



# Test Report: PCD-25-1050A

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25W Single Output AC Dimmable LED Power Supply

## ■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Component Stress Test

## ■ SAFETY & E.M.C. TEST

Safety Test

E.M.C. Test

## ■ RELIABILITY TEST

ENVIRONMENT TEST

## DESIGN VERIFY TEST

### OUTPUT FUNCTION TEST

| NO | TEST ITEM               | SPECIFICATION          | TEST CONDITION                                | RESULT                                   | VERDICT |
|----|-------------------------|------------------------|-----------------------------------------------|------------------------------------------|---------|
| 1  | RIPPLE & NOISE          | V1 : 2.2 Vp-p (Max )   | I/P : 115VAC<br>O/P : FULL LOAD<br>Ta : 25°C  | V1 : 1.45 Vp-p (Max )                    | P       |
| 2  | SET UP TIME             | 115VAC : 2000 ms (Max) | I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C | 115VAC/ 818 ms                           | P       |
| 3  | OPERATING VOLTAGE RANGE | 16V~24V                | I/P : 115VAC<br>O/P : CV MODE<br>Ta : 25°C    | O/P= 16V : 1.052 A<br>O/P= 23V : 1.052 A | P       |
| 4  | OVER/UNDERSHOOT TEST    | < 35V                  | I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C | TEST : <35 V                             | P       |

### INPUT FUNCTION TEST

| NO | TEST ITEM             | SPECIFICATION                           | TEST CONDITION                                                                                                                                 | RESULT                                    | VERDICT |
|----|-----------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|---------|
| 1  | INPUT VOLTAGE RANGE   | 90VAC~135 VAC                           | I/P : TESTING<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                  | 76 V~135V                                 | P       |
|    |                       |                                         | I/P :<br>LOW-LINE-3V= 177 V<br>HIGH-LINE+15%=300 V<br>O/P : FULL/MIN LOAD<br>ON : 30 Sec . OFF : 30 Sec 10MIN<br>( AC POWER ON/OFF NO DAMAGE ) | TEST : OK                                 |         |
| 2  | INPUT FREQUENCY RANGE | 47HZ ~63 HZ<br>NO DAMAGE OSC            | I/P : 90 VAC ~ 135 VAC<br>O/P : FULL~MIN LOAD<br>Ta : 25°C                                                                                     | TEST : OK                                 | P       |
| 3  | POWER FACTOR          | 0.9 / 115 VAC(TYP)<br>0.9 / 90 VAC(TYP) | I/P : 115 VAC (FULL LOAD)<br>I/P : 90 VAC (FULL LOAD)<br>O/P : FULL LOAD<br>Ta : 25°C                                                          | PF= 0.969 / 115 VAC<br>PF= 0.986 / 90 VAC | P       |
| 4  | EFFICIENCY            | 80.5 % (TYP)                            | I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                  | 85.09 %                                   | P       |
| 5  | INPUT CURRENT         | 115V/ 0.6 A (TYP)                       | I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                  | I= 0.26 A/ 115 VAC                        | P       |
| 6  | INRUSH CURRENT        | 115V/ 40 A (TYP)<br>COLD START          | I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                  | I= 7 A/ 115 VAC                           | P       |
| 7  | LEAKAGE CURRENT       | < 0.5 mA / 120 VAC                      | I/P : 120 VAC<br>O/P : Min LOAD<br>Ta : 25°C                                                                                                   | L-CASE : 0.01 mA<br>N-CASE : 0.01 mA      | P       |

## PROTECTION FUNCTION TEST

| NO | TEST ITEM                   | SPECIFICATION                                                                                    | TEST CONDITION                                              | RESULT                                                                                                                      | VERDICT |
|----|-----------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|---------|
| 1  | OVER LOAD PROTECTION        | 95 % ~ 110 %                                                                                     | I/P : 115 VAC<br>I/P : 90 VAC<br>O/P : TESTING<br>Ta : 25°C | 100 %/ 115 VAC<br>100 %/ 90 VAC<br>Constant Current Limiting<br>recovers automatically after fault<br>condition is removed. | P       |
| 2  | OVER TEMPERATURE PROTECTION | SPEC :<br>RTH1 : $95 \pm 10^{\circ}\text{C}$ O.T.P.<br>Detect on heatsink of<br>power transistor | I/P : 115 VAC<br>O/P : FULL LOAD                            | O.T.P. Active<br>Shut down o/p voltage , Re-power<br>ON to recover                                                          | P       |
| 3  | SHORT PROTECTION            | SHORT EVERY OUTPUT<br>1 HOUR NO DAMAGE                                                           | I/P : 135 VAC<br>O/P : FULL LOAD<br>Ta : 25°C               | NO DAMAGE                                                                                                                   | P       |

## COMPONENT STRESS TEST

| NO | TEST ITEM                                                 | SPECIFICATION                            | TEST CONDITION                                                                                                                               | RESULT                                       | VERDICT |
|----|-----------------------------------------------------------|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|---------|
| 1  | Power Transistor<br>( D to S ) or ( C to E ) Peak Voltage | Q 1 Rated :<br>STD10NM60N 8A/650V        | I/P : High-Line +3V = 138 V<br>O/P : (1)Full Load Turn on<br>(2) Output Short<br>(3)Full load continue<br>Ta : 25°C                          | (1) 374 V<br>(2) 266 V<br>(3) 372 V          | P       |
| 2  | Diode Peak Voltage                                        | D100 Rated :<br>B5100C 5A/100V           | I/P : High-Line +3V = 138 V<br>O/P : (1)Full Load Turn on<br>(2)Output Short<br>(3)Full load continue<br>Ta : 25°C                           | (1) 71.6 V<br>(2) 45.6 V<br>(3) 70.8 V       | P       |
| 3  | Clamp Diode Peak Voltage                                  | D 6 Rated :<br>1A/1KV 1N4007GP           | I/P : High-Line +3V = 138 V<br>O/P : (1)Full Load Turn on<br>(2)Output Short<br>(3)Full load continue<br>Ta : 25°C                           | (1) 370 V<br>(2) 262 V<br>(3) 360 V          | P       |
| 4  | Control IC Voltage Test                                   | U 1 Rated :<br>PWM NCP1608B<br>10.2V~20V | I/P : High-Line +3V = 138 V<br>O/P : (1)Full Load Turn on /Off<br>(2) Min load Turn on /Off<br>(3)Full Load /Min load<br>Change<br>Ta : 25°C | (1) 13.780 V<br>(2) 12.633 V<br>(3) 12.883 V | P       |

## ■ SAFETY & E.M.C. TEST

### SAFETY TEST

| NO | TEST ITEM            | SPECIFICATION                            | TEST CONDITION                        | RESULT                         | VERDICT |
|----|----------------------|------------------------------------------|---------------------------------------|--------------------------------|---------|
| 1  | WITHSTAND VOLTAGE    | I/P-O/P : 3.75 KVAC/min                  | I/P-O/P : 4 KVAC/min<br>Ta : 25°C     | I/P-O/P : 1.23 mA<br>NO DAMAGE | P       |
| 2  | ISOLATION RESISTANCE | I/P-O/P : 500VDC>100MΩ                   | I/P-O/P : 500 VDC<br>Ta : 25°C /70%RH | I/P-O/P : 30 GΩ<br>NO DAMAGE   | P       |
| 3  | APPROVAL             | TUV : Certificate NO :<br>UL : File NO : |                                       |                                | N/A     |

### E.M.C TEST

| NO | TEST ITEM                                   | SPECIFICATION                                              | TEST CONDITION                                                                      | RESULT                        | VERDICT |
|----|---------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|---------|
| 1  | HARMONIC                                    | EN61000-3-2<br>CLASS C                                     | I/P:115V/100V/120VAC/60HZ<br>LOAD:LED/ELECTRONIC LOAD<br>O/P:40V/58VLOAD<br>Ta:25°C | PASS                          | P       |
| 2  | CONDUCTION                                  | EN55015<br>CLASS B                                         | I/P : 115 VAC (60HZ)<br>O/P : FULL/50% LOAD<br>Ta : 25°C                            | PASS<br>Test by certified Lab | P       |
| 3  | RADIATION                                   | EN55015<br>CLASS B                                         | I/P : 115 VAC (60HZ)<br>O/P : FULL LOAD<br>Ta : 25°C                                | PASS<br>Test by certified Lab | P       |
| 4  | E.S.D                                       | EN61000-4-2<br>LIGHT INDUSTRY<br>AIR : 8KV / Contact : 4KV | I/P : 115 VAC/60HZ<br>O/P : FULL LOAD<br>Ta : 25°C                                  | CRITERIA A                    | P       |
| 5  | E.F.T                                       | EN61000-4-4<br>LIGHT INDUSTRY<br>INPUT : 1KV               | I/P : 115 VAC/60HZ<br>O/P : FULL LOAD<br>Ta : 25°C                                  | CRITERIA A                    | P       |
| 6  | SURGE                                       | IEC61000-4-5<br>LIGHT INDUSTRY<br>L-N : 1KV                | I/P : 115 VAC/60HZ<br>O/P : FULL LOAD<br>Ta : 25°C                                  | CRITERIA A                    | P       |
| 7  | Test by certified Lab & Test Report Prepare |                                                            |                                                                                     |                               |         |

## RELIABILITY TEST

### ENVIRONMENT TEST

| NO | TEST ITEM                                                         | SPECIFICATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | TEST CONDITION                                                     | RESULT                     | VERDICT |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
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| 1  | TEMPERATURE RISE TEST                                             | <div>MODEL : PCD-25-1400A</div> <div>1. ROOM AMBIENT BURN-IN : 1 HRS</div> <div>I/P : 115VAC O/P : FULL LOAD Ta=28.8 °C</div> <div>2. HIGH AMBIENT BURN-IN : 4 HRS</div> <div>I/P : 115VAC O/P : FULL LOAD Ta= 50.7 °C</div> <table><thead><tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT<br/>Ta= 28.8 °C</th><th>HIGH AMBIENT<br/>Ta=50.7 °C</th></tr></thead><tbody><tr><td>1</td><td>LF1</td><td>LF804</td><td>59.9°C</td><td>77.5°C</td></tr><tr><td>2</td><td>L1</td><td>TF2171</td><td>70.6°C</td><td>87.8°C</td></tr><tr><td>3</td><td>BD1</td><td>2A/800V GLASS KBP208G</td><td>69.6°C</td><td>86.9°C</td></tr><tr><td>4</td><td>C9</td><td>224/250V 10% P=7.5 MEX</td><td>67.2°C</td><td>83.4°C</td></tr><tr><td>5</td><td>R1</td><td>2W 330Ω 5% MINI</td><td>65.0°C</td><td>82.8°C</td></tr><tr><td>6</td><td>R5</td><td>2W 330Ω 5% MINI</td><td>71.8°C</td><td>89.1°C</td></tr><tr><td>7</td><td>C1</td><td>104/275VAC 20% P=10 R.46</td><td>65.9°C</td><td>83.3°C</td></tr><tr><td>8</td><td>D30</td><td>1A/1KV 1N4007GP</td><td>65.1°C</td><td>84.3°C</td></tr><tr><td>9</td><td>C48</td><td>22u/50V UL10Kh 5*11 YXM</td><td>67.0°C</td><td>84.8°C</td></tr><tr><td>10</td><td>TSW1</td><td>220KΩ 3Φ<br/>TTC3A224F4371EY 1%</td><td>62.6°C</td><td>82.0°C</td></tr><tr><td>11</td><td>T1</td><td>TF2153</td><td>81.9°C</td><td>98.3°C</td></tr><tr><td>12</td><td>U1</td><td>NCP1608B</td><td>67.4°C</td><td>84.9°C</td></tr><tr><td>13</td><td>Q1</td><td>STD10NM60N 8A/650V DPAK</td><td>77.4°C</td><td>94.7°C</td></tr><tr><td>14</td><td>C7</td><td>334/250V 10% P=7.5 MEX</td><td>70.0°C</td><td>87.4°C</td></tr><tr><td>15</td><td>D100</td><td>B5100C 5A/100V SMC</td><td>80.5°C</td><td>97.2°C</td></tr><tr><td>16</td><td>C105</td><td>1500u/25V UL10Kh 12.5*20<br/>ZLH</td><td>65.7°C</td><td>82.6°C</td></tr><tr><td>17</td><td>C54</td><td>47u/25V UL10Kh 5*11 YXM</td><td>65.3°C</td><td>82.6°C</td></tr><tr><td>18</td><td>LF100</td><td>TR574-R2</td><td>61.1°C</td><td>76.6°C</td></tr></tbody></table> |                                                                    |                            | NO      | Position | P/N | ROOM AMBIENT<br>Ta= 28.8 °C | HIGH AMBIENT<br>Ta=50.7 °C | 1 | LF1 | LF804 | 59.9°C | 77.5°C | 2 | L1 | TF2171 | 70.6°C | 87.8°C | 3 | BD1 | 2A/800V GLASS KBP208G | 69.6°C | 86.9°C | 4 | C9 | 224/250V 10% P=7.5 MEX | 67.2°C | 83.4°C | 5 | R1 | 2W 330Ω 5% MINI | 65.0°C | 82.8°C | 6 | R5 | 2W 330Ω 5% MINI | 71.8°C | 89.1°C | 7 | C1 | 104/275VAC 20% P=10 R.46 | 65.9°C | 83.3°C | 8 | D30 | 1A/1KV 1N4007GP | 65.1°C | 84.3°C | 9 | C48 | 22u/50V UL10Kh 5*11 YXM | 67.0°C | 84.8°C | 10 | TSW1 | 220KΩ 3Φ<br>TTC3A224F4371EY 1% | 62.6°C | 82.0°C | 11 | T1 | TF2153 | 81.9°C | 98.3°C | 12 | U1 | NCP1608B | 67.4°C | 84.9°C | 13 | Q1 | STD10NM60N 8A/650V DPAK | 77.4°C | 94.7°C | 14 | C7 | 334/250V 10% P=7.5 MEX | 70.0°C | 87.4°C | 15 | D100 | B5100C 5A/100V SMC | 80.5°C | 97.2°C | 16 | C105 | 1500u/25V UL10Kh 12.5*20<br>ZLH | 65.7°C | 82.6°C | 17 | C54 | 47u/25V UL10Kh 5*11 YXM | 65.3°C | 82.6°C | 18 | LF100 | TR574-R2 | 61.1°C | 76.6°C | P |
| NO | Position                                                          | P/N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ROOM AMBIENT<br>Ta= 28.8 °C                                        | HIGH AMBIENT<br>Ta=50.7 °C |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 1  | LF1                                                               | LF804                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 59.9°C                                                             | 77.5°C                     |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 2  | L1                                                                | TF2171                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 70.6°C                                                             | 87.8°C                     |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 3  | BD1                                                               | 2A/800V GLASS KBP208G                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 69.6°C                                                             | 86.9°C                     |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 4  | C9                                                                | 224/250V 10% P=7.5 MEX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 67.2°C                                                             | 83.4°C                     |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 5  | R1                                                                | 2W 330Ω 5% MINI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 65.0°C                                                             | 82.8°C                     |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 6  | R5                                                                | 2W 330Ω 5% MINI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 71.8°C                                                             | 89.1°C                     |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 7  | C1                                                                | 104/275VAC 20% P=10 R.46                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 65.9°C                                                             | 83.3°C                     |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 8  | D30                                                               | 1A/1KV 1N4007GP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 65.1°C                                                             | 84.3°C                     |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 9  | C48                                                               | 22u/50V UL10Kh 5*11 YXM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 67.0°C                                                             | 84.8°C                     |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 10 | TSW1                                                              | 220KΩ 3Φ<br>TTC3A224F4371EY 1%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 62.6°C                                                             | 82.0°C                     |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 11 | T1                                                                | TF2153                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 81.9°C                                                             | 98.3°C                     |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 12 | U1                                                                | NCP1608B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 67.4°C                                                             | 84.9°C                     |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 13 | Q1                                                                | STD10NM60N 8A/650V DPAK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 77.4°C                                                             | 94.7°C                     |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 14 | C7                                                                | 334/250V 10% P=7.5 MEX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 70.0°C                                                             | 87.4°C                     |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 15 | D100                                                              | B5100C 5A/100V SMC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 80.5°C                                                             | 97.2°C                     |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 16 | C105                                                              | 1500u/25V UL10Kh 12.5*20<br>ZLH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 65.7°C                                                             | 82.6°C                     |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 17 | C54                                                               | 47u/25V UL10Kh 5*11 YXM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 65.3°C                                                             | 82.6°C                     |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 18 | LF100                                                             | TR574-R2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 61.1°C                                                             | 76.6°C                     |         |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 2  | LOW TEMPERATURE<br>TURN ON TEST                                   | TURN ON AFTER 2 HOUR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | I/P : 115VAC/100VAC<br>O/P : 100 % LOAD<br>Ta= -30 °C              | TEST : OK                  | P       |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 3  | HIGH HUMIDITY<br>HIGH TEMPERATURE<br>HIGH VOLTAGE<br>TURN ON TEST | AFTER 12 HOURS<br>IN CHAMBER ON<br>CONTROL 40 °C<br>NO DAMAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | I/P : 135 VAC<br>O/P : FULL LOAD<br>Ta= 40 °C<br>HUMIDITY= 95 %R.H | TEST : OK                  | P       |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 4  | TEMPERATURE<br>COEFFICIENT                                        | ± 0.03 %(0~40°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | I/P : 115 VAC<br>O/P : FULL LOAD                                   | ± 0.005 %(0~40°C)          | P       |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |
| 5  | 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                         | P       |          |     |                             |                            |   |     |       |        |        |   |    |        |        |        |   |     |                       |        |        |   |    |                        |        |        |   |    |                 |        |        |   |    |                 |        |        |   |    |                          |        |        |   |     |                 |        |        |   |     |                         |        |        |    |      |                                |        |        |    |    |        |        |        |    |    |          |        |        |    |    |                         |        |        |    |    |                        |        |        |    |      |                    |        |        |    |      |                                 |        |        |    |     |                         |        |        |    |       |          |        |        |   |

|    |                             |                                                                                                                                                                                                                                                                                   |                                 |   |
|----|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---|
| 6  | THERMAL SHOCK TEST          | 1. Thermal shock Temperature : -30°C ~ +40°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 : 115VAC/Full Load AC ON/OFF TEST<br>turn on 58sec ; turn off 2sec | OK                              | P |
| 7  | VIBRATION TEST              | 1 Carton & 1 Set<br>(1) Waveform : Sine Wave<br>(2) Frequency : 10~500Hz<br>(3) Sweep Time : 12min/sweep cycle<br>(4) Acceleration : 2G<br>(5) Test Time : 72min in each axis (X.Y.Z)<br>(6) Ta : 25°C                                                                            | TEST : OK                       | P |
| 8  | CAPACITOR LIFE CYCLE        | PCD-25.1400:SUPPOSE C105 IS THE MOST CRITICAL COMPONENT<br>(1) I/P : 115VAC O/P : FULL LOAD Ta= 25 °C LIFE TIME<br>(2) I/P : 115VAC O/P : FULL LOAD Ta= 50 °C LIFE TIME                                                                                                           | (1) 242246 HRS<br>(2) 60562 HRS | P |
| 9  | MTBF                        | MIL-HDBK-217F NOTICES2 PARTS COUNT<br>TOTAL FAILURE RATE : 906.5 HRS                                                                                                                                                                                                              |                                 | P |
| 10 | DMTBF/Accelerated Life Test | Demonstration Mean Time Between Failure(Expected Life) :<br>30,000 hours @ Tcase 75°C ; 50,000 hours @ Tcase 65°C                                                                                                                                                                 |                                 | P |

| DATE       | SAMPLE         | TEST RESULT | TESTER     | APPROVAL      |
|------------|----------------|-------------|------------|---------------|
| 2010/10/6  | RD SAMPLE      | PASS        | SANFORD SU | VINCENT TSENG |
| 2010/11/10 | PRODUCT SAMPLE | PASS        | SANFORD SU | VINCENT TSENG |

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