



Test Report: CSP-3000-120

3000W Power Supply with Single Output

■ 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

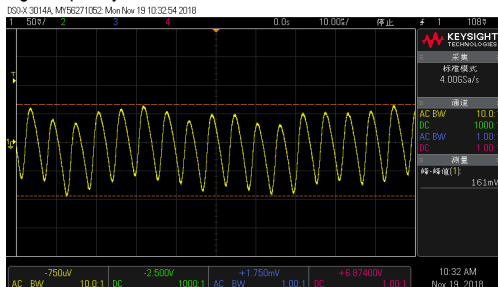


DESIGN VERIFY TEST

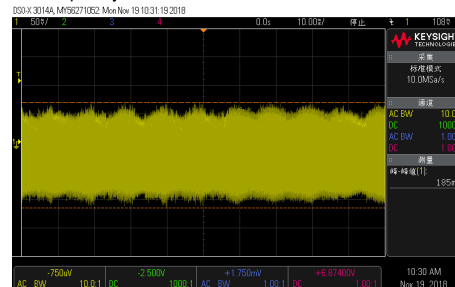
OUTPUT FUNCTION TEST

| N O | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|-----|------------------------------|---------------|--|------------------|
| 1 | CONSTANT CURRENT REGION | 90V~120V | I/P: 230 VAC O/P: TESTING Ta: 25°C | 13.5 V~ 120 V |
| 2 | OUTPUT VOLTAGE TOLERANCE | -1%~+1% | I/P: 180VAC ~ 264VAC O/P: FULL/ NO LOAD Ta: 25°C | -0.153%~ 0.124 % |
| 3 | LINE REGULATION | -0.5%~+0.5% | I/P: 180VAC ~ 264VAC O/P: FULL/ NO LOAD Ta: 25°C | -0.155% ~ 0.041% |
| 4 | LOAD REGULATION | -0.5%~+0.5% | I/P: 230 VAC O/P: FULL LOAD Ta: 25°C | -0.155% ~ 0.041% |
| 5 | VOLTAGE OVER/UNDERSHOOT TEST | <±5 % | I/P: 230VAC O/P: FULL LOAD/NO LOAD Ta: 25°C | 1% |
| 6 | RIPPLE & NOISE | 800mVp-p | I/P: 230VAC O/P: FULL LOAD Ta: 25°C | 185 mVp-p |

high frequency :



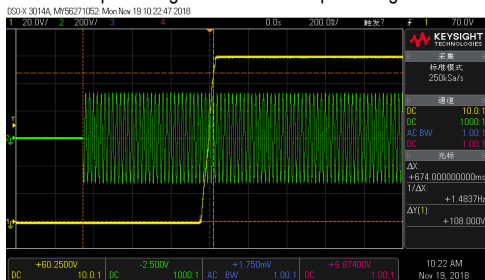
low frequency :



| | | | | |
|---|------------------|---------------|--|----------------|
| 7 | SET UP TIME(Max) | 1000ms/230VAC | I/P: 230 VAC O/P: FULL LOAD Ta: 25°C | 674 ms/230 VAC |
|---|------------------|---------------|--|----------------|

INPUT=230VAC/50HZ @ FULL LOAD

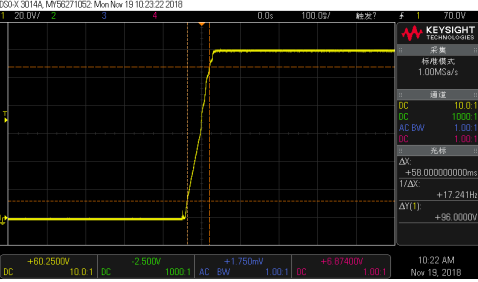
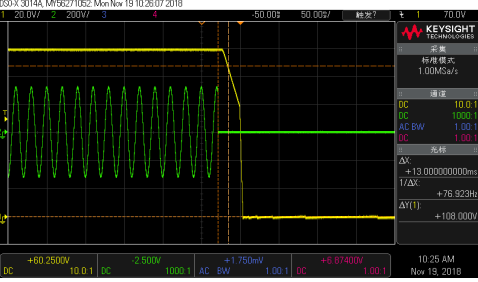


CH1: Output Voltage CH2: AC Input Voltage





3000W Power Supply with Single Output

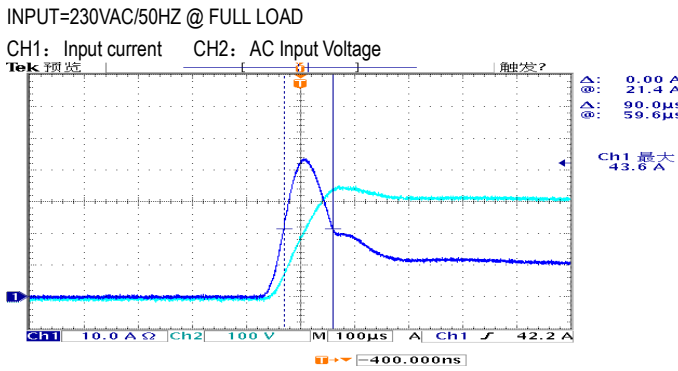
CSP-3000 series

| | | | | |
|--|--------------------|---------------------|---|---|
| 8 | RISE TIME (Max) | 230VAC/ 80ms | I/P: 230 VAC O/P: FULL LOAD Ta: 25°C | 58ms /230VAC FULL LOAD |
| <p>INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage</p>  | | | | |
| 9 | HOLD UP TIME(Typ) | 230VAC/ 10ms | I/P: 230 VAC O/P: FULL LOAD Ta: 25°C | 230VAC/ 13ms |
| <p>INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH2: AC Input Voltage</p>  | | | | |
| 10 | DYNAMIC LOAD | V1: 12000mVp-p(Max) | I/P: 230VAC O/P: (1) FULL / Min LOAD 90%DUTY / 1KHZ (2) 50% LOAD/Min LOAD 50%DUTY / 1KHZ Ta: 25°C | TEST: (1) 960 mVp-p (2) 1590mVp-p |
| <div style="display: flex; justify-content: space-around;"> <div data-bbox="151 1512 758 1904"> <p>1、FULL/Min LOAD 90%DUTY / 1KHZ</p>  </div> <div data-bbox="869 1512 1476 1904"> <p>2、50% LOAD/Min LOAD 50%DUTY / 1KHZ</p>  </div> </div> | | | | |

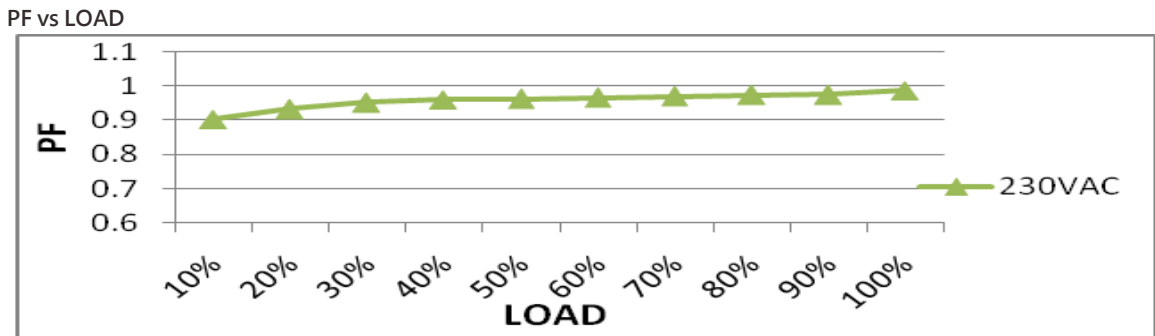


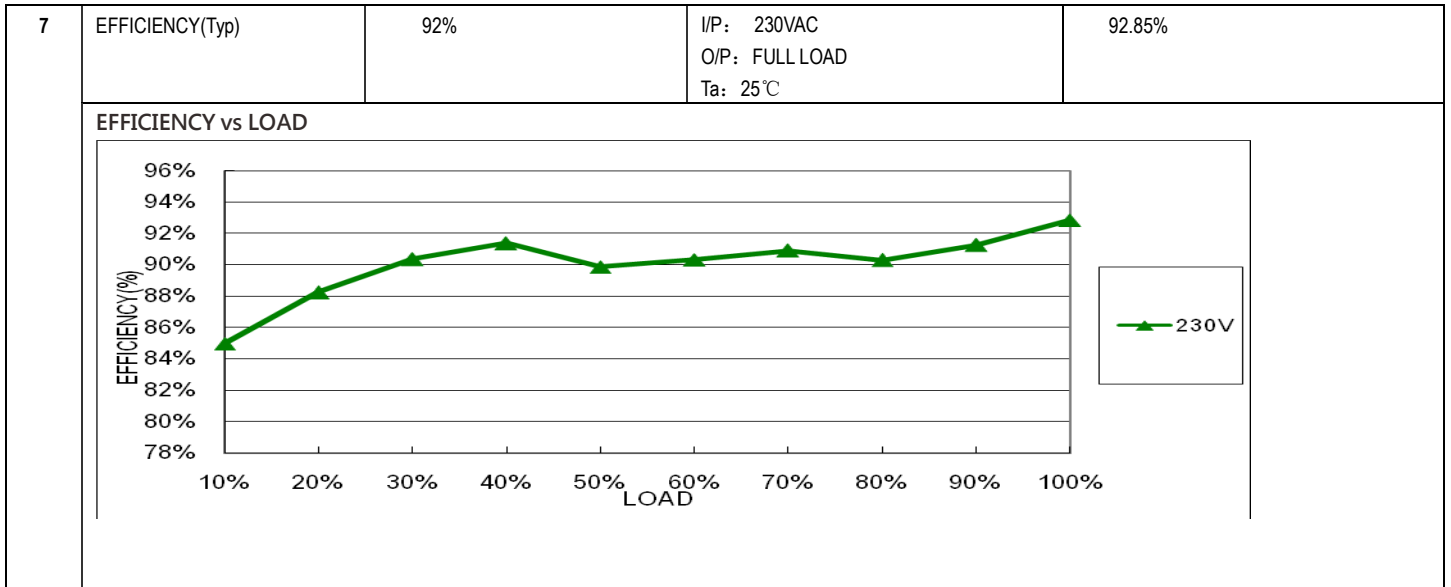
INPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|-----------------------|----------------------------------|--|--------------------------------|
| 1 | INPUT VOLTAGE RANGE | 180VAC~264 VAC | I/P: TESTING O/P: FULL LOAD (PLEASE CHECK DERATING CURVE) Ta: 25°C | 177V~300V |
| | | | I/P: LOW-LINE-3V=177 V HIGH-LINE+15%=300 V O/P: FULL/MIN LOAD ON: 30 Sec OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE) | TEST: OK |
| 2 | INPUT FREQUENCY RANGE | 50 HZ NO DAMAGE | I/P: 180 VAC ~264 VAC O/P: FULL~NO LOAD Ta: 25°C | TEST: OK |
| 3 | AC CURRENT | 230 VAC/ 16 A | I/P: 230 VAC O/P: FULL LOAD Ta: 25°C | I = 14.25A/ 230VAC |
| 4 | LEAKAGE CURRENT | < 0.3mA / 240VAC | I/P: 240VAC O/P: NO LOAD Ta: 25°C | L-FG: 0.229mA N-FG: 0.266mA |
| 5 | INRUSH CURRENT(Typ) | 230 V/ 60A COLD START at 230V | I/P: 230 VAC O/P: FULL LOAD Ta: 25°C | I=43.6A/ 230VAC T50=90us |



| | | | | |
|---|--------------|-------------------------|--|------------------------------|
| 6 | POWER FACTOR | 0.95/ 230VAC@ FULL LOAD | I/P: 230 VAC O/P: FULL LOAD Ta: 25°C | PF=0.978 @ FULL LOAD /230VAC |
|---|--------------|-------------------------|--|------------------------------|

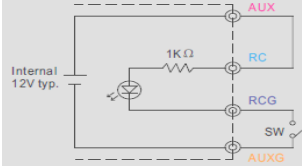
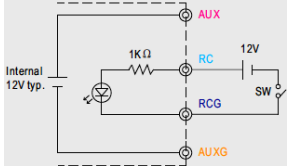
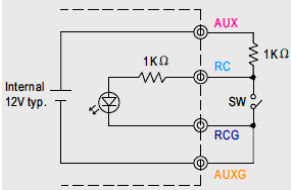




PROTECTION FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|-----------------------------|--|--|---|
| 1 | OVER VOLTAGE PROTECTION | 127V~150V | I/P: 230VAC O/P: TESTING | 139.8V/ 230VAC Shut down o/p voltage, re-power on to recovery |
| 2 | OVER LOAD PROTECTION | 105%~120%(Typ) | I/P: 180VAC I/P: 230VAC I/P: 264VAC O/P: TESTING Ta: 25°C | 115.76%/ 180VAC 119.2%/ 230VAC 116.1%/ 264VAC continuous constant current limiting |
| 3 | OVER TEMPERATURE PROTECTION | NO DAMAGE | I/P: 180VAC I/P: 264VAC O/P: FULL LOAD | O.T.P. Active Shut down o/p voltage, recovers automatically after temperature goes down or re-power on to recovery |
| 4 | SHORT PROTECTION | SHORT EVERY OUTPUT 1 HOUR NO DAMAGE | I/P: 180VAC I/P: 264VAC O/P: FULL LOAD Ta: 25°C | NO DAMAGE Shut down and latch off o/p voltage, re-power on to recovery |

CONTROL FUNCTION TEST

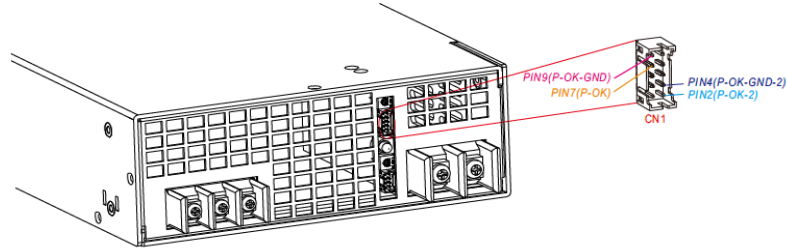
| NO | TEST ITEM | SPECICATION | TEST CONDITION | RESULT | | | | | | | | | | |
|-------------------|-----------------------|--|--|---------------|---------------|---------------|----------|-----------|---------|---------|------------|----------|----------|------|
| 1 | AUXILIARY POWER(AUX) | 12V@0.4A | I/P: 230 VAC O/P:FULLLOAD Ta:25°C | PASS | | | | | | | | | | |
| 2 | REMOTE ON-OFF CONTROL | <p>I/P:230VAC Rc+/Rc- O/P:FULL LOA /NO LOAD</p> <table border="1"> <thead> <tr> <th>Connection method</th> <th>Example2.2(A)</th> <th>Example2.2(B)</th> <th>Example2.2(C)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">SW Logic</td> <td>Output ON</td> <td>SW OPEN</td> <td>SW OPEN</td> </tr> <tr> <td>Output OFF</td> <td>SW CLOSE</td> <td>SW CLOSE</td> </tr> </tbody> </table> <p>1 、 Example 2.2(A): </p> <p>2 、 Example 2.2(B) : </p> <p>3、 Example 2.2(C): </p> | Connection method | Example2.2(A) | Example2.2(B) | Example2.2(C) | SW Logic | Output ON | SW OPEN | SW OPEN | Output OFF | SW CLOSE | SW CLOSE | PASS |
| Connection method | Example2.2(A) | Example2.2(B) | Example2.2(C) | | | | | | | | | | | |
| SW Logic | Output ON | SW OPEN | SW OPEN | | | | | | | | | | | |
| | Output OFF | SW CLOSE | SW CLOSE | | | | | | | | | | | |
| 3 | CURRENT SHARING | PSU1-PSU2 -P SU3 < 10% | I/P: 230 VAC O/P: FULL/50% LOAD Ta: 25°C | PASS | | | | | | | | | | |

ALARM
OUTPUT

SIGNAL

I/P:230VAC O/P:FULL LOAD Ta:25°C

※ Alarm signal is sent out through "P OK" & "P OK GND" and P OK2 & P OK GND2 pins on CN1. Please acknowledge an external voltage source is required for this function



| Function | Description | Output of alarm(P OK, Relay Contact) | Output of alarm(P OK2, TTL Signal) |
|----------|---|--|---|
| P OK | The signal is "Low" when the power supply is above 80% of the rated output voltage, or, say, Power OK | Low (0.5V max at 500mA) | Low (0.5V max at 10mA) |
| | The signal turns to be "High" when the power supply is under 80% of the rated output voltage, or, say, Power Fail | High or open (External applied voltage, 500mA max.) | High or open (External applied voltage, 10mA max.) |

Table 3.1 Explanation of alarm

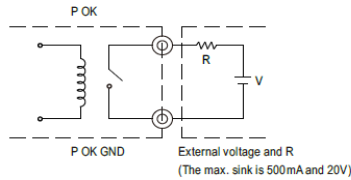


Fig. 3.2 Internal circuit of P OK (Relay, total is 10W)

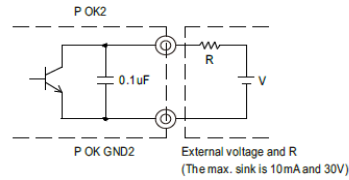


Fig. 3.3 Internal circuit of P OK2 (Open collector method)

4

1、ALARM SIGNAL OUTPUT

High (* ~ *V) : When the $V_{out} \leq 80\% \pm 5\%$.

Low (* ~ *V) : When $V_{out} \geq 80\% \pm 5\%$.

I/P: 230 VAC

O/P: FULL LOAD

Ta: 25°C

1、FULL LOAD P OK

| Vout | ALARM SIGNAL OUTPUT |
|------------------------------------|---------------------|
| High $V_{out} \leq 80\% \pm 5\%$. | 87 V/72.5% |
| Low $V_{out} \geq 80\% \pm 5\%$. | 120V/100% |

2、FULL LOAD P OK2

| Vout | ALARM SIGNAL OUTPUT |
|------------------------------------|---------------------|
| High $V_{out} \leq 80\% \pm 5\%$. | 79 V/65.8% |
| Low $V_{out} \geq 80\% \pm 5\%$. | 120V/100% |

OUTPUT
VOLTAGE/CURRENT
PROGRAMMABLE

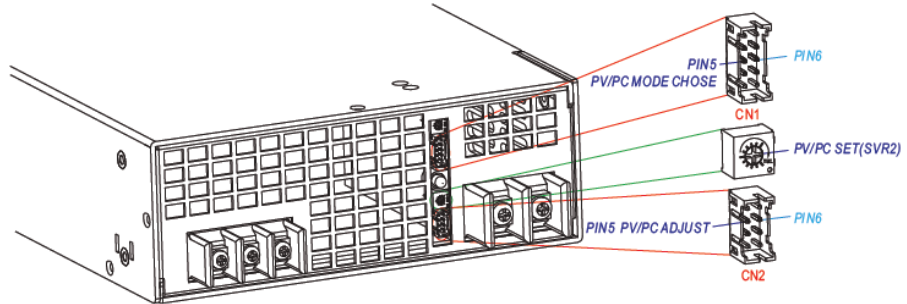
1. Output Voltage/Current Programming

※ Mode Setting

CN1:

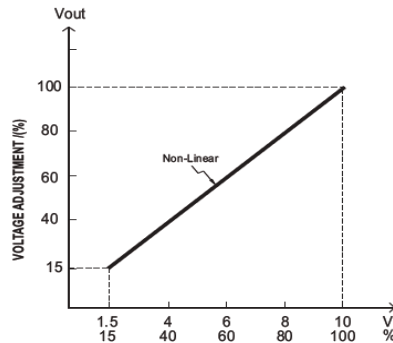
| | CONDITION | MODE | FUNCTION |
|-----------|-----------|---------|----------------------------|
| PIN5/PIN6 | SHORT | PV MODE | Output Voltage Programming |
| | OPEN | PC MODE | Output Current Programming |

※ The factory default settings: PV mode output max voltage pin5/pin6 short by jumper cap.
When pull out the jumper cap, the default settings: PC mode output max constant current.

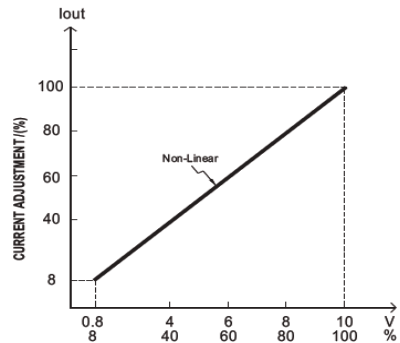


※ PV/PC Set adjustment

- ⊙ Adjust the resistance(SVR2) can set output voltage or constant current point, the adjusting range is 20%-100% of max voltage or max constant current point.
- ⊙ In the CN2, pin5/pin6 access external 10V voltage signal or 500-1KHz PWM signal can adjust the output voltage or constant current point.



PIN5/PIN6 ACCESS TO EXTERNAL VOLTAGE SIGNALS(DC/PWM)



PIN5/PIN6 ACCESS TO EXTERNAL VOLTAGE SIGNALS(DC/PWM)

| MODEL | 120V | 250V | 400V |
|----------|-----------------|-------------------|-----------------|
| PV range | 18 ~ 120V(max.) | 37.5 ~ 250V(max.) | 60 ~ 400V(max.) |
| PC range | 2.4 ~ 30A(max.) | 1.4 ~ 17A(max.) | 0.8 ~ 10A(max.) |

I/P: 230 VAC

O/P: FULL LOAD

Ta: 25°C

TEST RESULT: OK

1. FULL LOAD

| PV MODEL | 1.5V | 4V | 6V | 8V | 10V |
|----------|---------|---------|---------|---------|----------|
| SPEC | 15%V±5% | 40%V±5% | 60%V±5% | 80%V±5% | 100%V±5% |
| Vout | 15.08% | 41.83% | 62.26% | 82.67% | 101.17% |

| PV MODEL | 15% | 40% | 60% | 80% | 100% |
|----------|---------|---------|---------|---------|----------|
| SPEC | 15%V±5% | 40%V±5% | 60%V±5% | 80%V±5% | 100%V±5% |
| Vout | 15.09% | 40.5% | 60.33% | 80.33% | 101.17% |



3000W Power Supply with Single Output

CSP-3000 series

| 2.FULL LOAD | | | | | |
|------------------|-------------|--------------|--------------|--------------|---------------|
| PC MODEL | 0.8V | 4V | 6V | 8V | 10V |
| SPEC | 8% \pm 5% | 40% \pm 5% | 60% \pm 5% | 80% \pm 5% | 100% \pm 5% |
| I _{max} | 7.66% | 41.74% | 61.86% | 82.07% | 100.43% |

| PC MODEL | 8% | 40% | 60% | 80% | 100% |
|------------------|-------------|--------------|--------------|--------------|---------------|
| SPEC | 8% \pm 5% | 40% \pm 5% | 60% \pm 5% | 80% \pm 5% | 100% \pm 5% |
| I _{max} | 7.89% | 40.34% | 59.78% | 79.32% | 100.02% |

COMPONENT STRESS TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|---|------------------------|--|---|
| 1 | PWM Transistor (D to S) or (C to E) Peak Voltage | Q51 Rated 50A/600V | I/P: High-Line +3V =267V O/P: (1) Full Load Turn on (2) Output Short (3)Dynamic Load Full Load/ Min. Load 75%Duty/120Hz (4)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (5) Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6) 200% Load (7) NO Load (8) VOLTAGE PROGRAMMABLE (PV) 20%/60% | (1) 496V (2) 532V (3) 485V (4)488V (5) 488V (6) 533V (7) 500V (8) 20%496V 60%498V |
| 2 | PFC Transistor | Q1 Rated 52A/600V | I/P: High-Line +3V =267V O/P: (1) Full Load Turn on (2) Output Short (3)Dynamic Load Full Load/ Min. Load 75%Duty/120Hz (4)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (5) Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6) 200% Load (7) NO Load (8) VOLTAGE PROGRAMMABLE (PV) 20%/60% | (1) 496V (2) 436V (3) 500V (4)496V (5) 496V (6) 438V (7) 441V (8) 20%452V 60%473V |
| 3 | CLAMP Diode | D38 Rated 8A/ 600 V | I/P: High-Line +3V =267V O/P: (1) Full Load Turn on (2) Output Short (3)Dynamic Load Full Load/ Min. Load 75%Duty/120Hz (4)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (5) Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6) 200% Load (7) NO Load (8) VOLTAGE PROGRAMMABLE (PV) 20%/60% | (1) 432V (2) 460V (3) 436V (4)448V (5) 446V (6) 460V (7) 444V (8) 20%415V 60%426V |



3000W Power Supply with Single Output

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| | | | | |
|---|-------------------------|--------------------------------|--|---|
| 4 | Diode Peak Voltage | D100 Rated 30A/600V | I/P: High-Line +3V =267V O/P: (1) Full Load Turn on (2) Output Short (3)Dynamic Load Full Load/ Min. Load 75%Duty/120Hz (4)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (5) Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6) 200% Load (7) NO Load (8) VOLTAGE PROGRAMMABLE (PV) 20%/60% | (1) 432V (2) 460V (3) 436V (4)448V (5) 446V (6) 460V (7) 444V (8) 20%415V 60%426V |
| 5 | Input Capacitor Voltage | C5 Rated: 560 μ / 420 V | I/P: High-Line +3V =308 V O/P: (1)Full Load input on/off (2) Min load input on /Off (3)Full Load /Min load Change (4)Full load BURN-IN 1H Ta: 25°C | (1)396V (2)388V (3)401V (4)396V |
| 6 | Control IC Voltage Test | U5 Rated 17 V | I/P: High-Line +3V =308V O/P:(1)Full Load Input On/Off (2) Output Short (3)O.L.P (4)O.V.P. (5)NO LOAD VR 下限.LOW LINE (6) CV 下限 (7)VOLTAGE PROGRAMMABLE 20%/60% | (1) 14.1V (2) 15.1V (3) 14.5V (4)14.0V (5) 13.8V (6) 14.3V (7) 20%14.9V 60%14.5V |

SAFETY TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|----------------------|---|--|--|
| 1 | WITHSTAND VOLTAGE | I/P-O/P: 3.0KVAC/min I/P-FG: 2 KVAC/min O/P-FG: 0.5KVAC/min | I/P-O/P: 3.6 KVAC/min I/P-FG: 2.4KVAC/min O/P-FG: 0.6 KVAC/min Ta: 25°C | I/P-O/P: 3.45mA I/P-FG: 3.15mA O/P-FG: 3.085mA NO DAMAGE |
| 2 | ISOLATION RESISTANCE | I/P-O/P: 500VDC>100M Ω I/P-FG: 500VDC>100M Ω O/P-FG: 500VDC>100M Ω | I/P-O/P: 500 VDC I/P-FG: 500 VDC O/P-FG: 500 VDC Ta: 25°C | I/P-O/P: >3200M Ω I/P-FG: >4400 M Ω O/P-FG: >9999M Ω NO DAMAGE |
| 3 | GROUNDING CONTINUITY | FG(PE) TO CHASSIS OR TRACE < 100 m Ω | 40A / 2min Ta:25°C | 2m Ω |



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E.M.C TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|---|---|---|-------------------------------|
| 1 | HARMONIC | EN61000-3-2 | I/P: 230VAC/50HZ O/P: FULL LOAD Ta: 25°C | PASS |
| 2 | CONDUCTION | EN55032 CLASS A | I/P: 230 VAC/50HZ O/P: FULL LOAD Ta: 25°C | PASS Test by certified Lab |
| 3 | RADIATION | EN55032 CLASS A | I/P: 230 VAC/50HZ O/P: FULL LOAD Ta: 25°C | PASS Test by certified Lab |
| 4 | E.S.D | EN61000-4-2 LIGHT INDUSTRY Air: 8KV Contact: 4KV | I/P: 230 VAC/50HZ O/P: FULL LOAD Ta: 25°C | CRITERIA A |
| 5 | E.F.T | EN61000-4-4 LIGHT INDUSTRY INPUT: 2KV | I/P: 230VAC/50HZ O/P: FULL LOAD Ta: 25°C | CRITERIA A |
| 6 | SURGE | EN61000-4-5 LIGHT INDUSTRY L-N : 1KV L-PE: 2KV | I/P: 230VAC/50HZ O/P: FULL LOAD Ta: 25°C | CRITERIA A |
| 7 | Test by certified Lab & Test Report Prepare. Any contradictions of the test results please refer to the latest EMC test report. | | | |



RELIABILITY TEST

ENVIRONMENT TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----|------------------------------|--|---|---|----|----------|--------------------------|-------------------------|---|-----|--------|--------|---|------|--------|--------|---|------|--------|--------|---|-----|--------|--------|---|----|--------|--------|---|-----|--------|--------|---|----|--------|--------|---|----|--------|--------|---|----|--------|--------|----|----|--------|--------|----|----|--------|--------|----|----|--------|--------|----|-----|--------|--------|----|-----|--------|--------|----|-----|--------|--------|----|----|--------|--------|----|-----|--------|--------|----|----|--------|--------|----|-----|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|-----|--------|--------|----|----|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|----|--------|--------|
| 1 | TEMPERATURE RISE TEST | MODEL: CSP-3000-120 1. ROOM AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 33.5°C 2. HIGH AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta=51.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | <table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 33.5 °C</th> <th>HIGH AMBIENT Ta=51.2 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>LF2</td><td>73.6°C</td><td>91.2°C</td></tr> <tr><td>2</td><td>RTH1</td><td>48.8°C</td><td>64.9°C</td></tr> <tr><td>3</td><td>ZNR2</td><td>45.9°C</td><td>61.8°C</td></tr> <tr><td>4</td><td>BD1</td><td>66.7°C</td><td>82.2°C</td></tr> <tr><td>5</td><td>L1</td><td>60.4°C</td><td>76.4°C</td></tr> <tr><td>6</td><td>RY1</td><td>52.8°C</td><td>68.4°C</td></tr> <tr><td>7</td><td>C9</td><td>56.9°C</td><td>71.4°C</td></tr> <tr><td>8</td><td>C5</td><td>53.6°C</td><td>70.6°C</td></tr> <tr><td>9</td><td>Q1</td><td>78.0°C</td><td>97.3°C</td></tr> <tr><td>10</td><td>D2</td><td>80.7°C</td><td>99.1°C</td></tr> <tr><td>11</td><td>Q3</td><td>69.2°C</td><td>87.7°C</td></tr> <tr><td>12</td><td>U1</td><td>57.1°C</td><td>74.6°C</td></tr> <tr><td>13</td><td>D37</td><td>58.4°C</td><td>75.3°C</td></tr> <tr><td>14</td><td>C87</td><td>70.9°C</td><td>89.1°C</td></tr> <tr><td>15</td><td>Q10</td><td>63.7°C</td><td>81.1°C</td></tr> <tr><td>16</td><td>T4</td><td>73.2°C</td><td>91.6°C</td></tr> <tr><td>17</td><td>Q53</td><td>72.7°C</td><td>92.8°C</td></tr> <tr><td>18</td><td>T5</td><td>73.9°C</td><td>93.9°C</td></tr> <tr><td>19</td><td>U12</td><td>57.3°C</td><td>74.1°C</td></tr> <tr><td>20</td><td>D104</td><td>77.0°C</td><td>90.6°C</td></tr> <tr><td>21</td><td>D106</td><td>38.8°C</td><td>86.6°C</td></tr> <tr><td>22</td><td>L101</td><td>61.3°C</td><td>75.8°C</td></tr> <tr><td>23</td><td>C115</td><td>56.9°C</td><td>72.1°C</td></tr> <tr><td>24</td><td>C120</td><td>62.1°C</td><td>79.0°C</td></tr> <tr><td>25</td><td>C306</td><td>63.4°C</td><td>79.8°C</td></tr> <tr><td>26</td><td>D301</td><td>75.1°C</td><td>91.0°C</td></tr> <tr><td>27</td><td>RG1</td><td>78.4°C</td><td>91.2°C</td></tr> <tr><td>28</td><td>U5</td><td>58.1°C</td><td>73.8°C</td></tr> <tr><td>29</td><td>U900</td><td>50.4°C</td><td>68.9°C</td></tr> <tr><td>30</td><td>U530</td><td>54.3°C</td><td>70.7°C</td></tr> <tr><td>31</td><td>Q702</td><td>63.3°C</td><td>77.0°C</td></tr> <tr><td>32</td><td>RTH3</td><td>59.8°C</td><td>77.9°C</td></tr> <tr><td>33</td><td>TSW1</td><td>58.2°C</td><td>76.1°C</td></tr> <tr><td>34</td><td>U500</td><td>60.1°C</td><td>77.1°C</td></tr> <tr><td>35</td><td>TC</td><td>40.5°C</td><td>56.6°C</td></tr> </tbody> </table> | NO | Position | ROOM AMBIENT Ta= 33.5 °C | HIGH AMBIENT Ta=51.2 °C | 1 | LF2 | 73.6°C | 91.2°C | 2 | RTH1 | 48.8°C | 64.9°C | 3 | ZNR2 | 45.9°C | 61.8°C | 4 | BD1 | 66.7°C | 82.2°C | 5 | L1 | 60.4°C | 76.4°C | 6 | RY1 | 52.8°C | 68.4°C | 7 | C9 | 56.9°C | 71.4°C | 8 | C5 | 53.6°C | 70.6°C | 9 | Q1 | 78.0°C | 97.3°C | 10 | D2 | 80.7°C | 99.1°C | 11 | Q3 | 69.2°C | 87.7°C | 12 | U1 | 57.1°C | 74.6°C | 13 | D37 | 58.4°C | 75.3°C | 14 | C87 | 70.9°C | 89.1°C | 15 | Q10 | 63.7°C | 81.1°C | 16 | T4 | 73.2°C | 91.6°C | 17 | Q53 | 72.7°C | 92.8°C | 18 | T5 | 73.9°C | 93.9°C | 19 | U12 | 57.3°C | 74.1°C | 20 | D104 | 77.0°C | 90.6°C | 21 | D106 | 38.8°C | 86.6°C | 22 | L101 | 61.3°C | 75.8°C | 23 | C115 | 56.9°C | 72.1°C | 24 | C120 | 62.1°C | 79.0°C | 25 | C306 | 63.4°C | 79.8°C | 26 | D301 | 75.1°C | 91.0°C | 27 | RG1 | 78.4°C | 91.2°C | 28 | U5 | 58.1°C | 73.8°C | 29 | U900 | 50.4°C | 68.9°C | 30 | U530 | 54.3°C | 70.7°C | 31 | Q702 | 63.3°C | 77.0°C | 32 | RTH3 | 59.8°C | 77.9°C | 33 | TSW1 | 58.2°C | 76.1°C | 34 | U500 | 60.1°C | 77.1°C | 35 | TC | 40.5°C | 56.6°C |
| NO | Position | ROOM AMBIENT Ta= 33.5 °C | HIGH AMBIENT Ta=51.2 °C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | LF2 | 73.6°C | 91.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | RTH1 | 48.8°C | 64.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | ZNR2 | 45.9°C | 61.8°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | BD1 | 66.7°C | 82.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | L1 | 60.4°C | 76.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | RY1 | 52.8°C | 68.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | C9 | 56.9°C | 71.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | C5 | 53.6°C | 70.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Q1 | 78.0°C | 97.3°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | D2 | 80.7°C | 99.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Q3 | 69.2°C | 87.7°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | U1 | 57.1°C | 74.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | D37 | 58.4°C | 75.3°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | C87 | 70.9°C | 89.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Q10 | 63.7°C | 81.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | T4 | 73.2°C | 91.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Q53 | 72.7°C | 92.8°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | T5 | 73.9°C | 93.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | U12 | 57.3°C | 74.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | D104 | 77.0°C | 90.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | D106 | 38.8°C | 86.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | L101 | 61.3°C | 75.8°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | C115 | 56.9°C | 72.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | C120 | 62.1°C | 79.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | C306 | 63.4°C | 79.8°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | D301 | 75.1°C | 91.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | RG1 | 78.4°C | 91.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | U5 | 58.1°C | 73.8°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | U900 | 50.4°C | 68.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | U530 | 54.3°C | 70.7°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | Q702 | 63.3°C | 77.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 | RTH3 | 59.8°C | 77.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 33 | TSW1 | 58.2°C | 76.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34 | U500 | 60.1°C | 77.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 | TC | 40.5°C | 56.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | LOW TEMPERATURE TURN ON TEST | TURN ON AFTER 2 HOUR | I/P: 264VAC/180VAC O/P: FULL LOAD Ta= -25°C | TEST: OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



3000W Power Supply with Single Output

CSP-3000 series

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|----|---|---|---|---------------------|
| 3 | HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST | AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE | I/P: 272VAC O/P: FULL LOAD Ta=50 °C HUMIDITY= 95% R.H | TEST: OK |
| 4 | TEMPERATURE COEFFICIENT | ±0.05%/°C (0~50°C) | I/P: 230 VAC O/P: FULL LOAD | ±0.004%/°C (0~50°C) |
| 5 | STORAGE TEMPERATURE TEST | -40~+85°C | 1. Thermal shock Temperature: -45°C~ +90°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle: 10CYCLE 5. Input/Output condition: | |
| 6 | THERMAL SHOCK TEST | -20~+50°C | 1. Thermal shock Temperature: -25°C~ +55°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle: 16CYCLE 5. Input/Output condition: 15cyle:230VAC/ FULL LOAD AC on 3 sec/AC off 1 sec TEST 1cyle:230VAC/ FULL LOAD Burn In Test TEST: OK | |
| 7 | VIBRATION TEST | 10~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes | 1 Carton & 1 Set (1) Waveform: Sine Wave (2) Frequency: 10~500Hz (3) Sweep Time: 10min/sweep cycle (4) Acceleration: 3G (5) Test Time: 180min in each axis (X.Y.Z) (6) Ta: 25°C | |
| 8 | CAPACITOR LIFE CYCLE | CSP-3000-120: SUPPOSE C115 IS THE MOST CRITICAL COMPONENT (1) I/P: 230VAC O/P: FULL LOAD Ta= 25 °C LIFE TIME (2) I/P: 230VAC O/P: FULL LOAD Ta= 50 °C LIFE TIME (3) I/P: 230VAC O/P: 75% LOAD Ta= 50 °C LIFE TIME (3) I/P: 230VAC O/P: 50% LOAD Ta= 50 °C LIFE TIME | (1) 891878 HRS (2) 190159 HRS (3) 197799 HRS (4) 298771 HRS | |
| 9 | MTBF | Conducted by Parts Stress Analysis Prediction 721.1K hrs min. Telcordia SR-332 (Bellcore) ; 80.5K hrs min. MIL-HDBK-217F (25°C) | | |
| 10 | Ongoing Reliability Test | I/P: 230VAC O/P: FULL LOAD TA=50°C Demonstration Mean Time Between Failure : 50,000 hours | | |

| TEST RESULT | TESTER | REVIEW | APPROVAL |
|-------------|------------|--------|----------|
| PASS | WUWQ/ZHOUB | WENF | LIUWY |