



# Test Report: LRS-200-48

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200W Single Output Switching Power Supply

## ■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Component Stress Test

## ■ SAFETY TEST

## ■ RELIABILITY TEST

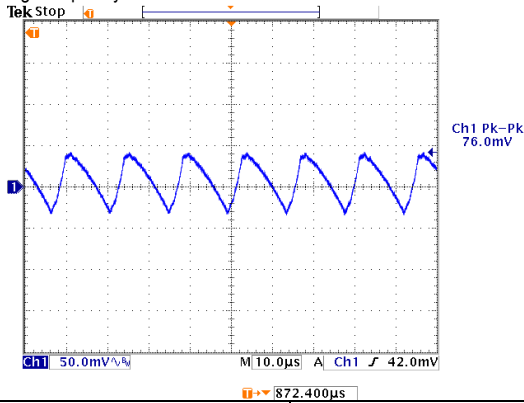
ENVIRONMENT TEST

## DESIGN VERIFY TEST

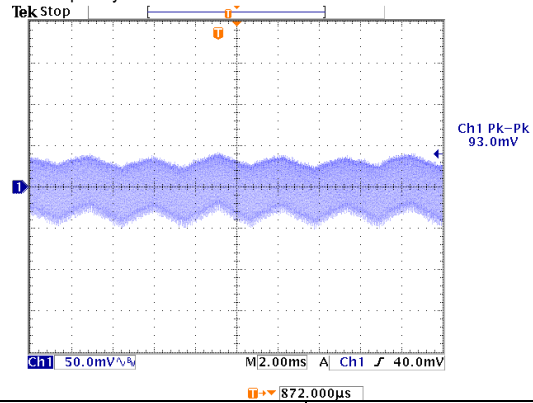
### OUTPUT FUNCTION TEST

| NO | TEST ITEM                     | SPECIFICATION     | TEST CONDITION  | RESULT   |
|----|-------------------------------|-------------------|---|--|
| 1  | OUTPUT VOLTAGE ADJUST RANGE   | CH1: 43.2~ 52.8V  | I/P: 230 VAC<br>I/P: 115 VAC<br>O/P: MIN LOAD<br>Ta: 25°C | 42.673V~56.184V/230VAC<br>42.612V~56.151V/115VAC |
| 2  | OUTPUT VOLTAGE(Max) TOLERANCE | V1: -1 %~ 1%      | I/P: 100VAC /264VAC<br>O/P:FULL/ MIN. LOAD<br>Ta:25°C     | V1:- 0.031 %~ 0.031%                             |
| 3  | LINE REGULATION (Max)         | V1: -0.5 %~ 0.5 % | I/P: 100VAC~ 264VAC<br>O/P:FULL LOAD<br>Ta:25°C           | V1: -0.031%~0.031%                               |
| 4  | LOAD REGULATION(Max)          | V1:-0.5 %~ 0.5 %  | I/P: 230VAC<br>O/P:FULL ~MIN LOAD<br>Ta:25°C              | V1:- 0.031%~ 0.031%                              |
| 5  | OVER/UNDERSHOOT TEST          | < ±5%             | I/P: 230VAC<br>O/P:FULL LOAD<br>Ta:25°C                   | <5%  |
| 6  | RIPPLE & NOISE(Max )          | V1: 200mVp-p      | I/P:230VAC<br>O/P:FULL LOAD<br>Ta:25°C                    | V1: 93mVp-p                                      |

high frequency :



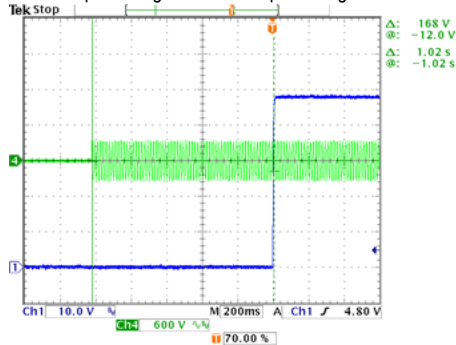
low frequency :



|   |                  |                                 |  |                                  |
|---|------------------|---------------------------------|--|----------------------------------|
| 7 | SET UP TIME(Max) | 230VAC/1300ms<br>115VAC/ 1300ms | I/P: 230 VAC<br>I/P: 115 VAC<br>O/P: FULL LOAD<br>Ta: 25°C | 230VAC/ 1024ms<br>115VAC/ 1040ms |
|---|------------------|---------------------------------|--|----------------------------------|

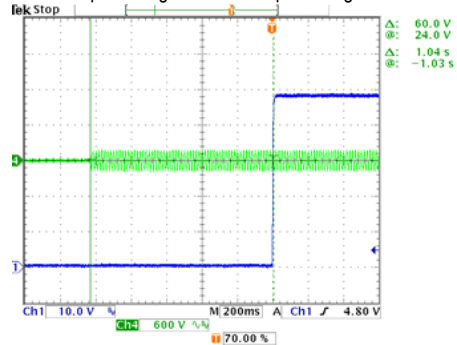
INPUT=230VAC/50HZ @ FULL LOAD

CH1 : Output Voltage CH4 : AC Input Voltage



INPUT=115VAC/60HZ @ FULL LOAD

CH1 : Output Voltage CH4 : AC Input Voltage





200W Single Output Switching Power Supply

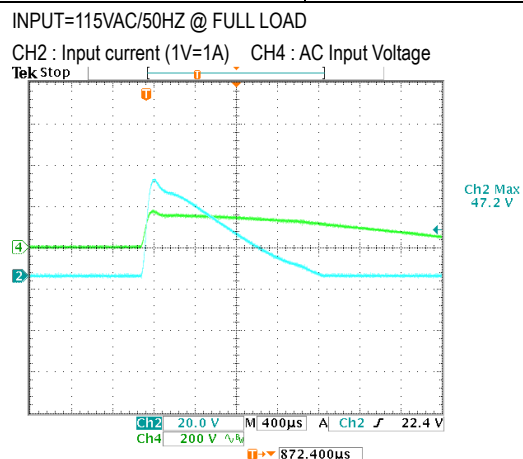
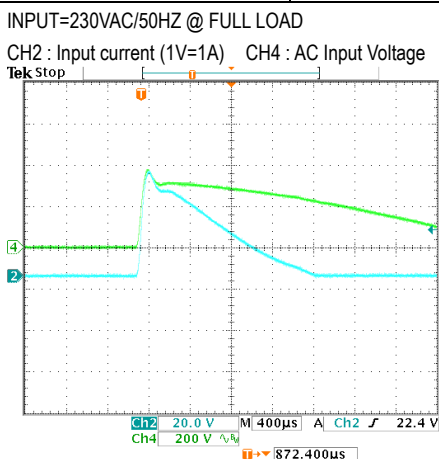
LRS-200series

|   |                    |   |   |                                  |
|---|--------------------|---|---|----------------------------------|
| 8   | RISE TIME (Max)    | 230VAC/ 50ms<br>115VAC/ 50ms                | I/P: 230 VAC<br>I/P: 115 VAC<br>O/P: FULL LOAD<br>Ta: 25°C  | 230VAC/5.20ms<br>115VAC/5.20ms   |
| INPUT=230VAC/50HZ @ FULL LOAD               |                    | INPUT=115VAC/60HZ @ FULL LOAD               |   |                                  |
| CH1 : Output Voltage                        |                    | CH1 : Output Voltage                        |   |                                  |
|   |                    |   |   |                                  |
| 9   | HOLD UP TIME(Typ ) | 230VAC/ 16ms<br>115VAC/ 12ms                | I/P: 230 VAC<br>I/P: 115 VAC<br>O/P: FULL LOAD<br>Ta: 25°C  | 230VAC/ 28.0ms<br>115VAC/ 23.6ms |
| INPUT=230VAC/50HZ @ FULL LOAD               |                    | INPUT=115VAC/60HZ @ FULL LOAD               |   |                                  |
| CH1 : Output Voltage CH4 : AC Input Voltage |                    | CH1 : Output Voltage CH4 : AC Input Voltage |   |                                  |
|   |                    |   |   |                                  |
| 10  | DYNAMIC LOAD       | V1: 4800mVp-p                               | I/P: 230VAC<br>O/P:<br>(1)FULL /50% LOAD 50%DUTY / 120HZ<br>(2)FULL /50% LOAD 50%DUTY / 1KHZ<br>Ta:25°C | 568mVp-p<br>464mVp-p             |
| FULL /50% LOAD 50%DUTY / 120HZ              |                    | FULL /50% LOAD 50%DUTY / 1KHZ               |   |                                  |
|   |                    |   |   |                                  |



INPUT FUNCTION TEST

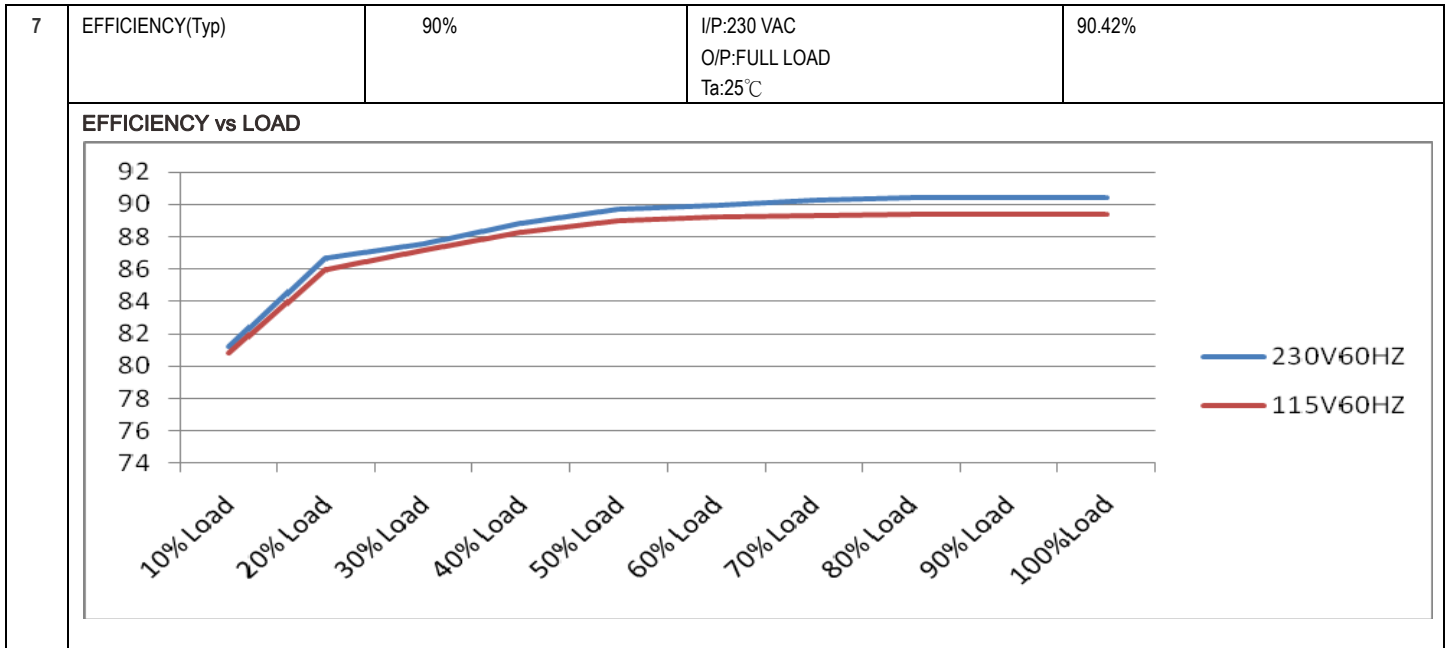
| NO | TEST ITEM             | SPECIFICATION                        | TEST CONDITION  | RESULT                               |
|----|-----------------------|--------------------------------------|---|--------------------------------------|
| 1  | INPUT VOLTAGE RANGE   | 90VAC~132VAC<br>180VAC~264VAC        | I/P:TESTING<br>O/P:FULL LOAD<br>Ta:25°C   | 81V~132V<br>167V~264V                |
|    |                       | 240VDC~370VDC (switch on 230VAC)     | I/P:<br>(1)LOW-LINE-3V=87 V<br>HIGH-LINE+15%=300 V<br>O/P:FULL/MIN LOAD<br>ON: 30 Sec OFF: 30 Sec 10MIN<br>(2)230Vac<br>ON: 0.5 Sec OFF: 0.5 Sec 20MIN<br>(3)230Vac<br>ON:3Sec OFF:3Sec 12HOURS<br>(POWER ON/OFF NO DAMAGE) | TEST:OK                              |
| 2  | INPUT FREQUENCY RANGE | 47HZ ~63 HZ<br>NO DAMAGE             | I/P:170 VAC ~264 VAC<br>O/P:FULL~MIN LOAD<br>Ta:25°C  | TEST: OK                             |
| 3  | INPUT CURRENT (Typ)   | 230V/ 2.2A<br>115V/ 4A               | I/P: 230 VAC<br>I/P: 115 VAC<br>O/P: FULL LOAD<br>Ta: 25°C  | I =2.02A/ 230VAC<br>I =3.70A/ 115VAC |
| 4  | LEAKAGE CURRENT       | < 2 mA / 240 VAC                     | I/P: 240 VAC<br>O/P: Min LOAD<br>Ta: 25°C   | L-FG: 0.495mA<br>N-FG: 0.495mA       |
| 5  | NO LOAD CONSUMPTION   | < 0.75 W                             | I/P: 115VAC<br>I/P: 230VAC<br>O/P: NO LOAD<br>Ta: 25°C  | < 0.73W<br>< 0.68W                   |
| 6  | INRUSH CURRENT(Typ)   | 230V/ 60A<br>115V/ 60A<br>COLD START | I/P: 230 VAC<br>I/P: 115 VAC<br>O/P: FULL LOAD<br>Ta: 25°C  | I =50.8A/ 230VAC<br>I =47.2A/ 115VAC |





200W Single Output Switching Power Supply

LRS-200series



**PROTECTION FUNCTION TEST**

| NO | TEST ITEM                   | SPECIFICATION                          | TEST CONDITION   | RESULT  |
|----|-----------------------------|--|--|---|
| 1  | OVER LOAD PROTECTION        | 110 %~ 140 %                           | I/P: 230VAC<br>I/P: 115VAC<br>O/P: TESTING<br>Ta:25°C  | 128.18%/ 230VAC<br>126.13%/115VAC<br>Shut down and latch off o/p voltage,<br>re-power on to recover |
| 2  | OVER VOLTAGE PROTECTION     | CH: 55.2 V~ 64.8 V                     | I/P: 230VAC<br>I/P: 115VAC<br>O/P: MIN LOAD<br>Ta:25°C | 60.5V/ 230VAC<br>61.3V/115VAC<br>Shut down and latch off o/p voltage,<br>re-power on to recover     |
| 3  | OVER TEMPERATURE PROTECTION | NO DAMAGE                              | I/P: 230 VAC<br>O/P: FULL LOAD                         | O.T.P. Active<br>Shut down and latch off o/p voltage,<br>re-power on to recover                     |
| 4  | 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>Shut down and latch off o/p voltage,<br>re-power on to recover                         |

## COMPONENT STRESS TEST

| NO | TEST ITEM  | SPECIFICATION   | TEST CONDITION   | RESULT   |
|----|--|---|--|--|
| 1  | PWM Transistor<br>(D to S) or (C to E) <b>Peak Voltage</b> | Q 1 Rated<br>13A/600V                                 | I/P:High-Line +3V =267V<br>O/P: (1)Full Load Turn on<br>(2)Dynamic Load 100% Load/<br>Min. Load 90%Duty/5KHz<br>(2)Dynamic Load 100% Load/<br>Min. Load 50%Duty/120Hz<br>Ta:25°C | (1)426V<br>(2)430V<br>(3)428V                                  |
| 2  | <b>Diode Peak Voltage</b>                                  | Q102 Rated<br>20 A/300V<br><br>Q103 Rated<br>10A/400V | I/P:High-Line +3V =267 V<br>O/P: (1)Full Load input on/off<br>(2)Output Short<br>Ta:25°C   | Q101:<br>(1)154V<br>(2)243V<br><br>Q103:<br>(1)326V<br>(2)334V |
| 3  | <b>Input Capacitor Voltage</b>                             | C5 Rated:<br>330 μ / 200V                             | I/P:High-Line +3V =267 V<br>O/P: (1)Full Load input on/off<br>(2) Min load input on /Off<br>(3)Full Load /Min load Change<br>Ta:25°C   | (1)178V<br>(2)178V<br>(3)180V                                  |
| 4  | <b>Control IC Voltage Test</b>                             | PWM IC U1 Rated<br>28 V (MAX.)<br>10V (MIN.)          | I/P:High-Line +3V =267 V<br>O/P: (1)Full Load input on/off<br>(2) Output short<br>(3)No load VR (min)<br>Ta:25°C   | U1<br>(1) 20.5V<br>(2) 19.6V<br>(3) 20.1V                      |

## SAFETY TEST

| NO | TEST ITEM            | SPECIFICATION   | TEST CONDITION  | RESULT  |
|----|----------------------|---|---|---|
| 1  | WITHSTAND VOLTAGE    | I/P-O/P: 3KVAC/min<br>I/P-FG :2KVAC/min<br>O/P-FG:0.5KVAC/min       | I/P-O/P: 3.6 KVAC/min<br>I/P-FG: 2.4 KVAC/min<br>O/P-FG:0.6 KVAC/min<br>Ta:25°C | I/P-O/P: 2.43mA<br>I/P-FG: 3.33mA<br>O/P-FG:2.66 m A<br>NO DAMAGE |
| 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: 9999MΩ<br>I/P-FG: 9999MΩ<br>O/P-FG: 9999MΩ<br>NO DAMAGE  |
| 3  | GROUNDING CONTINUITY | FG(PE) TO CHASSIS<br>OR TRACE < 100 mΩ                              | 40A / 2min<br>Ta:25°C   | 24 mΩ   |

## RELIABILITY TEST

### ENVIRONMENT TEST

| NO | TEST ITEM   | SPECIFICATION   | TEST CONDITION   | RESULT  |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
|----|---|---|--|---|----|----------|--------------------------|-------------------------|---|----|--------|--------|---|-----|--------|--------|---|-----|--------|--------|---|-----|--------|--------|---|----|--------|--------|---|----|--------|--------|---|----|--------|--------|---|----|--------|--------|---|----|--------|--------|----|--------|--------|---------|----|------|--------|---------|----|------|--------|---------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|---------|
| 1  | TEMPERATURE RISE TEST   | MODEL: LRS-200-24<br>1. ROOM AMBIENT BURN-IN: 2 HRS<br>I/P: 230VAC O/P: FULL LOAD Ta=24.6°C<br>2. HIGH AMBIENT BURN-IN: 2 HRS<br>I/P: 230VAC O/P: FULL LOAD Ta=48.6°C   |  |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
|    |   |   |  | <table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 24.6 °C</th> <th>HIGH AMBIENT Ta=40.8 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>U1</td><td>58.3°C</td><td>79.7°C</td></tr> <tr><td>2</td><td>LF1</td><td>50.5°C</td><td>73.3°C</td></tr> <tr><td>3</td><td>BD1</td><td>54.0°C</td><td>75.8°C</td></tr> <tr><td>4</td><td>C36</td><td>62.8°C</td><td>86.5°C</td></tr> <tr><td>5</td><td>C5</td><td>59.3°C</td><td>80.1°C</td></tr> <tr><td>6</td><td>C6</td><td>60.1°C</td><td>80.6°C</td></tr> <tr><td>7</td><td>T2</td><td>59.2°C</td><td>81.1°C</td></tr> <tr><td>8</td><td>Q1</td><td>64.5°C</td><td>88.4°C</td></tr> <tr><td>9</td><td>Q2</td><td>60.4°C</td><td>83.9°C</td></tr> <tr><td>10</td><td>T1coil</td><td>85.4°C</td><td>108.6°C</td></tr> <tr><td>11</td><td>RTH3</td><td>79.2°C</td><td>102.2°C</td></tr> <tr><td>12</td><td>L100</td><td>84.3°C</td><td>108.8°C</td></tr> <tr><td>13</td><td>C106</td><td>49.5°C</td><td>73.9°C</td></tr> <tr><td>14</td><td>Q102</td><td>68.0°C</td><td>89.7°C</td></tr> <tr><td>15</td><td>Q103</td><td>71.7°C</td><td>93.7°C</td></tr> <tr><td>16</td><td>C201</td><td>56.7°C</td><td>80.2°C</td></tr> <tr><td>17</td><td>C200</td><td>64.6°C</td><td>88.1°C</td></tr> <tr><td>18</td><td>L101</td><td>65.9°C</td><td>88.5°C</td></tr> <tr><td>19</td><td>RTH1</td><td>86.7°C</td><td>106.9°C</td></tr> </tbody> </table> | NO | Position | ROOM AMBIENT Ta= 24.6 °C | HIGH AMBIENT Ta=40.8 °C | 1 | U1 | 58.3°C | 79.7°C | 2 | LF1 | 50.5°C | 73.3°C | 3 | BD1 | 54.0°C | 75.8°C | 4 | C36 | 62.8°C | 86.5°C | 5 | C5 | 59.3°C | 80.1°C | 6 | C6 | 60.1°C | 80.6°C | 7 | T2 | 59.2°C | 81.1°C | 8 | Q1 | 64.5°C | 88.4°C | 9 | Q2 | 60.4°C | 83.9°C | 10 | T1coil | 85.4°C | 108.6°C | 11 | RTH3 | 79.2°C | 102.2°C | 12 | L100 | 84.3°C | 108.8°C | 13 | C106 | 49.5°C | 73.9°C | 14 | Q102 | 68.0°C | 89.7°C | 15 | Q103 | 71.7°C | 93.7°C | 16 | C201 | 56.7°C | 80.2°C | 17 | C200 | 64.6°C | 88.1°C | 18 | L101 | 65.9°C | 88.5°C | 19 | RTH1 | 86.7°C | 106.9°C |
| NO | Position  | ROOM AMBIENT Ta= 24.6 °C  | HIGH AMBIENT Ta=40.8 °C  |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 1  | U1  | 58.3°C  | 79.7°C   |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 2  | LF1   | 50.5°C  | 73.3°C   |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 3  | BD1   | 54.0°C  | 75.8°C   |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 4  | C36   | 62.8°C  | 86.5°C   |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 5  | C5  | 59.3°C  | 80.1°C   |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 6  | C6  | 60.1°C  | 80.6°C   |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 7  | T2  | 59.2°C  | 81.1°C   |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 8  | Q1  | 64.5°C  | 88.4°C   |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 9  | Q2  | 60.4°C  | 83.9°C   |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 10 | T1coil  | 85.4°C  | 108.6°C  |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 11 | RTH3  | 79.2°C  | 102.2°C  |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 12 | L100  | 84.3°C  | 108.8°C  |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 13 | C106  | 49.5°C  | 73.9°C   |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 14 | Q102  | 68.0°C  | 89.7°C   |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 15 | Q103  | 71.7°C  | 93.7°C   |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 16 | C201  | 56.7°C  | 80.2°C   |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 17 | C200  | 64.6°C  | 88.1°C   |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 18 | L101  | 65.9°C  | 88.5°C   |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 19 | RTH1  | 86.7°C  | 106.9°C  |   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 2  | OVER LOAD BURN-IN TEST  | NO DAMAGE<br>1 HOUR ( MIN )   | I/P: 230 VAC<br>O/P: 125% LOAD<br>Ta: 25°C                       | TEST: OK  |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 3  | LOW TEMPERATURE<br>TURN ON TEST                                   | TURN ON AFTER 2 HOUR  | I/P: 264VAC/100VAC<br>O/P: 100 %LOAD<br>Ta= -25 °C               | TEST: OK  |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 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  |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 5  | TEMPERATURE<br>COEFFICIENT  | ± 0.03 %/°C (0~50°C)  | I/P: 230 VAC<br>O/P: FULL LOAD                                   | ±0.005%/°C (0~50°C)   |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |
| 6  | STORAGE TEMPERATURE TEST  | 1. Thermal shock Temperature : -45°C~ +90°C<br>2. Temperature change rate : 25°C / MIN<br>3. Dwell time low and high temperature : 30 MIN/EACH<br>4. Total test cycle : 5 CYCLE<br>5. Input/Output condition : STATIC |  | OK  |    |          |                          |                         |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |    |        |        |         |    |      |        |         |    |      |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |         |



## 200W Single Output Switching Power Supply

# LRS-200series

|    |                             |   |   |
|----|-----------------------------|---|---|
| 7  | THERMAL SHOCK TEST          | 1. Thermal shock Temperature : -25°C~ 70°C<br>2. Temperature change rate : 25°C / MIN<br>3. Dwell time low and high temperature : 30 MIN/EACH<br>4. Total test cycle : 10 CYCLE<br>5. Input/Output condition : 230VAC/Full Load AC ON/OFF TEST<br>turn on 58sec ; turn off 2sec | OK  |
| 8  | VIBRATION TEST              | 1 Carton & 1 Set<br>(1) Waveform: Sine Wave<br>(2) Frequency: 10~500Hz<br>(3) Sweep Time: 10min/sweep cycle<br>(4) Acceleration: 5G<br>(5) Test Time: 60min in each axis (X.Y.Z)<br>(6) Ta: 25°C  | TEST: OK  |
| 9  | CAPACITOR LIFE CYCLE        | SUPPOSE C106 IS THE MOST CRITICAL COMPONENT<br>(1) I/P: 230VAC O/P: FULL LOAD Ta= 25 °C LIFE TIME<br>(2) I/P: 230VAC O/P: FULL LOAD Ta=50 °C LIFE TIME<br>(3) I/P: 230VAC O/P: 75% LOAD Ta= 50 °C LIFE TIME<br>(4) I/P: 230VAC O/P: 50% LOAD Ta= 50 °C LIFE TIME                | (1) 553675HRS<br>(2) 93919HRS<br>(3) 138388HRS<br>(4) 183951HRS |
| 10 | MTBF                        | MIL-HDBK-217F<br>TOTAL FAILURE RATE: 347.5KHRS  |   |
| 11 | DMTBF/Accelerated Life Test | Demonstration Mean Time Between Failure (Expected Life): Above 30,000 hours @ TA 50°C   |   |

| TEST RESULT | TESTER | APPROVAL |
|-------------|--------|----------|
| PASS        | FRANK  | WANGDZ   |