



# Test Report: EPS-15-15

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15W Single Output Switching Power Supply

## ■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Control 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 : 100 mVp-p (Max )                           | I/P : 230VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                                    | V1 : 86 mVp-p (Max )                                             | P       |
| 2  | OUTPUT VOLTAGE<br>ADJUST RANGE | CH1 : 13.5 V ~ 16.5 V                           | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : MIN LOAD<br>Ta : 25°C                                                                                                                                                   | 11.78 V ~ 16.75 V/ 230 VAC<br>11.78 V ~ 16.75 V/ 115 VAC         | P       |
| 3  | OUTPUT VOLTAGE<br>TOLERANCE    | V1 : -1 %~ +1 % (Max)                           | I/P : 85 VAC / 264 VAC<br>O/P : FULL/ MIN LOAD<br>Ta : 25°C                                                                                                                                                     | V1 : 0 %~ 0.039 %                                                | P       |
| 4  | LINE REGULATION                | V1 : -0.5 %~ +0.5 % (Max)                       | I/P : 100VAC ~ 264 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                          | V1 : 0 %~ 0 %                                                    | P       |
| 5  | LOAD REGULATION                | V1 : -0.5 %~ +0.5 % (Max)                       | I/P : 230 VAC<br>O/P : FULL ~MIN LOAD<br>Ta : 25°C                                                                                                                                                              | V1 : 0 %~ 0.039 %                                                | P       |
| 6  | SET UP TIME                    | 230VAC : 1000 ms (Max)<br>115VAC : 2000 ms(Max) | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                  | 230VAC/ 611 ms<br>115VAC/ 1512 ms                                | P       |
| 7  | RISE TIME                      | 230VAC : 30 ms (Max)<br>115VAC : 30 ms (Max)    | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                  | 230VAC/ 10.5 ms<br>115VAC/ 10.2 ms                               | P       |
| 8  | HOLD UP TIME                   | 230VAC : 50 ms (TYP)<br>115VAC : 16 ms (TYP)    | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                  | 230VAC/ 88.2 ms<br>115VAC/ 19.1 ms                               | P       |
| 9  | OVER/UNDERSHOOT<br>TEST        | < ±5%                                           | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                                   | TEST : 2.0 %                                                     | P       |
| 10 | DYNAMIC LOAD                   | V1 : 1500 mVp-p                                 | I/P : 230 VAC<br>(1).O/P : FULL /Min LOAD 90%DUTY/<br>1KHZ<br>(2).O/P : FULL /Min LOAD 90%DUTY/<br>3KHZ<br>(3).O/P : FULL /Min LOAD 90%DUTY/<br>5KHZ<br>(4).O/P : FULL /Min LOAD 50%DUTY/<br>120HZ<br>Ta : 25°C | (1) 163 mVp-p<br>(2) 137 mVp-p<br>(3) 136 mVp-p<br>(4) 248 mVp-p | P       |

### INPUT FUNCTION TEST

| NO | TEST ITEM             | SPECIFICATION                          | TEST CONDITION                                                                                                                                                                                     | RESULT                                     | VERDICT |
|----|-----------------------|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------|
| 1  | INPUT VOLTAGE RANGE   | 85VAC~264 VAC                          | I/P : TESTING<br>O/P : FULL LOAD<br>Ta : 25°C<br><br>I/P :<br>LOW-LINE-3V= 82 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 ) | 60.7V~264V<br><br>TEST : OK                | P       |
| 2  | INPUT FREQUENCY RANGE | 47HZ ~63 HZ<br>NO DAMAGE OSC           | I/P : 85 VAC ~ 264 VAC<br>O/P : FULL~MIN LOAD<br>Ta : 25°C                                                                                                                                         | TEST : OK                                  | P       |
| 3  | EFFICIENCY            | 83 % (TYP)                             | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                      | 83.9 %                                     | P       |
| 4  | INPUT CURRENT         | 230V/ 0.2 A (TYP)<br>115V/ 0.4 A (TYP) | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                     | I = 0.15 A/ 230 VAC<br>I = 0.26 A/ 115 VAC | P       |
| 5  | INRUSH CURRENT        | 230V/ 45 A (TYP)<br>COLD START         | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                      | I = 37.1 A/ 230 VAC                        | P       |
| 6  | LEAKAGE CURRENT       | < 1 mA / 240 VAC                       | I/P : 264 VAC<br>O/P : Min LOAD<br>Ta : 25°C                                                                                                                                                       | L-FG : 0.27 mA<br>N-FG : 0.23 mA           | P       |
| 7  | NO LOAD CONSUMPTION   | < 0.3 W                                | I/P : 240VAC<br>O/P : NO LOAD<br>Ta : 25°C                                                                                                                                                         | < 0.165 W                                  | P       |

### PROTECTION FUNCTION TEST

| NO | TEST ITEM               | SPECIFICATION                          | TEST CONDITION                                               | RESULT                                              | VERDICT |
|----|-------------------------|----------------------------------------|--------------------------------------------------------------|-----------------------------------------------------|---------|
| 1  | OVER LOAD PROTECTION    | 115 % ~ 150 %                          | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : TESTING<br>Ta : 25°C | 134.6 %/ 230 VAC<br>135.1 %/ 115 VAC<br>Hiccup Mode | P       |
| 2  | OVER VOLTAGE PROTECTION | CH1 : 17.25 V ~20.25 V                 | O/P : MIN LOAD<br>Ta : 25°C                                  | 18.1 V<br>shut down clamping by zener diode)        | P       |
| 3  | SHORT PROTECTION        | SHORT EVERY OUTPUT<br>1 HOUR NO DAMAGE | I/P : 264 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                | NO DAMAGE<br>Hiccup Mode                            | P       |

### CONTROL FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION                                 | RESULT                                 | VERDICT |
|----|-----------|---------------|------------------------------------------------|----------------------------------------|---------|
| 1  | PEAK LOAD | 16.5W@10SEC   | I/P: 230VAC/115VAC<br>O/P:PEAK LOAD<br>Ta:25°C | 16.5W@10SEC /230V<br>16.5W@10SEC /115V | 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 : 600   V   4   A  | I/P : High-Line +3V = 267 V<br>O/P : (1)Full Load Turn on<br>(2) Output Short<br>(3)Full load continue<br>Ta : 25℃                          | (1)    548    V<br>(2)    492    V<br>(3)    560    V    | P       |
| 2  | Diode Peak Voltage                                     | Q101   Rated : 100   V   20   A | I/P : High-Line +3V = 267 V<br>O/P : (1)Full Load Turn on<br>(2)Output Short<br>(3)Full load continue<br>Ta : 25℃                           | (1)    86.8    V<br>(2)    84.0    V<br>(3)    88.4    V | P       |
| 3  | Clamp Diode Peak Voltage                               | D 1    Rated : 800   V   2   A  | I/P : High-Line +3V = 267 V<br>O/P : (1) Dynamic Load<br>90%Duty/1KHz<br>(2)Full load continue<br>Ta : 25℃                                  | (1)    480    V<br>(2)    476    V                       | P       |
| 4  | Input    Capacitor Voltage                             | C5    Rated : 33 u /400V/105℃   | I/P : High-Line +3V = 267 V<br>O/P : (1)Full Load Turn on /Off<br>(2) Min load Turn on /Off<br>(3)Full Load /Min load<br>Change<br>Ta : 25℃ | (1)    364    V<br>(2)    366    V<br>(3)    364    V    | P       |
| 5  | Control IC Voltage Test                                | U1    Rated : 28   V            | I/P : High-Line +3V = 267 V<br>O/P : (1)Full Load Turn on /Off<br>(2) Min load Turn on /Off<br>(3)Full Load /Min load<br>Change<br>Ta : 25℃ | (1)    17.9    V<br>(2)    17.9    V<br>(3)    17.8    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 KVAC/min<br>I/P-FG : 2 KVAC/min<br>O/P-FG : 0.5 KVAC/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 : 1.23 mA<br>I/P-FG : 0.67 mA<br>O/P-FG : 0.27 mA<br>NO DAMAGE | P       |
| 2  | ISOLATION RESISTANCE | I/P-O/P : 500VDC>100MΩ<br>I/P-FG : 500VDC>100MΩ<br>O/P-FG : 500VDC>100MΩ | I/P-O/P : 500 VDC<br>I/P-FG : 500 VDC<br>O/P-FG : 500 VDC<br>Ta : 25°C / 70%RH        | I/P-O/P : 9999 MΩ<br>I/P-FG : 9999 MΩ<br>O/P-FG : 9999 MΩ<br>NO DAMAGE | P       |
| 3  | GROUNDING CONTINUITY | FG(PE) TO CHASSIS<br>OR TRACE < 100 mΩ                                   | 40 A / 2min<br>Ta : 25°C / 70%RH                                                      | 5 mΩ                                                                   | P       |

### E.M.C TEST

| NO | TEST ITEM                                   | SPECIFICATION                                         | TEST CONDITION                                           | RESULT                        | VERDICT |
|----|---------------------------------------------|-------------------------------------------------------|----------------------------------------------------------|-------------------------------|---------|
| 1  | HARMONIC                                    | EN61000-3-2<br>CLASS A                                | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25°C       | PASS                          | P       |
| 2  | CONDUCTION                                  | EN55022<br>CLASS B                                    | I/P : 230 VAC (50HZ)<br>O/P : FULL/50% LOAD<br>Ta : 25°C | PASS<br>Test by certified Lab | P       |
| 3  | RADIATION                                   | EN55022<br>CLASS B                                    | I/P : 230 VAC (50HZ)<br>O/P : FULL LOAD<br>Ta : 25°C     | PASS<br>Test by certified Lab | P       |
| 4  | E.S.D                                       | EN61000-4-2<br>INDUSTRY<br>AIR : 8KV / Contact : 4KV  | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25°C       | CRITERIA A                    | P       |
| 5  | E.F.T                                       | EN61000-4-4<br>INDUSTRY<br>INPUT : 2KV                | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25°C       | CRITERIA A                    | P       |
| 6  | SURGE                                       | IEC61000-4-5<br>INDUSTRY<br>L-N : 2KV<br>L,N-PE : 4KV | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25°C       | CRITERIA A                    | P       |
| 7  | Test by certified Lab & Test Report Prepare |                                                       |                                                          |                               |         |

## RELIABILITY TEST

### ENVIRONMENT TEST

| NO | TEST ITEM                                                         | SPECIFICATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | TEST CONDITION                                                   | RESULT                    | VERDICT |          |             |                           |                           |   |     |                          |       |       |   |     |                                  |       |       |   |    |                                  |       |       |   |    |                                  |       |       |   |          |                                   |       |       |   |      |                                  |       |       |   |     |                                |       |       |   |      |                                  |       |       |   |      |                                    |       |       |    |    |                               |       |       |   |
|----|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------|---------|----------|-------------|---------------------------|---------------------------|---|-----|--------------------------|-------|-------|---|-----|----------------------------------|-------|-------|---|----|----------------------------------|-------|-------|---|----|----------------------------------|-------|-------|---|----------|-----------------------------------|-------|-------|---|------|----------------------------------|-------|-------|---|-----|--------------------------------|-------|-------|---|------|----------------------------------|-------|-------|---|------|------------------------------------|-------|-------|----|----|-------------------------------|-------|-------|---|
| 1  | TEMPERATURE RISE TEST                                             | <div>MODEL : EPS-15-24</div> <div>1. ROOM AMBIENT BURN-IN : 2 HRS</div> <div>I/P : 230VAC O/P : FULL LOAD Ta=13.3℃</div> <div>2. HIGH AMBIENT BURN-IN : 2 HRS</div> <div>I/P : 230VAC O/P : FULL LOAD Ta=49.8℃</div> <table><tr><th>NO</th><th>Position</th><th>PART NUMBER</th><th>ROOM AMBIENT<br/>Ta= 13.3℃</th><th>HIGH AMBIENT<br/>Ta= 49.8℃</th></tr><tr><td>1</td><td>BD1</td><td>BD 2A/800V GLASS KBP208G</td><td>38.7℃</td><td>74.1℃</td></tr><tr><td>2</td><td>LF1</td><td>LF LF510-R2 UU9.8 0.4A<br/>27mH B</td><td>39.1℃</td><td>74.7℃</td></tr><tr><td>3</td><td>C5</td><td>C/E 33u/400V 105℃ 12.5*20<br/>KMG</td><td>32.7℃</td><td>68.1℃</td></tr><tr><td>4</td><td>Q1</td><td>FET NDF04N60ZG 4A/600V<br/>TO220F</td><td>62.0℃</td><td>95.9℃</td></tr><tr><td>5</td><td>T1(COIL)</td><td>MT TF5170-R0 EI-22<br/>EPS-15-24 B</td><td>49.7℃</td><td>85.4℃</td></tr><tr><td>6</td><td>D100</td><td>SFRD FMX-12SL 10A/200V<br/>TO220F</td><td>58.6℃</td><td>90.8℃</td></tr><tr><td>7</td><td>C45</td><td>C/E 10u/50V UL10Kh 5*11<br/>YXM</td><td>38.5℃</td><td>74.8℃</td></tr><tr><td>8</td><td>C102</td><td>C/E 100u/35V UL7Kh 8*11.5<br/>YXF</td><td>37.0℃</td><td>70.3℃</td></tr><tr><td>9</td><td>C101</td><td>C/E 220u/35V UL7Kh 8*16<br/>YXG-LLC</td><td>42.1℃</td><td>75.5℃</td></tr><tr><td>10</td><td>U1</td><td>PWM NCP1250BSN65T1G<br/>TOSP-6</td><td>39.0℃</td><td>74.5℃</td></tr></table> |                                                                  |                           | NO      | Position | PART NUMBER | ROOM AMBIENT<br>Ta= 13.3℃ | HIGH AMBIENT<br>Ta= 49.8℃ | 1 | BD1 | BD 2A/800V GLASS KBP208G | 38.7℃ | 74.1℃ | 2 | LF1 | LF LF510-R2 UU9.8 0.4A<br>27mH B | 39.1℃ | 74.7℃ | 3 | C5 | C/E 33u/400V 105℃ 12.5*20<br>KMG | 32.7℃ | 68.1℃ | 4 | Q1 | FET NDF04N60ZG 4A/600V<br>TO220F | 62.0℃ | 95.9℃ | 5 | T1(COIL) | MT TF5170-R0 EI-22<br>EPS-15-24 B | 49.7℃ | 85.4℃ | 6 | D100 | SFRD FMX-12SL 10A/200V<br>TO220F | 58.6℃ | 90.8℃ | 7 | C45 | C/E 10u/50V UL10Kh 5*11<br>YXM | 38.5℃ | 74.8℃ | 8 | C102 | C/E 100u/35V UL7Kh 8*11.5<br>YXF | 37.0℃ | 70.3℃ | 9 | C101 | C/E 220u/35V UL7Kh 8*16<br>YXG-LLC | 42.1℃ | 75.5℃ | 10 | U1 | PWM NCP1250BSN65T1G<br>TOSP-6 | 39.0℃ | 74.5℃ | P |
| NO | Position                                                          | PART NUMBER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ROOM AMBIENT<br>Ta= 13.3℃                                        | HIGH AMBIENT<br>Ta= 49.8℃ |         |          |             |                           |                           |   |     |                          |       |       |   |     |                                  |       |       |   |    |                                  |       |       |   |    |                                  |       |       |   |          |                                   |       |       |   |      |                                  |       |       |   |     |                                |       |       |   |      |                                  |       |       |   |      |                                    |       |       |    |    |                               |       |       |   |
| 1  | BD1                                                               | BD 2A/800V GLASS KBP208G                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 38.7℃                                                            | 74.1℃                     |         |          |             |                           |                           |   |     |                          |       |       |   |     |                                  |       |       |   |    |                                  |       |       |   |    |                                  |       |       |   |          |                                   |       |       |   |      |                                  |       |       |   |     |                                |       |       |   |      |                                  |       |       |   |      |                                    |       |       |    |    |                               |       |       |   |
| 2  | LF1                                                               | LF LF510-R2 UU9.8 0.4A<br>27mH B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 39.1℃                                                            | 74.7℃                     |         |          |             |                           |                           |   |     |                          |       |       |   |     |                                  |       |       |   |    |                                  |       |       |   |    |                                  |       |       |   |          |                                   |       |       |   |      |                                  |       |       |   |     |                                |       |       |   |      |                                  |       |       |   |      |                                    |       |       |    |    |                               |       |       |   |
| 3  | C5                                                                | C/E 33u/400V 105℃ 12.5*20<br>KMG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 32.7℃                                                            | 68.1℃                     |         |          |             |                           |                           |   |     |                          |       |       |   |     |                                  |       |       |   |    |                                  |       |       |   |    |                                  |       |       |   |          |                                   |       |       |   |      |                                  |       |       |   |     |                                |       |       |   |      |                                  |       |       |   |      |                                    |       |       |    |    |                               |       |       |   |
| 4  | Q1                                                                | FET NDF04N60ZG 4A/600V<br>TO220F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 62.0℃                                                            | 95.9℃                     |         |          |             |                           |                           |   |     |                          |       |       |   |     |                                  |       |       |   |    |                                  |       |       |   |    |                                  |       |       |   |          |                                   |       |       |   |      |                                  |       |       |   |     |                                |       |       |   |      |                                  |       |       |   |      |                                    |       |       |    |    |                               |       |       |   |
| 5  | T1(COIL)                                                          | MT TF5170-R0 EI-22<br>EPS-15-24 B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 49.7℃                                                            | 85.4℃                     |         |          |             |                           |                           |   |     |                          |       |       |   |     |                                  |       |       |   |    |                                  |       |       |   |    |                                  |       |       |   |          |                                   |       |       |   |      |                                  |       |       |   |     |                                |       |       |   |      |                                  |       |       |   |      |                                    |       |       |    |    |                               |       |       |   |
| 6  | D100                                                              | SFRD FMX-12SL 10A/200V<br>TO220F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 58.6℃                                                            | 90.8℃                     |         |          |             |                           |                           |   |     |                          |       |       |   |     |                                  |       |       |   |    |                                  |       |       |   |    |                                  |       |       |   |          |                                   |       |       |   |      |                                  |       |       |   |     |                                |       |       |   |      |                                  |       |       |   |      |                                    |       |       |    |    |                               |       |       |   |
| 7  | C45                                                               | C/E 10u/50V UL10Kh 5*11<br>YXM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 38.5℃                                                            | 74.8℃                     |         |          |             |                           |                           |   |     |                          |       |       |   |     |                                  |       |       |   |    |                                  |       |       |   |    |                                  |       |       |   |          |                                   |       |       |   |      |                                  |       |       |   |     |                                |       |       |   |      |                                  |       |       |   |      |                                    |       |       |    |    |                               |       |       |   |
| 8  | C102                                                              | C/E 100u/35V UL7Kh 8*11.5<br>YXF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 37.0℃                                                            | 70.3℃                     |         |          |             |                           |                           |   |     |                          |       |       |   |     |                                  |       |       |   |    |                                  |       |       |   |    |                                  |       |       |   |          |                                   |       |       |   |      |                                  |       |       |   |     |                                |       |       |   |      |                                  |       |       |   |      |                                    |       |       |    |    |                               |       |       |   |
| 9  | C101                                                              | C/E 220u/35V UL7Kh 8*16<br>YXG-LLC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 42.1℃                                                            | 75.5℃                     |         |          |             |                           |                           |   |     |                          |       |       |   |     |                                  |       |       |   |    |                                  |       |       |   |    |                                  |       |       |   |          |                                   |       |       |   |      |                                  |       |       |   |     |                                |       |       |   |      |                                  |       |       |   |      |                                    |       |       |    |    |                               |       |       |   |
| 10 | U1                                                                | PWM NCP1250BSN65T1G<br>TOSP-6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 39.0℃                                                            | 74.5℃                     |         |          |             |                           |                           |   |     |                          |       |       |   |     |                                  |       |       |   |    |                                  |       |       |   |    |                                  |       |       |   |          |                                   |       |       |   |      |                                  |       |       |   |     |                                |       |       |   |      |                                  |       |       |   |      |                                    |       |       |    |    |                               |       |       |   |
| 2  | OVER LOAD BURN-IN TEST                                            | NO DAMAGE<br>1 HOUR ( MIN )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | I/P : 230 VAC<br>O/P : 133 % LOAD<br>Ta : 25℃                    | TEST : OK                 | P       |          |             |                           |                           |   |     |                          |       |       |   |     |                                  |       |       |   |    |                                  |       |       |   |    |                                  |       |       |   |          |                                   |       |       |   |      |                                  |       |       |   |     |                                |       |       |   |      |                                  |       |       |   |      |                                    |       |       |    |    |                               |       |       |   |
| 3  | LOW TEMPERATURE<br>TURN ON TEST                                   | TURN ON AFTER 2 HOUR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | I/P : 264VAC/100VAC<br>O/P : 100 % LOAD<br>Ta= -30℃              | TEST : OK                 | P       |          |             |                           |                           |   |     |                          |       |       |   |     |                                  |       |       |   |    |                                  |       |       |   |    |                                  |       |       |   |          |                                   |       |       |   |      |                                  |       |       |   |     |                                |       |       |   |      |                                  |       |       |   |      |                                    |       |       |    |    |                               |       |       |   |
| 4  | HIGH HUMIDITY<br>HIGH TEMPERATURE<br>HIGH VOLTAGE<br>TURN ON TEST | AFTER 12 HOURS<br>IN CHAMBER ON<br>CONTROL 50℃<br>NO DAMAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | I/P : 272 VAC<br>O/P : FULL LOAD<br>Ta= 50℃<br>HUMIDITY= 95 %R.H | TEST : OK                 | P       |          |             |                           |                           |   |     |                          |       |       |   |     |                                  |       |       |   |    |                                  |       |       |   |    |                                  |       |       |   |          |                                   |       |       |   |      |                                  |       |       |   |     |                                |       |       |   |      |                                  |       |       |   |      |                                    |       |       |    |    |                               |       |       |   |
| 5  | TEMPERATURE<br>COEFFICIENT                                        | ± 0.03 %/℃ (0~50℃)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | I/P : 230 VAC<br>O/P : FULL LOAD                                 | ± 0.002 %/℃ (0~50℃)       | P       |          |             |                           |                           |   |     |                          |       |       |   |     |                                  |       |       |   |    |                                  |       |       |   |    |                                  |       |       |   |          |                                   |       |       |   |      |                                  |       |       |   |     |                                |       |       |   |      |                                  |       |       |   |      |                                    |       |       |    |    |                               |       |       |   |
| 6  | STORAGE TEMPERATURE TEST                                          | 1. Thermal shock Temperature : -40℃~ +85℃<br>2. Temperature change rate : 25℃ / 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       |          |             |                           |                           |   |     |                          |       |       |   |     |                                  |       |       |   |    |                                  |       |       |   |    |                                  |       |       |   |          |                                   |       |       |   |      |                                  |       |       |   |     |                                |       |       |   |      |                                  |       |       |   |      |                                    |       |       |    |    |                               |       |       |   |
| 7  | THERMAL SHOCK TEST                                                | 1. Thermal shock Temperature : -30℃~ +70℃<br>2. Temperature change rate : 25℃ / 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                        | P       |          |             |                           |                           |   |     |                          |       |       |   |     |                                  |       |       |   |    |                                  |       |       |   |    |                                  |       |       |   |          |                                   |       |       |   |      |                                  |       |       |   |     |                                |       |       |   |      |                                  |       |       |   |      |                                    |       |       |    |    |                               |       |       |   |

|    |                             |                                                                                                                                                                                                                                                                                 |                                                                     |   |
|----|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|---|
| 8  | 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 : 60min in each axis (X.Y.Z)<br>(6) Ta : 25℃                                                                           | TEST : OK                                                           | P |
| 9  | CAPACITOR LIFE CYCLE        | EPS-15-24 SUPPOSE C 102 IS THE MOST CRITICAL COMPONENT<br>(1) I/P : 230VAC O/P : FULL LOAD Ta= 25 ℃ LIFE TIME<br>(2) I/P : 230VAC O/P : FULL LOAD Ta=50 ℃ LIFE TIME<br>(3) I/P : 230VAC O/P : 75% LOAD Ta= 50 ℃ LIFE TIME<br>(4) I/P : 230VAC O/P : 50% LOAD Ta= 50 ℃ LIFE TIME | (1) 526196 HRS<br>(2) 87699 HRS<br>(3) 108750 HRS<br>(4) 135773 HRS | P |
| 10 | MTBF                        | MIL-HDBK-217F NOTICE S2 PARTS COUNT<br>TOTAL FAILURE RATE : 824.6 KHRS                                                                                                                                                                                                          |                                                                     |   |
| 11 | DMTBF/Accelerated Life Test | Demonstration Mean Time Between Failure (Expected Life): Above 30,000 hours @ TA 50℃                                                                                                                                                                                            |                                                                     | P |

| DATE       | SAMPLE                     | TEST RESULT | TESTER | APPROVAL |
|------------|----------------------------|-------------|--------|----------|
| 2012.9.18  | RD SAMPLE                  | PASS        | Shenym | Wangdz   |
| 2012.11.21 | PRODUCT SAMPLE (Y1211B623) | PASS        | Shenym | Wangdz   |

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