



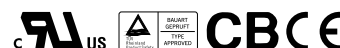
### 125W Dual Output Switching Power Supply

### RD-125 series



#### ■ Features :

- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- LED indicator for power on
- 100% full load burn-in test
- All using 105°C long life electrolytic capacitors
- Withstand 300VAC surge input for 5 second
- High operating temperature up to 70°C
- Withstand 5G vibration test
- High efficiency, long life and high reliability
- 3 years warranty



#### SPECIFICATION

| MODEL                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | RD-125A                                                                                                                 |           | RD-125B          |          |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-----------|------------------|----------|
| OUTPUT                   | OUTPUT NUMBER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | CH1                                                                                                                     | CH2       | CH1              | CH2      |
|                          | DC VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5V                                                                                                                      | 12V       | 5V               | 24V      |
|                          | RATED CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 7.7A                                                                                                                    | 7.7A      | 4.6A             | 4.6A     |
|                          | CURRENT RANGE <small>Note.6</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2 ~ 15A                                                                                                                 | 0.5 ~ 10A | 2 ~ 10A          | 0.4 ~ 5A |
|                          | RATED POWER <small>Note.6</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 130.9W                                                                                                                  |           | 133.4W           |          |
|                          | RIPPLE & NOISE (max.) <small>Note.2</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 80mVp-p                                                                                                                 | 120mVp-p  | 80mVp-p          | 120mVp-p |
|                          | VOLTAGE ADJ. RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CH1: 4.75 ~ 5.5V                                                                                                        |           | CH1: 4.75 ~ 5.5V |          |
|                          | VOLTAGE TOLERANCE <small>Note.3</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ±5.0%                                                                                                                   | ±7.0%     | ±5.0%            | ±7.0%    |
|                          | LINE REGULATION <small>Note.4</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ±1.0%                                                                                                                   | ±2.0%     | ±1.0%            | ±2.0%    |
|                          | LOAD REGULATION <small>Note.5</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ±3.0%                                                                                                                   | ±4.0%     | ±3.0%            | ±4.0%    |
|                          | SETUP, RISE TIME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 500ms, 20ms/230VAC      1200ms, 30ms/115VAC at full load                                                                |           |                  |          |
|                          | HOLD UP TIME (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 25ms/230VAC      30ms/115VAC at full load                                                                               |           |                  |          |
| INPUT                    | VOLTAGE RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 88 ~ 132VAC / 176 ~ 264VAC selected by switch      248 ~ 373VDC(Withstand 300VAC surge for 5sec. Without damage)        |           |                  |          |
|                          | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 47 ~ 63Hz                                                                                                               |           |                  |          |
|                          | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 82%                                                                                                                     |           | 85%              |          |
|                          | AC CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3A/115VAC      2A/230VAC                                                                                                |           |                  |          |
|                          | INRUSH CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | COLD START 40A/230VAC                                                                                                   |           |                  |          |
|                          | LEAKAGE CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <2mA / 240VAC                                                                                                           |           |                  |          |
| PROTECTION               | OVERLOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 110 ~ 150% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed |           |                  |          |
|                          | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | CH1: 5.75 ~ 6.75V<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed             |           |                  |          |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                         |           |                  |          |
| ENVIRONMENT              | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | -25 ~ +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 ~ 50℃) on CH1 output                                                                                        |           |                  |          |
|                          | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 10 ~ 500Hz, 5G 10min./1cycle, period for 60min. each along X, Y, Z axes                                                 |           |                  |          |
| SAFETY & EMC<br>(Note 7) | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | UL60950-1, TUV EN60950-1 approved                                                                                       |           |                  |          |
|                          | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | I/P-O/P:3KVAC    I/P-FG:1.5KVAC    O/P-FG:0.5KVAC                                                                       |           |                  |          |
|                          | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC                                                                                |           |                  |          |
|                          | EMI CONDUCTION & RADIATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Compliance to 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, EN61000-6-2 (EN50082-2), heavy industry level, criteria A             |           |                  |          |
| OTHERS                   | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 232.4Khrs min.    MIL-HDBK-217F (25℃)                                                                                   |           |                  |          |
|                          | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 199*98*38mm (L*W*H)                                                                                                     |           |                  |          |
|                          | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0.7Kg; 20pcs/15Kg/0.8CUFT                                                                                               |           |                  |          |
| NOTE                     | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation.<br>4. Line regulation is measured from low line to high line at rated load.<br>5. Load regulation is measured from 20% to 100% rated load, and other output at 60% rated load.<br>6. Each output can work within current range. But total output power can't exceed rated output power.<br>7. 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.<br>8. Length of set up time is measured at cold first start. Turning ON/OFF the power supply very quickly may lead to increase of the set up time. |                                                                                                                         |           |                  |          |



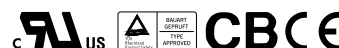
### 125W Dual Output Switching Power Supply

### RD-125 series



#### ■ Features :

- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- LED indicator for power on
- 100% full load burn-in test
- All using 105°C long life electrolytic capacitors
- Withstand 300VAC surge input for 5 second
- High operating temperature up to 70°C
- Withstand 5G vibration test
- High efficiency, long life and high reliability
- 3 years warranty



#### SPECIFICATION

| MODEL                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | RD-125-1224                                                                                                             |          | RD-125-1248       |            | RD-125-2448       |            |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------|-------------------|------------|-------------------|------------|
| OUTPUT                   | OUTPUT NUMBER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | CH1                                                                                                                     | CH2      | CH1               | CH2        | CH1               | CH2        |
|                          | DC VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 12V                                                                                                                     | 24V      | 12V               | 48V        | 24V               | 48V        |
|                          | RATED CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3.7A                                                                                                                    | 3.7A     | 2.3A              | 2.3A       | 2A                | 2A         |
|                          | CURRENT RANGE     Note.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1 ~ 7A                                                                                                                  | 0.4 ~ 5A | 1 ~ 7A            | 0.2 ~ 2.5A | 0.5 ~ 4A          | 0.2 ~ 2.5A |
|                          | RATED POWER     Note.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 133.2W                                                                                                                  |          | 138W              |            | 144W              |            |
|                          | RIPPLE & NOISE (max.) Note.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 120mVp-p                                                                                                                | 200mVp-p | 120mVp-p          | 240mVp-p   | 200mVp-p          | 240mVp-p   |
|                          | VOLTAGE ADJ. RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CH1: 11.4 ~ 13.2V                                                                                                       |          | CH1: 11.4 ~ 13.2V |            | CH1: 22.8 ~ 26.4V |            |
|                          | VOLTAGE TOLERANCE Note.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ±2.0%                                                                                                                   | +8,-5%   | ±2.0%             | +8,-5%     | ±1.0%             | ±4.0%      |
|                          | LINE REGULATION     Note.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ±0.5%                                                                                                                   | ±1.0%    | ±0.5%             | ±1.0%      | ±0.5%             | ±1.0%      |
|                          | LOAD REGULATION     Note.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ±1.0%                                                                                                                   | ±5.0%    | ±1.0%             | ±5.0%      | ±1.0%             | ±3.0%      |
|                          | SETUP, RISE TIME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 500ms, 20ms/230VAC     1200ms, 30ms/115VAC at full load                                                                 |          |                   |            |                   |            |
| HOLD UP TIME (Typ.)      | 25ms/230VAC     30ms/115VAC at full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                         |          |                   |            |                   |            |
| INPUT                    | VOLTAGE RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 88 ~ 132VAC / 176 ~ 264VAC selected by switch     248 ~ 373VDC(Withstand 300VAC surge for 5sec. Without damage)         |          |                   |            |                   |            |
|                          | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 47 ~ 63Hz                                                                                                               |          |                   |            |                   |            |
|                          | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 85%                                                                                                                     |          | 86%               |            | 86%               |            |
|                          | AC CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3A/115VAC     2A/230VAC                                                                                                 |          |                   |            |                   |            |
|                          | INRUSH CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | COLD START 40A/230VAC                                                                                                   |          |                   |            |                   |            |
|                          | LEAKAGE CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <2mA / 240VAC                                                                                                           |          |                   |            |                   |            |
| PROTECTION               | OVERLOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 110 ~ 150% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed |          |                   |            |                   |            |
|                          | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | CH1: 13.8 ~ 16.2V                                                                                                       |          | CH1: 13.8 ~ 16.2V |            | CH1: 27.6 ~ 32.4V |            |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Protection type : Hiccup mode, recovers automatically after fault condition is removed                                  |          |                   |            |                   |            |
| ENVIRONMENT              | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | -25 ~ +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 ~ 50℃) on CH1 output                                                                                        |          |                   |            |                   |            |
|                          | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 10 ~ 500Hz, 5G 10min./1cycle, period for 60min. each along X, Y, Z axes                                                 |          |                   |            |                   |            |
| SAFETY & EMC<br>(Note 7) | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | UL60950-1, TUV EN60950-1 approved                                                                                       |          |                   |            |                   |            |
|                          | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | I/P-O/P:3KVAC    I/P-FG:1.5KVAC    O/P-FG:0.5KVAC                                                                       |          |                   |            |                   |            |
|                          | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC                                                                                |          |                   |            |                   |            |
|                          | EMI CONDUCTION & RADIATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Compliance to 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, EN61000-6-2 (EN50082-2), heavy industry level, criteria A             |          |                   |            |                   |            |
| OTHERS                   | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 218.2Khrs min.    MIL-HDBK-217F (25℃)                                                                                   |          |                   |            |                   |            |
|                          | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 199*98*38mm (L*W*H)                                                                                                     |          |                   |            |                   |            |
|                          | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0.7Kg; 20pcs/15Kg/0.8CUFT                                                                                               |          |                   |            |                   |            |
| NOTE                     | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation.<br>4. Line regulation is measured from low line to high line at rated load.<br>5. Load regulation is measured from 20% to 100% rated load, and other output at 60% rated load.<br>6. Each output can work within current range. But total output power can't exceed rated output power.<br>7. 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.<br>8. Length of set up time is measured at cold first start. Turning ON/OFF the power supply very quickly may lead to increase of the set up time. |                                                                                                                         |          |                   |            |                   |            |



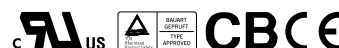
### 125W Dual Output Switching Power Supply

### RD-125 series



#### ■ Features :

- Protections: Short circuit/Overload/Over voltage
- Cooling by free air convection
- LED indicator for power on
- 100% full load burn-in test
- All using 105°C long life electrolytic capacitors
- Withstand 300VAC surge input for 5 second
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- Withstand 5G vibration test
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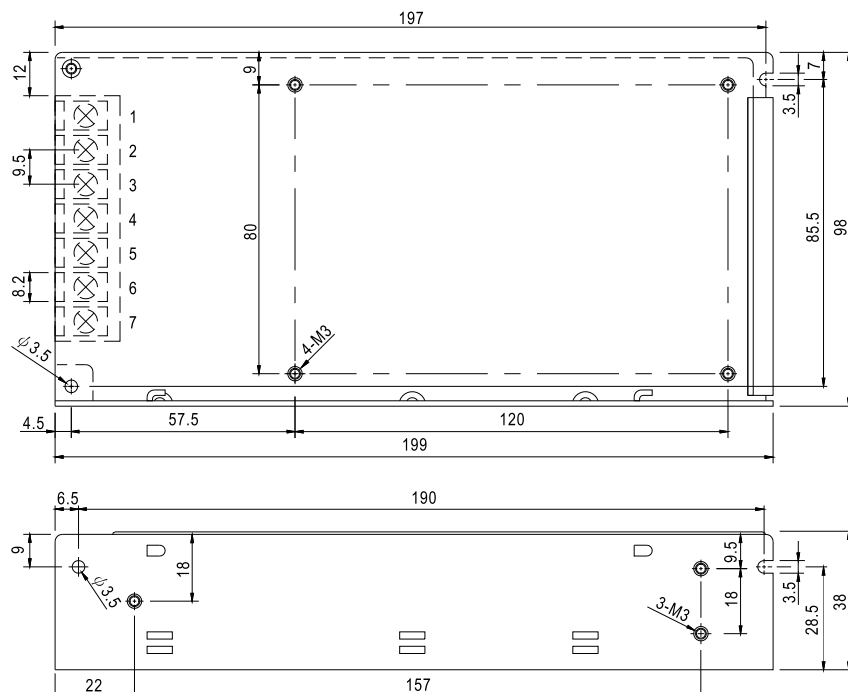


#### SPECIFICATION

| MODEL                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | RD-125-2412                                                                                                             |          | RD-125-4812       |          | RD-125-4824       |          |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------|-------------------|----------|-------------------|----------|
| OUTPUT                   | OUTPUT NUMBER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | CH1                                                                                                                     | CH2      | CH1               | CH2      | CH1               | CH2      |
|                          | DC VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 24V                                                                                                                     | 12V      | 48V               | 12V      | 48V               | 24V      |
|                          | RATED CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3.7A                                                                                                                    | 3.7A     | 2.3A              | 2.3A     | 2A                | 2A       |
|                          | CURRENT RANGE     Note.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.5 ~ 5A                                                                                                                | 1 ~ 7A   | 0.3 ~ 2.5A        | 1 ~ 7A   | 0.3 ~ 2.5A        | 0.5 ~ 4A |
|                          | RATED POWER       Note.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 133.2W                                                                                                                  |          | 138W              |          | 144W              |          |
|                          | RIPPLE & NOISE (max.) Note.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 200mVp-p                                                                                                                | 120mVp-p | 240mVp-p          | 120mVp-p | 240mVp-p          | 240mVp-p |
|                          | VOLTAGE ADJ. RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CH1: 22.8 ~ 26.4V                                                                                                       |          | CH1: 45.6 ~ 52.8V |          | CH1: 45.6 ~ 52.8V |          |
|                          | VOLTAGE TOLERANCE Note.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ±2.0%                                                                                                                   | ±10%     | ±2.0%             | ±10%     | ±1.0%             | ±8.0%    |
|                          | LINE REGULATION   Note.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ±0.5%                                                                                                                   | ±1.0%    | ±0.5%             | ±1.0%    | ±0.5%             | ±1.0%    |
|                          | LOAD REGULATION   Note.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ±1.0%                                                                                                                   | ±5.0%    | ±1.0%             | ±5.0%    | ±1.0%             | ±5.0%    |
| SETUP, RISE TIME         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 500ms, 20ms/230VAC     1200ms, 30ms/115VAC at full load                                                                 |          |                   |          |                   |          |
| HOLD UP TIME (Typ.)      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 25ms/230VAC     30ms/115VAC at full load                                                                                |          |                   |          |                   |          |
| INPUT                    | VOLTAGE RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 88 ~ 132VAC / 176 ~ 264VAC selected by switch     248 ~ 373VDC(Withstand 300VAC surge for 5sec. Without damage)         |          |                   |          |                   |          |
|                          | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 47 ~ 63Hz                                                                                                               |          |                   |          |                   |          |
|                          | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 85%                                                                                                                     |          | 86%               |          | 86%               |          |
|                          | AC CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3A/115VAC     2A/230VAC                                                                                                 |          |                   |          |                   |          |
|                          | INRUSH CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | COLD START 40A/230VAC                                                                                                   |          |                   |          |                   |          |
|                          | LEAKAGE CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <2mA / 240VAC                                                                                                           |          |                   |          |                   |          |
| PROTECTION               | OVERLOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 110 ~ 150% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed |          |                   |          |                   |          |
|                          | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | CH1: 27.6 ~ 32.4V                                                                                                       |          | CH1: 55.2 ~ 64.8V |          | CH1: 55.2 ~ 64.8V |          |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Protection type : Hiccup mode, recovers automatically after fault condition is removed                                  |          |                   |          |                   |          |
| ENVIRONMENT              | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | -25 ~ +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 ~ 50℃) on CH1 output                                                                                        |          |                   |          |                   |          |
|                          | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 10 ~ 500Hz, 5G 10min./1cycle, period for 60min. each along X, Y, Z axes                                                 |          |                   |          |                   |          |
| SAFETY & EMC<br>(Note 7) | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | UL60950-1, TUV EN60950-1 approved                                                                                       |          |                   |          |                   |          |
|                          | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | I/P-O/P:3KVAC   I/P-FG:1.5KVAC   O/P-FG:0.5KVAC                                                                         |          |                   |          |                   |          |
|                          | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC                                                                                |          |                   |          |                   |          |
|                          | EMI CONDUCTION & RADIATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Compliance to 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, EN61000-6-2 (EN50082-2), heavy industry level, criteria A             |          |                   |          |                   |          |
| OTHERS                   | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 232.4Khrs min.    MIL-HDBK-217F (25℃)                                                                                   |          |                   |          |                   |          |
|                          | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 199*98*38mm (L*W*H)                                                                                                     |          |                   |          |                   |          |
|                          | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0.7Kg; 20pcs/15Kg/0.8CUFT                                                                                               |          |                   |          |                   |          |
| NOTE                     | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation.<br>4. Line regulation is measured from low line to high line at rated load.<br>5. Load regulation is measured from 20% to 100% rated load, and other output at 60% rated load.<br>6. Each output can work within current range. But total output power can't exceed rated output power.<br>7. 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.<br>8. Length of set up time is measured at cold first start. Turning ON/OFF the power supply very quickly may lead to increase of the set up time. |                                                                                                                         |          |                   |          |                   |          |

## ■ Mechanical Specification

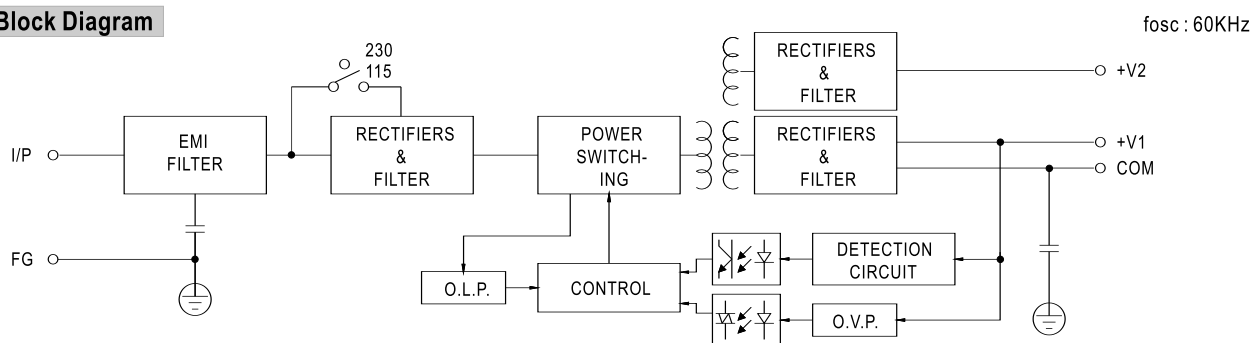
Case No. 902A Unit:mm



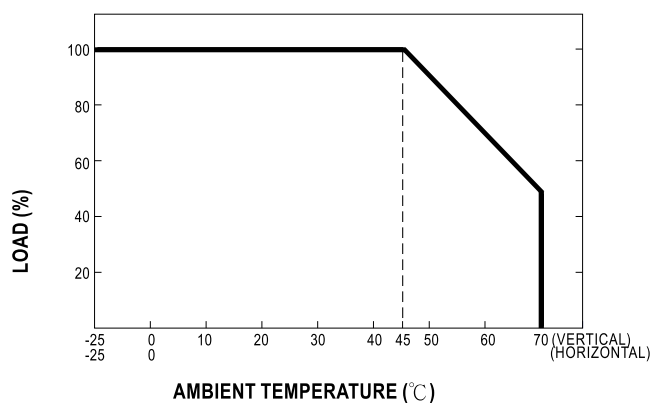
### Terminal Pin No. Assignment

| Pin No. | Assignment | Pin No. | Assignment    |
|---------|------------|---------|---------------|
| 1       | AC/L       | 4,6     | DC OUTPUT COM |
| 2       | AC/N       | 5       | DC OUTPUT +V2 |
| 3       | FG $\perp$ | 7       | DC OUTPUT +V1 |

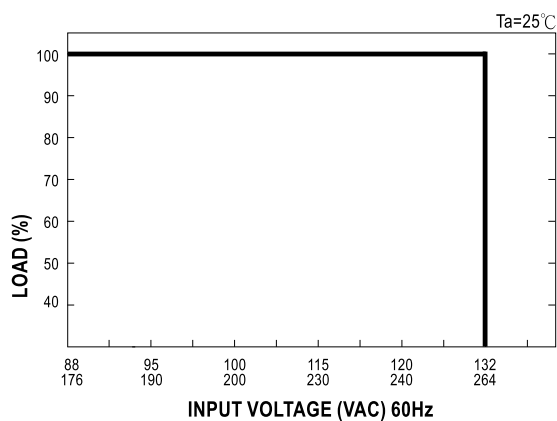
### ■ Block Diagram



### Derating Curve



## ■ Static Characteristics



MODEL : RD-125-4824

## OUTPUT FUNCTION TEST

| NO | TEST ITEM                      | SPECICATION                                     | TEST CONDITION                                                                     | RESULT                                            | VERDICT |
|----|--------------------------------|-------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------|---------|
| 1  | RIPPLE & NOISE                 | V1: 240 mVp-p (Max)<br>V2: 240 mVp-p (Max)      | I/P: 230 VAC<br>O/P:FULL LOAD<br>Ta:25°C                                           | V1: 30 mVp-p (Max)<br>V2: 12 mVp-p (Max)          | P       |
| 2  | OUTPUT VOLTAGE<br>ADJUST RANGE | CH1: 45.6 V~ 52.8 V                             | I/P: 230 VAC<br>I/P: 115 VAC<br>O/P:MIN LOAD<br>Ta:25°C                            | 44.29V~ 54.74 V/ 230VAC<br>44.29V~ 54.74 V/115VAC | P       |
| 3  | OUTPUT VOLTAGE<br>TOLERANCE    | V1: 1%~ -1 % (Max)<br>V2: 8 %~ -8 % (Max)       | I/P: 176 VAC / 264 VAC<br>O/P:FULL/ MIN 40 % LOAD<br>Ta:25°C                       | V1: 0.02 %~ -0.02 %<br>V2: 1.7 %~ -1.7 %          | P       |
| 4  | LINE REGULATION                | V1: 0.5%~ -0.5 % (Max)<br>V2: 1%~ -1 % (Max)    | I/P: 176 VAC ~ 264 VAC<br>O/P:FULL LOAD<br>Ta:25°C                                 | V1: 0.02 %~ -0.02 %<br>V2: 0.03 %~ -0.03 %        | P       |
| 5  | LOAD REGULATION                | V1: 1 %~ -1 % (Max)<br>V2: 5 %~ -5 % (Max)      | I/P: 230 VAC<br>O/P:FULL ~MIN LOAD<br>Ta:25°C                                      | V1: 0.02 %~ -0.02 %<br>V2: 0.3 %~ -0.3 %          | P       |
| 6  | CROSS REGULATION               | V1: 1 %~ -1 % (Max)<br>V2: 5 %~ -5 % (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 %~ -0 %<br>V2: 0.8 %~ -0.8 %                | P       |
| 7  | SET UP TIME                    | 230 VAC/ 500 ms (Max)<br>115 VAC/ 1200 ms (Max) | I/P: 230 VAC<br>I/P: 115 VAC<br>O/P:FULL LOAD<br>Ta:25°C                           | 230 VAC/ 193 ms<br>115 VAC/ 193 ms                | P       |
| 8  | RISE TIME                      | 230 VAC/ 20 ms (Max)<br>115 VAC/ 30 ms (Max)    | I/P: 230 VAC<br>I/P: 115 VAC<br>O/P:FULL LOAD<br>Ta:25°C                           | 230 VAC/ 11 ms<br>115 VAC/ 11 ms                  | P       |
| 9  | HOLD UP TIME                   | 230 VAC/ 30 ms(TYP)<br>115 VAC/ 22 ms (TYP)     | I/P: 230 VAC<br>I/P: 115 VAC<br>O/P:FULL LOAD<br>Ta:25°C                           | 230 VAC/ 35 ms<br>115 VAC/ 34 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: 4800 mVp-p                                  | I/P: 230 VAC<br>O/P:FULL /Min LOAD<br>90%DUTY/1KHZ<br>Ta:25°C                      | 578 mVp-p                                         | P       |

## INPUT FUNCTION TEST

| NO | TEST ITEM             | SPECIFICATION                        | TEST CONDITION                                                                                                                             | RESULT                                   | VERDICT |
|----|-----------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------|
| 1  | INPUT VOLTAGE RANGE   | 176VAC~264 VAC                       | I/P:TESTING<br>O/P:FULL LOAD<br>Ta:25°C                                                                                                    | 104 V~ 264 V                             | P       |
|    |                       |                                      | I/P:<br>LOW-LINE-3V= 173 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 | 47 HZ ~ 63 HZ<br>NO DAMAGE OSC       | I/P: 176 VAC ~ 264 VAC<br>O/P:FULL~MIN LOAD<br>Ta:25°C                                                                                     | TEST: OK                                 | P       |
| 3  | EFFICIENCY            | 86 % (TYP)                           | I/P: 230 VAC<br>O/P:FULL LOAD<br>Ta:25°C                                                                                                   | 86.8 %                                   | P       |
| 4  | INPUT CURRENT         | 230 V/ 2 A (TYP)<br>115 V/ 3 A (TYP) | I/P: 230 VAC<br>I/P: 115 VAC<br>O/P:FULL LOAD<br>Ta:25°C                                                                                   | I = 1.4 A/ 230 VAC<br>I = 2.5 A/ 115 VAC | P       |
| 5  | INRUSH CURRENT        | 230 V/ 50 A (TYP)<br>COLD START      | I/P: 230 VAC<br>O/P:FULL LOAD<br>Ta:25°C                                                                                                   | I = 27 A/ 230 VAC                        | P       |
| 6  | LEAKAGE CURRENT       | < 2 mA/240 VAC                       | I/P: 254 VAC<br>O/P:Min LOAD<br>Ta:25°C                                                                                                    | L-FG: 0.5 mA<br>N-FG: 0.5 mA             | P       |

## PROTECTION FUNCTION TEST

| NO | TEST ITEM               | SPECIFICATION                          | TEST CONDITION                                        | RESULT                                            | VERDICT |
|----|-------------------------|----------------------------------------|-------------------------------------------------------|---------------------------------------------------|---------|
| 1  | OVER LOAD PROTECTION    | 110 %~ 150 %                           | I/P: 230VAC<br>I/P: 115VAC<br>O/P:TESTING<br>Ta:25°C  | 140 %/ 230VAC<br>140 %/ 115VAC<br><br>Hiccup Mode | P       |
| 2  | OVER VOLTAGE PROTECTION | CH1: 55.2 V~ 64.8 V                    | I/P: 230VAC<br>I/P: 115VAC<br>O/P:MIN LOAD<br>Ta:25°C | 62.6 V/ 230 VAC<br>62.6 V/ 115VAC<br>Hiccup Model | P       |
| 3  | SHORT PROTECTION        | SHORT EVERY OUTPUT<br>1 HOUR NO DAMAGE | I/P: 264VAC<br>O/P: Full LOAD<br>Ta:25°C              | NO DAMAGE<br>Hiccup Mode                          | P       |



## ENVIRONMENT TEST

| NO | TEST ITEM                                                         | SPECIFICATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | TEST CONDITION                                                  | RESULT                 | VERDICT |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
|----|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|------------------------|---------|----------|-----|------------------------|------------------------|---|-----|--------|--------|--------|---|-----|--------------------|--------|--------|---|----|-------------------|--------|--------|---|----|--------------|--------|---------|---|----|---------------------|--------|--------|---|-----|--------------|--------|--------|---|----|----------------------|--------|--------|---|----|---------|--------|--------|---|---------|------------|--------|--------|----|-----|------------------------|--------|--------|----|-----|-----------------|--------|--------|----|-----|---------------------|--------|--------|----|-----|------------------------|--------|--------|----|-----|--------|--------|---------|----|-----|-----------------------|--------|--------|---|
| 1  | TEMPERATURE RISE TEST                                             | <div>MODEL : RD-125-1248</div> <div>1. ROOM AMBIENT BURN-IN : 1.5 HRS</div> <div>I/P: 230 VAC O/P: Full LOAD Ta= 29 °C</div> <div>2. HIGH AMBIENT BURN-IN : 4 HRS</div> <div>I/P: 230 VAC O/P: Full LOAD Ta= 49.2 °C</div> <table><thead><tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT<br/>Ta= °C</th><th>HIGH AMBIENT<br/>Ta= °C</th></tr></thead><tbody><tr><td>1</td><td>LF1</td><td>LF-058</td><td>51.1°C</td><td>69.2°C</td></tr><tr><td>2</td><td>BD1</td><td>RS606M 6A/800V REC</td><td>74.2°C</td><td>91.1°C</td></tr><tr><td>3</td><td>D1</td><td>UF2007 1KV/2A DII</td><td>77.7°C</td><td>95.4°C</td></tr><tr><td>4</td><td>R2</td><td>150K/2W R/MO</td><td>86.1°C</td><td>101.9°C</td></tr><tr><td>5</td><td>C6</td><td>330U/200V RUB 105°C</td><td>63.0°C</td><td>80.9°C</td></tr><tr><td>6</td><td>ZD1</td><td>P6KE300A PAN</td><td>74.9°C</td><td>92.4°C</td></tr><tr><td>7</td><td>Q1</td><td>2SK2082 9A/800V FUJI</td><td>76.7°C</td><td>93.8°C</td></tr><tr><td>8</td><td>U1</td><td>1203 ON</td><td>71.2°C</td><td>88.9°C</td></tr><tr><td>9</td><td>T1 COIL</td><td>TF-1144 LS</td><td>77.5°C</td><td>94.1°C</td></tr><tr><td>10</td><td>C10</td><td>100U/35V RUB 105°C YXF</td><td>63.3°C</td><td>80.4°C</td></tr><tr><td>11</td><td>D60</td><td>FMX12S 200V/10A</td><td>74.2°C</td><td>91.5°C</td></tr><tr><td>12</td><td>D55</td><td>FCF10A40 10A/400V N</td><td>75.9°C</td><td>97.3°C</td></tr><tr><td>13</td><td>C58</td><td>220U/63V RUB 105°C YXF</td><td>61.3°C</td><td>77.9°C</td></tr><tr><td>14</td><td>L60</td><td>TR-496</td><td>86.1°C</td><td>102.5°C</td></tr><tr><td>15</td><td>C62</td><td>470U/16V NCC 105°C KY</td><td>62.7°C</td><td>79.5°C</td></tr></tbody></table> |                                                                 |                        | NO      | Position | P/N | ROOM AMBIENT<br>Ta= °C | HIGH AMBIENT<br>Ta= °C | 1 | LF1 | LF-058 | 51.1°C | 69.2°C | 2 | BD1 | RS606M 6A/800V REC | 74.2°C | 91.1°C | 3 | D1 | UF2007 1KV/2A DII | 77.7°C | 95.4°C | 4 | R2 | 150K/2W R/MO | 86.1°C | 101.9°C | 5 | C6 | 330U/200V RUB 105°C | 63.0°C | 80.9°C | 6 | ZD1 | P6KE300A PAN | 74.9°C | 92.4°C | 7 | Q1 | 2SK2082 9A/800V FUJI | 76.7°C | 93.8°C | 8 | U1 | 1203 ON | 71.2°C | 88.9°C | 9 | T1 COIL | TF-1144 LS | 77.5°C | 94.1°C | 10 | C10 | 100U/35V RUB 105°C YXF | 63.3°C | 80.4°C | 11 | D60 | FMX12S 200V/10A | 74.2°C | 91.5°C | 12 | D55 | FCF10A40 10A/400V N | 75.9°C | 97.3°C | 13 | C58 | 220U/63V RUB 105°C YXF | 61.3°C | 77.9°C | 14 | L60 | TR-496 | 86.1°C | 102.5°C | 15 | C62 | 470U/16V NCC 105°C KY | 62.7°C | 79.5°C | P |
| NO | Position                                                          | P/N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ROOM AMBIENT<br>Ta= °C                                          | HIGH AMBIENT<br>Ta= °C |         |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
| 1  | LF1                                                               | LF-058                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 51.1°C                                                          | 69.2°C                 |         |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
| 2  | BD1                                                               | RS606M 6A/800V REC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 74.2°C                                                          | 91.1°C                 |         |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
| 3  | D1                                                                | UF2007 1KV/2A DII                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 77.7°C                                                          | 95.4°C                 |         |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
| 4  | R2                                                                | 150K/2W R/MO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 86.1°C                                                          | 101.9°C                |         |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
| 5  | C6                                                                | 330U/200V RUB 105°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 63.0°C                                                          | 80.9°C                 |         |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
| 6  | ZD1                                                               | P6KE300A PAN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 74.9°C                                                          | 92.4°C                 |         |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
| 7  | Q1                                                                | 2SK2082 9A/800V FUJI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 76.7°C                                                          | 93.8°C                 |         |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
| 8  | U1                                                                | 1203 ON                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 71.2°C                                                          | 88.9°C                 |         |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
| 9  | T1 COIL                                                           | TF-1144 LS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 77.5°C                                                          | 94.1°C                 |         |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
| 10 | C10                                                               | 100U/35V RUB 105°C YXF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 63.3°C                                                          | 80.4°C                 |         |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
| 11 | D60                                                               | FMX12S 200V/10A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 74.2°C                                                          | 91.5°C                 |         |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
| 12 | D55                                                               | FCF10A40 10A/400V N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 75.9°C                                                          | 97.3°C                 |         |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
| 13 | C58                                                               | 220U/63V RUB 105°C YXF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 61.3°C                                                          | 77.9°C                 |         |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
| 14 | L60                                                               | TR-496                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 86.1°C                                                          | 102.5°C                |         |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
| 15 | C62                                                               | 470U/16V NCC 105°C KY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 62.7°C                                                          | 79.5°C                 |         |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
| 2  | OVER LOAD BURN-IN TEST                                            | NO DAMAGE<br>1 HOUR ( MIN )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | I/P: 230 VAC<br>O/P: 122% LOAD<br>Ta:25°C                       | TEST : OK              | P       |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
| 3  | LOW TEMPERATURE<br>TURN ON TEST                                   | TURN ON AFTER 2 HOUR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | I/P: 230 VAC<br>O/P: 100 % LOAD<br>Ta= -20 °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                                    | ± 0.01 %(0~50°C)       | P       |          |     |                        |                        |   |     |        |        |        |   |     |                    |        |        |   |    |                   |        |        |   |    |              |        |         |   |    |                     |        |        |   |     |              |        |        |   |    |                      |        |        |   |    |         |        |        |   |         |            |        |        |    |     |                        |        |        |    |     |                 |        |        |    |     |                     |        |        |    |     |                        |        |        |    |     |        |        |         |    |     |                       |        |        |   |
| 6  | VIBRATION TEST                                                    | 1 Set Operating at I/P: 230 VAC NO LOAD<br>(1) Waveform: Sine Wave<br>(2) Frequency:10~500Hz<br>(3) Sweep Time:10min/sweep cycle<br>(4) Acceleration:5G<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: 3 KVAC/min<br>I/P-FG: 1.5 KVAC/min<br>O/P-FG: 0.5 KVAC/min | I/P-O/P: 3.6 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: 5.56 mA<br>I/P-FG: 5.56 mA<br>O/P-FG: 3.28 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                | I/P-O/P: 646M Ω<br>I/P-FG: 1G Ω<br>O/P-FG: 1G Ω<br>NO DAMAGE        | P       |
| 3  | GROUNDING CONTINUITY | FG(PE) TO CHASSIS<br>OR TRACE < 100 mΩ                              | 40 A / 2min<br>Ta:25°C                                                           | 7 mΩ                                                                | P       |
| 4  | APPROVAL             | TUV: Certificate NO : R50046942<br>UL: File NO : E183223            |                                                                                  |                                                                     | P       |

## E.M.C TEST

| NO | TEST ITEM                                   | SPECIFICATION                                      | TEST CONDITION                                      | RESULT                        | VERDICT |
|----|---------------------------------------------|----------------------------------------------------|-----------------------------------------------------|-------------------------------|---------|
| 1  | HARMONIC                                    | EN61000-3-2<br>CLASS A                             | I/P: 230 VAC/50HZ<br>O/P:FULL LOAD<br>Ta:25°C       | PASS                          | P       |
| 2  | CONDUCTION                                  | EN55022<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<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>INDUSTRY<br>AIR:8KV / Contact:4KV   | 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>INDUSTRY<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>INDUSTRY<br>L-N :2KV<br>L,N-PE:4KV | 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 &amp; LIFE CYCLE CALCULATION

| NO | TEST ITEM               | SPECICATION                                                                                                                                                           | TEST CONDITION | RESULT | VERDICT |
|----|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------|---------|
| 1  | CAPACITOR<br>LIFE CYCLE | SUPPOSE C62 IS THE MOST CRITICAL COMPONENT<br>I/P: 230 VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 212490 HRS<br>I/P: 230 VAC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 47544 HRS |                |        | P       |
| 2  | MTBF                    | MIL-HDBK-217F NOTICES2 PARTS COUNT<br>TOTAL FAILURE RATE: 218.2 K HRS                                                                                                 |                |        | P       |

| DATE       | SAMPLE                     | TEST RESULT | TESTER        | APPROVAL |
|------------|----------------------------|-------------|---------------|----------|
| 2004/6/7   | RD SAMPLE                  | PASS        | VINCENT TSENG | MAX LIN  |
| 2004/10/14 | PRODUCT SAMPLE<br>W0409C14 | PASS        | VINCENT TSENG | MAX LIN  |

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