 90 ± 5°C detect on heatsink of power transistor<br><br>Protection type :<br>TSW1 : Shut down o/p voltage, recovers automatically after temperature goes down<br>TSW2 : Shut down o/p voltage, re-power on to recover<br><br>NO DAMAGE | I/P : 230 VAC<br>O/P : FULL LOAD                              | O.T.P. Active<br>TSW1 : Shut down o/p voltage, recovers automatically after temperature goes down<br><br>TSW2 : Shut down o/p voltage, re-power on to recover | P       |
| 4  | SHORT PROTECTION            | SHORT EVERY OUTPUT<br>1 HOUR NO DAMAGE  | I/P : 264 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                 | NO DAMAGE<br>Hiccup Mode  | P       |

## CONTROL FUNCTION TEST

| NO | TEST ITEM         | SPECIFICATION      | TEST CONDITION   | RESULT                             | VERDICT |
|----|-------------------|--------------------|--|------------------------------------|---------|
| 1  | POWER GOOD SIGNAL | DELAY 10ms ~ 500ms | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C | 83 ms/ 230 VAC<br>83 ms/ 115 VAC   | P       |
| 2  | POWER FAIL SIGNAL | > 1ms              | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C | 8.3 ms/ 230 VAC<br>8.1 ms/ 115 VAC | P       |

## ENVIRONMENT TEST

| NO | TEST ITEM   | SPECIFICATION   | TEST CONDITION   | RESULT             | VERDICT |
|----|---|---|--|--------------------|---------|
| 1  | TEMPERATURE RISE TEST   | MODEL : RPT-160A WITH FAN<br>1. ROOM AMBIENT BURN-IN : 1 HRS<br>I/P : 230VAC O/P : FULL LOAD Ta= 26.7 °C<br>2. HIGH AMBIENT BURN-IN : 1 HRS<br>I/P : 230VAC O/P : FULL LOAD Ta= 50.7 °C                 |  |                    | P       |
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|    |   |   |  |                    |         |
| 2  | OVER LOAD BURN-IN TEST  | NO DAMAGE<br>1 HOUR ( MIN )   | I/P : 230 VAC<br>O/P : 120 % LOAD<br>Ta : 25°C                     | TEST : OK          |         |
| 3  | LOW TEMPERATURE<br>TURN ON TEST                                   | TURN ON AFTER 2 HOUR  | I/P : 230 VAC<br>O/P : 100 % LOAD<br>Ta= -25 °C                    | TEST : OK          | P       |
| 4  | HIGH HUMIDITY<br>HIGH TEMPERATURE<br>HIGH VOLTAGE<br>TURN ON TEST | AFTER 12 HOURS<br>IN CHAMBER ON<br>CONTROL 50 °C<br>NO DAMAGE   | I/P : 272 VAC<br>O/P : FULL LOAD<br>Ta= 50 °C<br>HUMIDITY= 95 %R.H | TEST : OK          | P       |
| 5  | TEMPERATURE<br>COEFFICIENT  | ± 0.03 % (0~50°C)   | I/P : 230 VAC<br>O/P : FULL LOAD                                   | ± 0.008 % (0~50°C) | P       |
| 6  | VIBRATION TEST  | 1 Carton & 1 Set<br>(1) Waveform : Sine Wave<br>(2) Frequency : 10~500Hz<br>(3) Sweep Time : 10min/sweep cycle<br>(4) Acceleration : 2G<br>(5) Test Time : 1 hour in each axis (X.Y.Z)<br>(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<br>I/P-FG : 1.5 KVAC/min<br>O/P-FG : 0.5 KVAC/min   | I/P-O/P : 4.2 KVAC/min<br>I/P-FG : 1.8 KVAC/min<br>O/P-FG : 0.6 KVAC/min<br>Ta : 25°C | I/P-O/P : 1.730 mA<br>I/P-FG : 2.332 mA<br>O/P-FG : 0.215 mA<br>NO DAMAGE | P       |
| 2  | ISOLATION RESISTANCE | I/P-O/P : 500VDC>100MΩ<br>I/P-FG : 500VDC>100MΩ<br>O/P-FG : 500VDC>100MΩ | I/P-O/P : 500 VDC<br>I/P-FG : 500 VDC<br>O/P-FG : 500 VDC<br>Ta : 25°C /70%RH         | I/P-O/P : 30 GΩ<br>I/P-FG : 30 GΩ<br>O/P-FG : 30 GΩ<br>NO DAMAGE          | P       |
| 3  | GROUNDING CONTINUITY | FG(PE) TO CHASSIS<br>OR TRACE < 100 mΩ                                   | 40 A / 2min<br>Ta : 25°C / 70%RH  | 9 mΩ  | P       |
| 4  | APPROVAL             | TUV : Certificate NO :<br>UL : File NO :                                 |   |   | N/A     |

### E.M.C TEST

| NO | TEST ITEM                                   | SPECIFICATION  | TEST CONDITION   | RESULT                        | VERDICT |
|----|---|--|--|-------------------------------|---------|
| 1  | HARMONIC                                    | EN61000-3-2<br>CLASS A<br>CLASS D                    | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25°C       | PASS                          | P       |
| 2  | CONDUCTION                                  | EN55022 EN55011<br>CLASS B                           | I/P : 230 VAC (50HZ)<br>O/P : FULL/50% LOAD<br>Ta : 25°C | PASS<br>Test by certified Lab | P       |
| 3  | RADIATION                                   | EN55022 EN55011<br>CLASS B                           | I/P : 230 VAC (50HZ)<br>O/P : FULL LOAD<br>Ta : 25°C     | PASS<br>Test by certified Lab | P       |
| 4  | E.S.D                                       | EN61000-4-2<br>MEDICAL<br>AIR : 8KV / Contact : 6KV  | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25°C       | CRITERIA A                    | P       |
| 5  | E.F.T                                       | EN61000-4-4<br>MEDICAL<br>INPUT : 2KV                | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25°C       | CRITERIA A                    | P       |
| 6  | SURGE                                       | IEC61000-4-5<br>MEDICAL<br>L-N : 1KV<br>L,N-PE : 2KV | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>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<br>LIFE CYCLE | RPT-160A WITH FAN : SUPPOSE<br>I/P : 230VAC O/P : FULL LOAD<br>I/P : 230VAC O/P : FULL LOAD | C 105 IS THE MOST CRITICAL COMPONENT<br>Ta= 25 °C LIFE TIME= 201640 HRS<br>Ta= 50 °C LIFE TIME= 26809 HRS |        | P       |
| 2  | MTBF                    | MIL-HDBK-217F NOTICES2 PARTS COUNT<br>TOTAL FAILURE RATE : 191.4KHRS                        |   |        | P       |

COMPONENT STRESS TEST

| NO | TEST ITEM   | SPECIFICATION   | TEST CONDITION  | RESULT   | VERDICT |
|----|---|---|---|--|---------|
| 1  | Power Transistor<br>(D to S) or (C to E) Peak Voltage | Q3 Rated<br>2SK3568 12A/500V  | I/P : High-Line +3V = 267 V<br>O/P : (1)Full Load Turn on<br>(2) Output Short<br>Ta : 25°C  | (1) 416 V<br>(2) 420 V   | P       |
| 2  | Diode Peak Voltage                                    | Q101 Rated<br>IRL3103PbF 64A/30V<br><br>D200 Rated<br>STPS2045CT 20A/45V<br><br>D300 Rated<br>FME-220B 20A/150V | I/P : High-Line +3V = 267 V<br>O/P : (1)Full Load Turn on<br>(2)Output Short<br>Ta : 25°C   | (1) 25 V<br>(2) 24.2 V<br><br>(1) 40.2 V<br>(2) 39.8 V<br><br>(1) 87.6 V<br>(2) 66.4 V | P       |
| 3  | Input Capacitor Voltage                               | C5 Rated<br>120u/420V 105°C   | I/P : High-Line +3V = 267 V<br>O/P : (1)Full Load Turn on /Off<br>(2) Min load Turn on /Off<br>(3)Full Load /Min load Change<br>Ta : 25°C | (1) 382.9 V<br>(2) 384.1 V<br>(3) 384 V  | P       |
| 4  | Control IC Voltage Test                               | U 1 Rated<br>FAN4801 : 12V-30V  | I/P : High-Line +3V = 267 V<br>O/P : (1)Full Load Turn on /Off<br>(2) Min load Turn on /Off<br>(3)Full Load /Min load Change<br>Ta : 25°C | (1) 14.423 V<br>(2) 14.439 V<br>(3) 14.467 V   | P       |
| 5  | P.F.C Transistor<br>(D to S) or (C to E) Peak Voltage | Q1 Rated<br>IRFP460A 20A/500V   | I/P : High-Line +3V = 267 V<br>O/P : (1)Full Load Turn on<br>(2) Output Short<br>Ta : 25°C  | (1) 476 V<br>(2) 412 V   | P       |

| DATE      | SAMPLE                     | TEST RESULT | TESTER     | APPROVAL      |
|-----------|----------------------------|-------------|------------|---------------|
| 2009/1/10 | RD SAMPLE                  | PASS        | SANFORD SU | VINCENT TSENG |
| 2009/6/16 | PRODUCT SAMPLE<br>W0901A22 | PASS        | SANFORD SU | VINCENT TSENG |

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