



Test Report: RSD-500-48

500W Enclosed Type Reliable Railway DC-DC Converter

■ 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

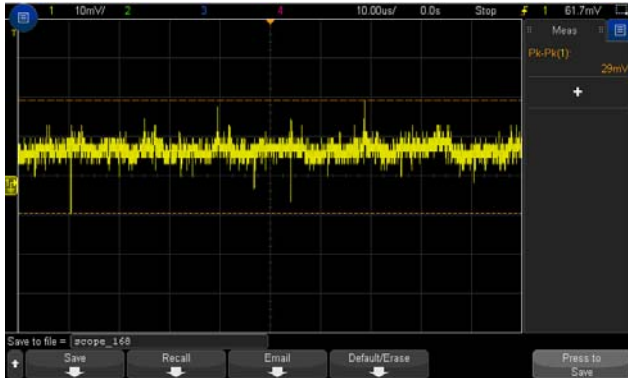
ENVIRONMENT TEST

DESIGN VERIFY TEST

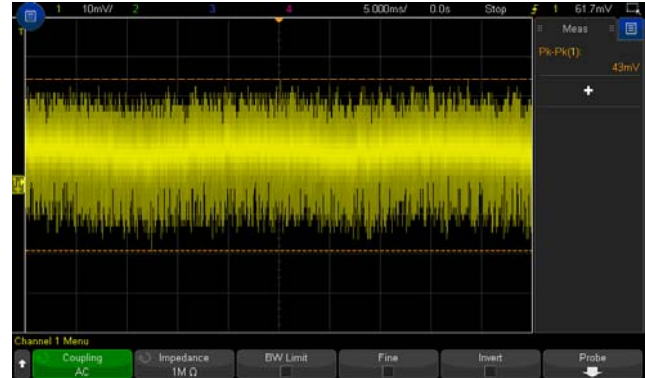
OUTPUT FUNCTION TEST

| N O | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|-----|-------------------------------|------------------|--|------------------|
| 1 | OUTPUT VOLTAGE ADJUST RANGE | CH1:48V~56V | I/P: 24VDC O/P : MIN LOAD Ta : 25°C | 45.71V~57.76V |
| 2 | OUTPUT VOLTAGE TOLERANCE(Max) | V1:-1%~+1% | I/P: 16.8VDC /33.6 VDC O/P:FULL/ MIN. LOAD Ta:25°C | V1: -0.05%~0.14% |
| 3 | LINE REGULATION(Max) | V1: -0.5%~+0.5 % | I/P: 16.8 VDC /33.6VDC O/P:FULL LOAD Ta:25°C | V1: -0.03%~0.07% |
| 4 | LOAD REGULATION(Max) | V1:-1%~+1 % | I/P: 24VDC O/P:FULL~MIN LOAD Ta:25°C | V1:0.05%~0.14% |
| 5 | OVER/UNDERSHOOT TEST | <±5% | I/P: 24VDC O/P:FULL LOAD Ta:25°C | TEST:2.1% |
| 6 | RIPPLE & NOISE (Max) | V1:150mVp-p | I/P: 24VDC O/P:FULL LOAD Ta:25°C | V1:43mVp-p |

high frequency :



low frequency :

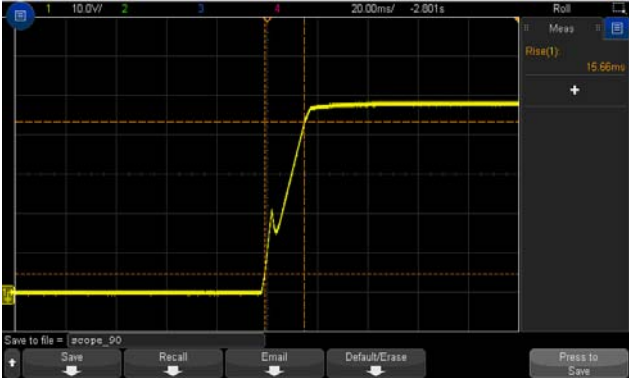

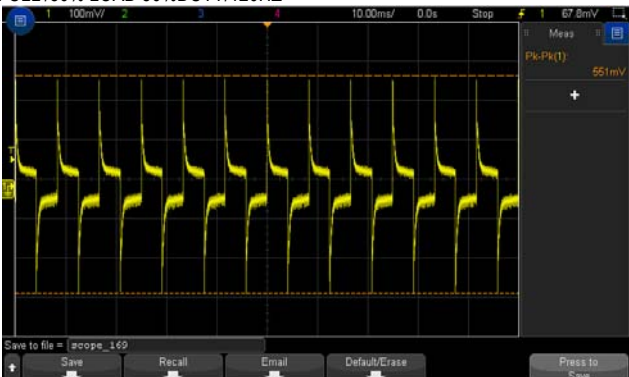
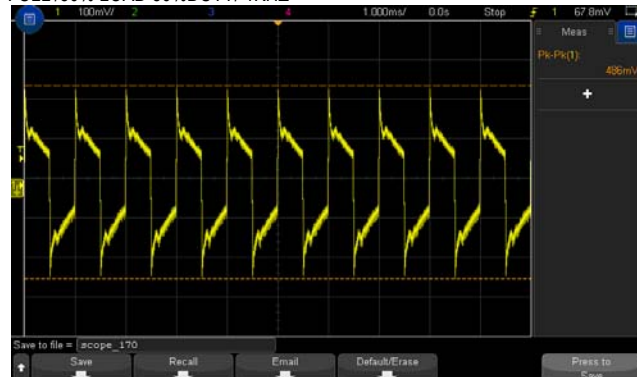


| | | | | |
|---|------------------|-------------|--|-------|
| 7 | SET UP TIME(Max) | 24VDC/500ms | I/P: 24VDC O/P:FULL LOAD Ta:25°C | 115ms |
|---|------------------|-------------|--|-------|

INPUT=24VDC @ FULL LOAD

CH1 : Output Voltage CH2 : DC Input Voltage



| | | | | |
|--|-------------------------|---------------|---|----------------------|
| 8 | RISE TIME (Max) | 24VDC/ 60ms | I/P: 24VDC O/P:FULL LOAD Ta:25°C | 15.66ms |
| <p>INPUT=24VDC @ FULL LOAD CH1 : Output Voltage</p>  | | | | |
| 9 | HOLD UP TIME (TYP) | 24VDC /3ms | I/P: 24VDC O/P:FULL LOAD Ta:25°C | 11.4ms |
| <p>INPUT=24VDC @ FULL LOAD CH1 : Output Voltage CH2 : DC Input Voltage</p>  | | | | |
| 10 | TRANSIENT RECOVERY TIME | V1:4800mVp-p | I/P: 24VDC O/P:40% LOAD CHANGE 50%DUTY/120HZ | 446mVp-p |
| 11 | DYNAMIC LOAD | V1: 4800mVp-p | I/P: 24VDC O/P: (1)FULL /50% LOAD 50%DUTY/120HZ (2)FULL /50% LOAD 50%DUTY/ 1KHZ Ta:25°C | 551mVp-p 486mVp-p |
| <p>FULL /50% LOAD 50%DUTY/120HZ</p>  <p>FULL /50% LOAD 50%DUTY/ 1KHZ</p>  | | | | |

INPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--------------------------------|---|--|----------------------------------|----------|------------------------|----------------------|------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|----|----|----|
| 1 | INPUT VOLTAGE RANGE | 16.8VDC~33.6 VDC 14.4VDC~16.8VDC/1s | I/P:TESTING O/P:FULL LOAD Ta:25°C | (1) 15.37V~ 33.6V (2) TEST:OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | I/P: LOW-LINE-0.2=16.6 V HIGH-LINE+1V= 34.6V O/P:FULL/MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec . OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE) | TEST:OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | INPUT CURRENT(TYP) | 24VDC/21.5 A | I/P: 24VDC O/P:FULL LOAD Ta:25°C | I=19.32A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | EFFICIENCY(TYP) | 92% | I/P: 110VDC O/P:FULL LOAD Ta:25°C | 92.59% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>EFFICIENCY vs LOAD</p> <table border="1"> <caption>Approximate Efficiency vs Load Data</caption> <thead> <tr> <th>Load (%)</th> <th>16.8VDC Efficiency (%)</th> <th>24VDC Efficiency (%)</th> <th>33.6VDC Efficiency (%)</th> </tr> </thead> <tbody> <tr><td>10</td><td>88</td><td>84</td><td>80</td></tr> <tr><td>20</td><td>91</td><td>89</td><td>87</td></tr> <tr><td>30</td><td>92</td><td>91</td><td>89</td></tr> <tr><td>40</td><td>92</td><td>92</td><td>90</td></tr> <tr><td>50</td><td>92</td><td>92</td><td>91</td></tr> <tr><td>60</td><td>92</td><td>92</td><td>91</td></tr> <tr><td>70</td><td>91</td><td>92</td><td>92</td></tr> <tr><td>80</td><td>91</td><td>92</td><td>92</td></tr> <tr><td>90</td><td>90</td><td>92</td><td>92</td></tr> <tr><td>100</td><td>90</td><td>92</td><td>92</td></tr> </tbody> </table> | | | | | Load (%) | 16.8VDC Efficiency (%) | 24VDC Efficiency (%) | 33.6VDC Efficiency (%) | 10 | 88 | 84 | 80 | 20 | 91 | 89 | 87 | 30 | 92 | 91 | 89 | 40 | 92 | 92 | 90 | 50 | 92 | 92 | 91 | 60 | 92 | 92 | 91 | 70 | 91 | 92 | 92 | 80 | 91 | 92 | 92 | 90 | 90 | 92 | 92 | 100 | 90 | 92 | 92 |
| Load (%) | 16.8VDC Efficiency (%) | 24VDC Efficiency (%) | 33.6VDC Efficiency (%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 88 | 84 | 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 91 | 89 | 87 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | 92 | 91 | 89 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 92 | 92 | 90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 92 | 92 | 91 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | 92 | 92 | 91 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 70 | 91 | 92 | 92 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 80 | 91 | 92 | 92 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90 | 90 | 92 | 92 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100 | 90 | 92 | 92 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | INRUSH CURRENT(TYP) | 30 A COLD START | I/P:24VDC O/P:FULL LOAD Ta:25°C | I=17.3A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>INPUT=24VDC @ FULL LOAD CH2 : DC Input Voltage CH4 : Input current</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | INTERRUPTION OF VOLTAGE SUPPLY | B - type comply with S2 level (10ms)@ 70% load ; | I/P: 24VDCSHORT O/P: TESTING Ta:25°C | 15.4ms/70% load | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



PROTECTION FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|--------------------------------|--|--|---|
| 1 | OVER LOAD PROTECTION | 105%~135% RATED OUTPUT POWER | I/P: 16.8VDC I/P: 24VDC I/P: 33.6VDC O/P: TESTING Ta: 25°C | 121.83%/16.8VDC 122.28%/24VDC 122.55%/33.6VDC PROTECTION TYPE: Constant current limiting 105%~135% rated output power with auto-recovery. |
| 2 | OVER VOLTAGE PROTECTION | CH: 57.6 V~ 65 V | I/P: 16.8VDC I/P: 24VDC I/P: 33.6 VDC O/P: MIN LOAD Ta: 25°C | 61.5V/16.8VDC 61.5V/24VDC 61.5V/33.6VDC PROTECTION TYPE: Shut down O/P voltage, re-power on to recover |
| 3 | OVER TEMPERATURE PROTECTION | SPEC: NO DAMAGE | I/P: 33.6/16.8VDC O/P: FULL LOAD | O.T.P. Active PROTECTION TYPE: Shut down O/P voltage, re-power on to recover |
| 4 | SHORT PROTECTION | SHORT EVERY OUTPUT 1 HOUR NO DAMAGE | I/P: 33.6/16.8VDC O/P: FULL LOAD Ta: 25°C | NO DAMAGE PROTECTION TYPE: Constant current limiting with auto-recovery recovers automatically after fault condition is removed. |
| 5 | INPUT REVERSE | POWER OK | I/P: 33.6/16.8VDC O/P: FULL LOAD Ta: 25°C | NO DAMAGE |
| 6 | INPUT UNDER VOLTAGE PROTECTION | 24 VIN (D-TYPE) : POWER ON >=16.8V POWER OFF <=16.5V | I/P: TESTING O/P: FULL LOAD Ta: 25°C | TEST : POWER ON >=15.9V POWER OFF <=13.635 V |

COMPONENT STRESS TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|---|---|--|--|
| 1 | PWM Transistor (D to S) or (C to E) Peak Voltage | Q10/Q12/ Q21/Q23 Rated : 100 A/ 100V | DC ON/OFF I/P: High-Line +1V =34.6V VDS: O/P: (1) Full Load (2) Output Short (3) Dynamic Load Full Load/ Min. Load 90% Duty/1KHz (4) Dynamic Load Full Load/ Min. Load 90% Duty/3KHz (5) Dynamic Load Full Load/ Min. Load 90% Duty/5KHz (6) Dynamic Load 100% Load/ Min. Load 50% Duty/120Hz (7) 0% → 400% Load. Ta: 25°C | Q10 Q12 VDS: VDS: (1) 54.7V (1) 56.0V (2) 67.2V (2) 67.0V (3) 81.8V (3) 82.6V (4) 77.7V (4) 77.7V (5) 76.1V (5) 75.3V (6) 72.1V (6) 73.7V (7) 85.5V (7) 88.7V Q21 Q23 VDS: VDS: (1) 64.2V (1) 61.5V (2) 76.9V (2) 73.7V (3) 86.6V (3) 85.0V (4) 81.0V (4) 78.5V (5) 76.9V (5) 75.3V (6) 77.7V (6) 75.3V (7) 91.9V (7) 87.9V |
| 2 | Clamp MOSFET (D to S) or (C to E) Peak Voltage | Q8/Q19 Rated : 73 A/ 100 V | DC ON/OFF | Q8 Q19 VDS: VDS: |

| | | | | | |
|---|-------------------------|---|---|---|---|
| | | | <p>I/P:High-Line +1V =34.6V VDS: O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load. Ta:25°C</p> | <p>(1) 47.7V (2) 56.2V (3) 85.0V (4) 67.4V (5) 65.8V (6) 77.7V (7) 71.3V</p> | <p>(1) 47.3V (2) 59.8V (3) 85.0V (4) 73.7V (5) 64.2V (6) 70.2V (7) 79.8V</p> |
| 3 | Diode Peak Voltage | <p>Q100/Q101/ Q200/Q201 Rated : 20 A/ 400V Q102/Q103/ Q104/Q105 Rated : 20 A/ 400V</p> | <p>DC ON/OFF I/P:High-Line +1V =34.6V VOmax: O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load. (8).NO LOAD VO: O/P: (1)Full Load Ta:25°C</p> | <p>Q100: VOmax: VDS: (1) 328V (2) 263V (3) 364V (4) 364V (5) 364V (6) 360V (7) 305V (8) 154V VO: (1) 311V Q103: VOmax: VDS: (1) 354V (2) 362V (3) 358V (4) 358V (5) 358V (6) 359V (7) 358V (8) 350V VO: (1) 350V</p> | <p>Q200: VOmax: VDS: (1) 309V (2) 253V (3) 366V (4) 366V (5) 362V (6) 362V (7) 299V (8) 166V VO: (1) 279V Q105: VOmax: VDS: (1) 354V (2) 362V (3) 358V (4) 358V (5) 358V (6) 358V (7) 354V (8) 350V VO: (1) 350V</p> |
| 4 | Input Capacitor Voltage | <p>C5/C35 Rated: : 3300 μ / 35V</p> | <p>I/P:High-Line +1V =34.6V O/P: (1)Full Load input on/off (2) Min load input on /Off (3)Full Load /Min load Change (4)Full load continue Ta:25°C</p> | <p>C5 (1) 34.9V (2) 34.7V (3) 34.7V (4) 34.7 V</p> | <p>C35 (1) 35.8V (2) 34.1V (3) 34.5V (4) 34.5V</p> |
| 5 | Control IC Voltage Test | <p>PWM IC U4 Rated: 7.5V~ 15V O/P U201 Rated: 0V~ 32V</p> | <p>DC ON/OFF I/P:High-Line +3V =34.6 V O/P(1)FULL LOAD (2) Output Short (3)O.L.P (4)O.V.P. (5)NO LOAD VRmin(Low LINE) Ta:25°C</p> | <p>U4 (1) 14.0V (2) 14.2V (3) 14.2V (4) 14.0V (5) 11.6V</p> | <p>U201 (1) 13.48V (2) 13.4V (3) 13.24V (4) 26.3V (5) 10.75V</p> |

SAFETY TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|---------------------|--|---|--|
| 1 | WITHSTANDVOLTAGE | EN 60950-1 I/P-O/P:4KVDC/min I/P-FG:2.5 KVDC/min O/P-FG:2.5KVDC/min | I/P-O/P: 4.4KVDC/min I/P-FG: 3 KVDC/min O/P-FG:3KVDC/min Ta:25°C | I/P-O/P: 0.2uA I/P-FG: 0.4 uA O/P-FG: 0 uA NO DAMAGE |
| 2 | ISOLATIONRESISTANCE | I/P-O/P:500VDC>100MΩ I/P-FG: 500VDC>100MΩ O/P-FG:500VDC>100MΩ | I/P-O/P: 600 VDC I/P-FG: 600 VDC O/P-FG: 600 VDC Ta:25°C | I/P-O/P: 9999MΩ I/P-FG: 9999MΩ O/P-FG: 9999MΩ NO DAMAGE |
| 3 | GROUNDINGCONTINUITY | EN 60950-1 FG(PE) TO CHASSIS OR TRACE < 100 mΩ | 40A / 2min Ta:25°C | 3mΩ |

E.M.C TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|---|--|--|---|
| 1 | RADIATION | EN55032 CLASS B | I/P: 24VDC O/P:FULL LOAD Ta:25°C | PASS Test by certified Lab |
| 2 | CONDUCTION | EN55032 CLASS A | I/P: 24VDC O/P:FULL LOAD Ta:25°C | PASS Test by certified Lab |
| 3 | E.S.D | EN61000-4-2 <input type="checkbox"/> MEDICAL AIR: 15KV / Contact: 8KV <input type="checkbox"/> LIGHT INDUSTRY AIR: 8KV / Contact: 4KV <input checked="" type="checkbox"/> INDUSTRY AIR: 8KV / Contact: 6KV | I/P: 24VDC O/P:FULL LOAD Ta:25°C | <input checked="" type="checkbox"/> CRITERIA A <input type="checkbox"/> CRITERIA B |
| 4 | E.F.T | EN61000-4-4 <input type="checkbox"/> LIGHT INDUSTRY INPUT: 0.5KV <input type="checkbox"/> MEDICAL <input checked="" type="checkbox"/> INDUSTRY INPUT: 2KV | I/P:24VDC O/P:FULL LOAD Ta:25°C | <input checked="" type="checkbox"/> CRITERIA A <input type="checkbox"/> CRITERIA B |
| 5 | SURGE | IEC61000-4-5 <input checked="" type="checkbox"/> INDUSTRY L-N :1KV L,N-PE:2KV | I/P:24VDC O/P:FULL LOAD Ta:25°C | <input checked="" type="checkbox"/> CRITERIA A <input type="checkbox"/> CRITERIA B |
| 6 | 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 : RSD-500B-48 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 24 VDC O/P : FULL LOAD Ta= 25 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 24 VDC O/P : FULL LOAD Ta= 55 °C | | |

| | | <table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 25 °C</th> <th>HIGH AMBIENT Ta= 55 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>LF1</td><td>66.6°C</td><td>96.4°C</td></tr> <tr><td>2</td><td>C17</td><td>69.7°C</td><td>98.9°C</td></tr> <tr><td>3</td><td>LF2</td><td>71.6°C</td><td>101.2°C</td></tr> <tr><td>4</td><td>Q1</td><td>66.0°C</td><td>95.4°C</td></tr> <tr><td>5</td><td>C6</td><td>68.9°C</td><td>98.4°C</td></tr> <tr><td>6</td><td>Q10</td><td>68.4°C</td><td>98.0°C</td></tr> <tr><td>7</td><td>ZNR1</td><td>61.8°C</td><td>91.2°C</td></tr> <tr><td>8</td><td>C14</td><td>67.4°C</td><td>96.5°C</td></tr> <tr><td>9</td><td>RY</td><td>67.6°C</td><td>96.6°C</td></tr> <tr><td>10</td><td>Q39</td><td>73.1°C</td><td>101.1°C</td></tr> <tr><td>11</td><td>R90</td><td>81.0°C</td><td>108.0°C</td></tr> <tr><td>12</td><td>D2</td><td>67.4°C</td><td>97.1°C</td></tr> <tr><td>13</td><td>Q23</td><td>69.5°C</td><td>99.7°C</td></tr> <tr><td>14</td><td>C18</td><td>68.2°C</td><td>97.7°C</td></tr> <tr><td>15</td><td>U2</td><td>70.5°C</td><td>99.9°C</td></tr> <tr><td>16</td><td>T3</td><td>72.6°C</td><td>103.0°C</td></tr> <tr><td>17</td><td>T5</td><td>71.5°C</td><td>101.5°C</td></tr> <tr><td>18</td><td>U4</td><td>76.7°C</td><td>106.6°C</td></tr> <tr><td>19</td><td>Q8</td><td>66.5°C</td><td>96.3°C</td></tr> <tr><td>20</td><td>TSW1</td><td>70.0°C</td><td>100.4°C</td></tr> <tr><td>21</td><td>T4</td><td>72.6°C</td><td>103.0°C</td></tr> <tr><td>22</td><td>Q19</td><td>65.6°C</td><td>96.0°C</td></tr> <tr><td>23</td><td>T6</td><td>71.6°C</td><td>102.1°C</td></tr> <tr><td>24</td><td>T2</td><td>73.9°C</td><td>104.4°C</td></tr> <tr><td>25</td><td>Q201</td><td>71.5°C</td><td>101.7°C</td></tr> <tr><td>26</td><td>Q104</td><td>70.1°C</td><td>100.1°C</td></tr> <tr><td>27</td><td>L101</td><td>75.8°C</td><td>107.6°C</td></tr> <tr><td>28</td><td>T1</td><td>71.1°C</td><td>101.6°C</td></tr> <tr><td>29</td><td>Q100</td><td>69.9°C</td><td>100.4°C</td></tr> <tr><td>30</td><td>Q103</td><td>70.7°C</td><td>100.9°C</td></tr> <tr><td>31</td><td>L100</td><td>73.5°C</td><td>105.4°C</td></tr> <tr><td>32</td><td>C115</td><td>68.1°C</td><td>99.2°C</td></tr> <tr><td>33</td><td>LF100</td><td>58.4°C</td><td>89.4°C</td></tr> <tr><td>34</td><td>C103</td><td>68.5°C</td><td>99.2°C</td></tr> <tr><td>35</td><td>C102</td><td>66.3°C</td><td>96.9°C</td></tr> <tr><td>36</td><td>U201</td><td>66.3°C</td><td>96.5°C</td></tr> <tr><td>37</td><td>U5</td><td>65.9°C</td><td>96.0°C</td></tr> <tr><td>38</td><td>Q204</td><td>65.8°C</td><td>95.8°C</td></tr> <tr><td>39</td><td>Q37</td><td>69.7°C</td><td>99.0°C</td></tr> <tr><td>40</td><td>U3</td><td>69.7°C</td><td>99.5°C</td></tr> <tr><td>41</td><td>Q17</td><td>69.4°C</td><td>100.0°C</td></tr> </tbody> </table> | | | NO | Position | ROOM AMBIENT Ta= 25 °C | HIGH AMBIENT Ta= 55 °C | 1 | LF1 | 66.6°C | 96.4°C | 2 | C17 | 69.7°C | 98.9°C | 3 | LF2 | 71.6°C | 101.2°C | 4 | Q1 | 66.0°C | 95.4°C | 5 | C6 | 68.9°C | 98.4°C | 6 | Q10 | 68.4°C | 98.0°C | 7 | ZNR1 | 61.8°C | 91.2°C | 8 | C14 | 67.4°C | 96.5°C | 9 | RY | 67.6°C | 96.6°C | 10 | Q39 | 73.1°C | 101.1°C | 11 | R90 | 81.0°C | 108.0°C | 12 | D2 | 67.4°C | 97.1°C | 13 | Q23 | 69.5°C | 99.7°C | 14 | C18 | 68.2°C | 97.7°C | 15 | U2 | 70.5°C | 99.9°C | 16 | T3 | 72.6°C | 103.0°C | 17 | T5 | 71.5°C | 101.5°C | 18 | U4 | 76.7°C | 106.6°C | 19 | Q8 | 66.5°C | 96.3°C | 20 | TSW1 | 70.0°C | 100.4°C | 21 | T4 | 72.6°C | 103.0°C | 22 | Q19 | 65.6°C | 96.0°C | 23 | T6 | 71.6°C | 102.1°C | 24 | T2 | 73.9°C | 104.4°C | 25 | Q201 | 71.5°C | 101.7°C | 26 | Q104 | 70.1°C | 100.1°C | 27 | L101 | 75.8°C | 107.6°C | 28 | T1 | 71.1°C | 101.6°C | 29 | Q100 | 69.9°C | 100.4°C | 30 | Q103 | 70.7°C | 100.9°C | 31 | L100 | 73.5°C | 105.4°C | 32 | C115 | 68.1°C | 99.2°C | 33 | LF100 | 58.4°C | 89.4°C | 34 | C103 | 68.5°C | 99.2°C | 35 | C102 | 66.3°C | 96.9°C | 36 | U201 | 66.3°C | 96.5°C | 37 | U5 | 65.9°C | 96.0°C | 38 | Q204 | 65.8°C | 95.8°C | 39 | Q37 | 69.7°C | 99.0°C | 40 | U3 | 69.7°C | 99.5°C | 41 | Q17 | 69.4°C | 100.0°C |
|----|---------------------------------|--|---|-----------|----|----------|------------------------|------------------------|---|-----|--------|--------|---|-----|--------|--------|---|-----|--------|---------|---|----|--------|--------|---|----|--------|--------|---|-----|--------|--------|---|------|--------|--------|---|-----|--------|--------|---|----|--------|--------|----|-----|--------|---------|----|-----|--------|---------|----|----|--------|--------|----|-----|--------|--------|----|-----|--------|--------|----|----|--------|--------|----|----|--------|---------|----|----|--------|---------|----|----|--------|---------|----|----|--------|--------|----|------|--------|---------|----|----|--------|---------|----|-----|--------|--------|----|----|--------|---------|----|----|--------|---------|----|------|--------|---------|----|------|--------|---------|----|------|--------|---------|----|----|--------|---------|----|------|--------|---------|----|------|--------|---------|----|------|--------|---------|----|------|--------|--------|----|-------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|----|--------|--------|----|------|--------|--------|----|-----|--------|--------|----|----|--------|--------|----|-----|--------|---------|
| NO | Position | ROOM AMBIENT Ta= 25 °C | HIGH AMBIENT Ta= 55 °C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | LF1 | 66.6°C | 96.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | C17 | 69.7°C | 98.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | LF2 | 71.6°C | 101.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Q1 | 66.0°C | 95.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | C6 | 68.9°C | 98.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Q10 | 68.4°C | 98.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | ZNR1 | 61.8°C | 91.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | C14 | 67.4°C | 96.5°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | RY | 67.6°C | 96.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Q39 | 73.1°C | 101.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | R90 | 81.0°C | 108.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | D2 | 67.4°C | 97.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Q23 | 69.5°C | 99.7°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | C18 | 68.2°C | 97.7°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | U2 | 70.5°C | 99.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | T3 | 72.6°C | 103.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | T5 | 71.5°C | 101.5°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | U4 | 76.7°C | 106.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | Q8 | 66.5°C | 96.3°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | TSW1 | 70.0°C | 100.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | T4 | 72.6°C | 103.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | Q19 | 65.6°C | 96.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | T6 | 71.6°C | 102.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | T2 | 73.9°C | 104.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | Q201 | 71.5°C | 101.7°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | Q104 | 70.1°C | 100.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | L101 | 75.8°C | 107.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | T1 | 71.1°C | 101.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | Q100 | 69.9°C | 100.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | Q103 | 70.7°C | 100.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | L100 | 73.5°C | 105.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 | C115 | 68.1°C | 99.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 33 | LF100 | 58.4°C | 89.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34 | C103 | 68.5°C | 99.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 | C102 | 66.3°C | 96.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36 | U201 | 66.3°C | 96.5°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37 | U5 | 65.9°C | 96.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38 | Q204 | 65.8°C | 95.8°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39 | Q37 | 69.7°C | 99.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | U3 | 69.7°C | 99.5°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41 | Q17 | 69.4°C | 100.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OVER LOAD BURN-IN TEST | NO DAMAGE 1 HOUR (MIN) | I/P : 24 VDC O/P : 130.7% LOAD Ta : 25°C | TEST : OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | LOW TEMPERATURE TURN ON TEST | TURN ON AFTER 2 HOUR | I/P : 16.8 VDC / 33.6 VDC O/P : 100 % LOAD Ta= -45 °C | TEST : OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



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| 4 | HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST | AFTER 12 HOURS IN CHAMBER ON CONTROL 55 °C /95 %R.H NO DAMAGE | I/P : 35 VDC O/P : FULL LOAD Ta= 55 °C HUMIDITY= 95 %R.H | TEST : OK |
| 5 | TEMPERATURE COEFFICIENT | ± 0.03%/°C (0~55°C) | I/P : 24 VDC O/P : FULL LOAD | ± 0.0061%/°C (0~50°C) |
| 6 | 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 : 10 CYCLE 5. Input/Output condition : STATIC | |
| 7 | THERMAL SHOCK TEST | -40~55°C | 1. Thermal shock Temperature : -45°C~+60°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 16 CYCLE 5. Input/Output condition : 15cycle: 24 VDC / FULL LOAD AC ON 3sec/AC OFF 1sec TEST 1cycle: 24VDC / FULL LOAD Burn In Test | |
| 8 | VIBRATION TEST | 10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes | 1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10~500Hz (3) Sweep Time : 10 min/sweep cycle (4) Acceleration : 6G (5) Test Time : 180min in each axis (X.Y.Z) (6) Ta : 25°C | |
| 9 | CAPACITOR LIFE CYCLE | SUPPOSE C103 IS THE MOST CRITICAL COMPONENT (1) I/P : 24VDC O/P : FULL LOAD Ta= 25 °C LIFE TIME (2) I/P : 24VDC O/P : FULL LOAD Ta= 55 °C LIFE TIME (3) I/P : 24VDC O/P : 75% LOAD Ta= 55 °C LIFE TIME (4) I/P : 24VDC O/P : 50% LOAD Ta= 55 °C LIFE TIME | | (1) 308214.1HRS (2) 36702.1HRS (3) 73241HRS (4) 136853.4HRS |
| 10 | MTBF | Conducted by Parts Stress Analysis Prediction 277.9K hrs min. Telcordia SR-332 (Bellcore) ; 99.1K hrs min. MIL-HDBK-217F (25°C) | | |
| 11 | Ongoing Reliability Test | I/P : 24VDC O/P : FULL LOAD TA=50°C Demonstration Mean Time Between Failure : 30,000 hours | | |

| TEST RESULT | TESTER | REVIEW | APPROVAL |
|-------------|--------|--------|----------|
| PASS | LIUTT | | Wangdz |

2018.4.30 GP-A50-F010