



Test Report: MSP-200-36

200W Single Output Medical Type

■ 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 : 250 mVp-p (Max) | I/P : 230VAC O/P : FULL LOAD Ta : 25°C | V1 : 131 mVp-p (Max) | P |
| 2 | OUTPUT VOLTAGE ADJUST RANGE | CH1 : 28.8 V ~ 39.6 V | I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C | 27.49 V ~ 43.1 V / 230 VAC 27.48 V ~ 43.1 V / 115 VAC | P |
| 3 | OUTPUT VOLTAGE TOLERANCE | V1 : 1 % ~ -1 % (Max) | I/P : 100 VAC / 264 VAC O/P : FULL / MIN LOAD Ta : 25°C | V1 : 0.12 % ~ -0.12 % | P |
| 4 | LINE REGULATION | V1 : 0.2 % ~ -0.2 % (Max) | I/P : 100VAC ~ 264 VAC O/P : FULL LOAD Ta : 25°C | V1 : 0 % ~ 0 % | P |
| 5 | LOAD REGULATION | V1 : 0.5% ~ -0.5 % (Max) | I/P : 230 VAC O/P : FULL ~MIN LOAD Ta : 25°C | V1 : 0.02 % ~ -0.02 % | P |
| 6 | SET UP TIME | 230VAC : 1000 ms (Max) 115VAC : 2500 ms(Max) | I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C | 230VAC/ 131 ms 115VAC/ 262 ms | P |
| 7 | RISE TIME | 230VAC : 50 ms (Max) 115VAC : 50 ms (Max) | I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C | 230VAC/ 11 ms 115VAC/ 10 ms | P |
| 8 | HOLD UP TIME | 230VAC : 16 ms (TYP) 115VAC : 16 ms (TYP) | I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C | 230VAC/ 39 ms 115VAC/ 31 ms | P |
| 9 | OVER/UNDERSHOOT TEST | < ±5% | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | TEST : < 5 % | P |
| 10 | DYNAMIC LOAD | V1 : 3600 mVp-p | I/P : 230 VAC O/P : FULL /Min LOAD 90%DUTY/ 1KHZ Ta : 25°C | 1257 mVp-p | P |

INPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|---------------------------|-------------------------------------|---|--|---------|
| 1 | INPUT VOLTAGE RANGE | 85VAC~264 VAC | I/P : TESTING O/P : FULL LOAD Ta : 25°C | 69 V~264V | P |
| | | | I/P : LOW-LINE-3V= 82 V HIGH-LINE+15%=300 V O/P : FULL/MIN LOAD ON : 30 Sec . OFF : 30 Sec 10MIN (AC POWER ON/OFF NO DAMAGE) | TEST : OK | |
| 2 | INPUT FREQUENCY RANGE | 47HZ ~63 HZ NO DAMAGE OSC | I/P : 85 VAC ~ 264 VAC O/P : FULL ~MIN LOAD Ta : 25°C | TEST : OK | P |
| 3 | POWER FACTOR | 0.95 / 230 VAC(TYP) | I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C | PF= 0.967 / 230 VAC | P |
| | | 0.99 / 115 VAC(TYP) | | PF= 0.996 / 115 VAC | |
| 4 | EFFICIENCY | 89 % (TYP) | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | 89.79 % | P |
| 5 | INPUT CURRENT | 230V/ 1.1 A (TYP) | I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C | I = 1.03 A/ 230 VAC | P |
| | | 115V/ 2.2 A (TYP) | | I = 2.04 A/ 115 VAC | |
| 6 | INRUSH CURRENT | 230V/ 70 A (TYP) | I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C | I = 68 A/ 230 VAC | P |
| | | 115V/ 35 A(TYP) COLD START | | I = 34 A/ 115 VAC | |
| 7 | NO LOAD POWER CONSUMPTION | < 0.5W | I/P : 240 VAC O/P : NO LOAD RC+/RC- SHORT Ta : 25°C | 0.41 W | P |
| 7 | LEAKAGE CURRENT | < 300 uA/ for earth leakage current | I/P: 264 VAC O/P:Min LOAD Ta:25°C | L-FG 270 uA N-FG 270 uA | P |
| | | < 100 uA/ for touch leakage current | I/P: 264 VAC O/P:Min LOAD Ta:25°C | L-V+ 92 uA L-V- 92 uA N-V+ 92 uA N-V- 92 uA | |

PROTECTION FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|--|---|---|--|---------|
| 1 | OVER LOAD PROTECTION | 105 %~ 135 % | I/P : 230 VAC I/P : 115 VAC O/P : TESTING Ta : 25°C | 118 %/ 230 VAC 118 %/ 115 VAC Constant current limiting, recovers automatically after fault condition is removed | P |
| 2 | OVER VOLTAGE PROTECTION | CH1 : 41.4 V~ 48.6 V | I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C | 46.26 V/ 230 VAC 46.3 V/ 115 VAC Shut down Re- power ON | P |
| 3 | OVER TEMPERATURE PROTECTION (optional) | SPEC : TSW1 : 95 ± 5°C O.T.P. detect on heatsink of power transistor TSW2 : 105 ± 5°C O.T.P. detect on main power output choke NO DAMAGE | I/P : 230 VAC O/P : FULL LOAD | O.T.P. Active Shut down o/p voltage , recovers automatically after temperature goes down | P |
| 4 | SHORT PROTECTION | SHORT EVERY OUTPUT 1 HOUR NO DAMAGE | I/P : 264 VAC O/P : FULL LOAD Ta : 25°C | NO DAMAGE Hiccup Mode | P |

CONTROL FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|----------------|--|---|--|---------|
| 1 | REMOTE CONTROL | Rc+ / Rc- 0 V~ 0.8 V POWER OFF 4 V~ 10V POWER ON | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | 0 V~3 V POWER ON 3.1 V~10 V POWER OFF | P |
| 2 | 5V STANDBY | 5VSB : 5V@0.3A ; tolerance ±5%, ripple : 50mVp-p(max) | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | 5VSB : 4.906 V / 0.3A Ripple : 14 mV | P |

COMPONENT STRESS TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|--|-----------------------------------|--|--|---------|
| 1 | Power Transistor (D to S) or (C to E) Peak Voltage | Q3 Rated : 2SK4106 12A/500V | I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2) Output Short (3)Full load continue Ta : 25°C | (1) 414 V (2) 370 V (3) 322 V | P |
| 2 | Diode Peak Voltage | Q101 Rated : FMX-12SL 10A/200V | I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2)Output Short (3)Full load continue Ta : 25°C | (1) 185 V (2) 160 V (3) 117 V | P |
| 3 | Input Capacitor Voltage | C5 Rated : 100u/400V 105°C KMG | I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta : 25°C | (1) 372.5 V (2) 375.5 V (3) 376.2 V | P |
| 4 | Control IC Voltage Test | U1 Rated : FAN4801NY 10V~30V | I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta : 25°C | (1) 16.312 V (2) 13.015 V (3) 13.027 V | P |
| 5 | Power Transistor (D to S) or (C to E) Peak Voltage | Q1 Rated : IRFP460A 20A/500V | I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2) Output Short (3)Full load continue Ta : 25°C | (1) 500 V (2) 434 V (3) 416 V | P |

■ SAFETY & E.M.C. TEST

SAFETY TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|----------------------|--|--|--|---------|
| 1 | WITHSTAND VOLTAGE | I/P-O/P: 4 KVAC/min I/P-FG: 2 KVAC/min O/P-FG: 0.5 KVAC/min | I/P-O/P: 4.2KVAC/min I/P-FG: 2.4KVAC/min O/P-FG: 0.6 KVAC/min Ta:25°C | I/P-O/P: 4.78 mA I/P-FG: 3.67 mA O/P-FG: 3.7 mA NO DAMAGE | P |
| 2 | ISOLATION RESISTANCE | I/P-O/P : 500VDC>100MΩ I/P-FG : 500VDC>100MΩ O/P-FG : 500VDC>100MΩ | I/P-O/P : 500 VDC I/P-FG : 500 VDC O/P-FG : 500 VDC Ta : 25°C /70%RH | I/P-O/P : 30 GΩ I/P-FG : 27.1 GΩ O/P-FG : 25.4 GΩ NO DAMAGE | P |
| 3 | GROUNDING CONTINUITY | FG(PE) TO CHASSIS OR TRACE < 100 mΩ | 40 A / 2min Ta : 25°C / 70%RH | 9 mΩ | P |

E.M.C TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|---|--|---|-------------------------------|---------|
| 1 | HARMONIC | EN61000-3-2 CLASS A CLASS D | I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | PASS | P |
| 2 | CONDUCTION | EN55011 CLASS B | I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C | PASS Test by certified Lab | P |
| 3 | RADIATION | EN55011 CLASS B | I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25°C | PASS Test by certified Lab | P |
| 4 | E.S.D | EN61000-4-2 INDUSTRY AIR:8KV / Contact:6KV | I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | CRITERIA A | P |
| 5 | E.F.T | EN61000-4-4 INDUSTRY INPUT: 2KV | I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | CRITERIA A | P |
| 6 | SURGE | IEC61000-4-5 INDUSTRY L-N :2KV L,N-PE:4KV | I/P: 230 VAC/50HZ O/P:FULL LOAD 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 | MODEL : MSP-200-24 1. ROOM AMBIENT BURN-IN : 3 HRS I/P : 230VAC O/P : FULL LOAD Ta= 26.3 °C 2. HIGH AMBIENT BURN-IN : 2.5 HRS I/P : 230VAC O/P : FULL LOAD Ta= 43.8 °C | | | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>P/N</th> <th>ROOM AMBIENT Ta= 26.3 °C</th> <th>HIGH AMBIENT Ta= 43.8 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>LF2</td><td>TR548-R2 R-22/14/8B(MA100) 8.8m</td><td>51.3°C</td><td>67.4°C</td></tr> <tr><td>2</td><td>BD1</td><td>6A/800V SILICON GBU608</td><td>75.9°C</td><td>90.7°C</td></tr> <tr><td>3</td><td>L3</td><td>TR872 CS234125E14 1.16u HRP-200</td><td>71.0°C</td><td>86.1°C</td></tr> <tr><td>4</td><td>Q1</td><td>IRFP460A 20A/500V TO247</td><td>65.0°C</td><td>80.3°C</td></tr> <tr><td>5</td><td>C5</td><td>100u/400V 105°C 18*25 KMG</td><td>62.2°C</td><td>76.4°C</td></tr> <tr><td>6</td><td>Q3</td><td>2SK4106 12A/500V TO220F</td><td>73.0°C</td><td>90.0°C</td></tr> <tr><td>7</td><td>T2</td><td>TR435-R4 R13x7x5A MA070 MS-300</td><td>63.4°C</td><td>77.1°C</td></tr> <tr><td>8</td><td>T1</td><td>TF2033 EER-35 HRP-200-24 B</td><td>84.7°C</td><td>100.9°C</td></tr> <tr><td>9</td><td>C150</td><td>100u/25V L5Kh 6.3*11 KY</td><td>64.1°C</td><td>79.4°C</td></tr> <tr><td>10</td><td>C61</td><td>100u/25V L5Kh 6.3*11 KY</td><td>64.5°C</td><td>78.2°C</td></tr> <tr><td>11</td><td>D1</td><td>BYC8-600 8A/600V TO220</td><td>64.2°C</td><td>79.9°C</td></tr> <tr><td>12</td><td>Q101</td><td>FME-220B 20A/150V TO220F</td><td>72.4°C</td><td>89.2°C</td></tr> <tr><td>13</td><td>L100</td><td>TR878 Ku090125-2*2 162u</td><td>84.3°C</td><td>99.3°C</td></tr> <tr><td>14</td><td>C105</td><td>1000u/35V L10Kh 12.5*25 KY</td><td>66.7°C</td><td>83.9°C</td></tr> <tr><td>15</td><td>T900</td><td>TF1593-R2</td><td>85.4°C</td><td>104.1°C</td></tr> <tr><td>16</td><td>ZD900</td><td>TVS ST02D-200 AX078 T-52mm</td><td>70.6°C</td><td>87.0°C</td></tr> <tr><td>17</td><td>U900</td><td>TNY275PN DIP-8C</td><td>77.9°C</td><td>97.1°C</td></tr> <tr><td>18</td><td>C911</td><td>22u/50V UL10Kh 5*11KY</td><td>75.5°C</td><td>92.8°C</td></tr> <tr><td>19</td><td>C956</td><td>47u/50V L5Kh 6.3*11 YXF</td><td>72.3°C</td><td>89.8°C</td></tr> <tr><td>20</td><td>TSW1</td><td>ST-22W-R0 170mm</td><td>82.0°C</td><td>98.9°C</td></tr> <tr><td>21</td><td>TSW2</td><td>ST-22W-R0 170mm</td><td>82.3°C</td><td>98.0°C</td></tr> </tbody> </table> | NO | Position | | P/N | ROOM AMBIENT Ta= 26.3 °C | HIGH AMBIENT Ta= 43.8 °C | 1 | LF2 | TR548-R2 R-22/14/8B(MA100) 8.8m | 51.3°C | 67.4°C | 2 | BD1 | 6A/800V SILICON GBU608 | 75.9°C | 90.7°C | 3 | L3 | TR872 CS234125E14 1.16u HRP-200 | 71.0°C | 86.1°C | 4 | Q1 | IRFP460A 20A/500V TO247 | 65.0°C | 80.3°C | 5 | C5 | 100u/400V 105°C 18*25 KMG | 62.2°C | 76.4°C | 6 | Q3 | 2SK4106 12A/500V TO220F | 73.0°C | 90.0°C | 7 | T2 | TR435-R4 R13x7x5A MA070 MS-300 | 63.4°C | 77.1°C | 8 | T1 | TF2033 EER-35 HRP-200-24 B | 84.7°C | 100.9°C | 9 | C150 | 100u/25V L5Kh 6.3*11 KY | 64.1°C | 79.4°C | 10 | C61 | 100u/25V L5Kh 6.3*11 KY | 64.5°C | 78.2°C | 11 | D1 | BYC8-600 8A/600V TO220 | 64.2°C | 79.9°C | 12 | Q101 | FME-220B 20A/150V TO220F | 72.4°C | 89.2°C | 13 | L100 | TR878 Ku090125-2*2 162u | 84.3°C | 99.3°C | 14 | C105 | 1000u/35V L10Kh 12.5*25 KY | 66.7°C | 83.9°C | 15 | T900 | TF1593-R2 | 85.4°C | 104.1°C | 16 | ZD900 | TVS ST02D-200 AX078 T-52mm | 70.6°C | 87.0°C | 17 | U900 | TNY275PN DIP-8C | 77.9°C | 97.1°C | 18 | C911 | 22u/50V UL10Kh 5*11KY | 75.5°C | 92.8°C | 19 | C956 | 47u/50V L5Kh 6.3*11 YXF | 72.3°C | 89.8°C | 20 | TSW1 | ST-22W-R0 170mm | 82.0°C | 98.9°C | 21 | TSW2 | ST-22W-R0 170mm | 82.3°C | 98.0°C | | |
| NO | Position | P/N | ROOM AMBIENT Ta= 26.3 °C | HIGH AMBIENT Ta= 43.8 °C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | LF2 | TR548-R2 R-22/14/8B(MA100) 8.8m | 51.3°C | 67.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | BD1 | 6A/800V SILICON GBU608 | 75.9°C | 90.7°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | L3 | TR872 CS234125E14 1.16u HRP-200 | 71.0°C | 86.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Q1 | IRFP460A 20A/500V TO247 | 65.0°C | 80.3°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | C5 | 100u/400V 105°C 18*25 KMG | 62.2°C | 76.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Q3 | 2SK4106 12A/500V TO220F | 73.0°C | 90.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | T2 | TR435-R4 R13x7x5A MA070 MS-300 | 63.4°C | 77.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | T1 | TF2033 EER-35 HRP-200-24 B | 84.7°C | 100.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | C150 | 100u/25V L5Kh 6.3*11 KY | 64.1°C | 79.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | C61 | 100u/25V L5Kh 6.3*11 KY | 64.5°C | 78.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | D1 | BYC8-600 8A/600V TO220 | 64.2°C | 79.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | Q101 | FME-220B 20A/150V TO220F | 72.4°C | 89.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | L100 | TR878 Ku090125-2*2 162u | 84.3°C | 99.3°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | C105 | 1000u/35V L10Kh 12.5*25 KY | 66.7°C | 83.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | T900 | TF1593-R2 | 85.4°C | 104.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | ZD900 | TVS ST02D-200 AX078 T-52mm | 70.6°C | 87.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | U900 | TNY275PN DIP-8C | 77.9°C | 97.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | C911 | 22u/50V UL10Kh 5*11KY | 75.5°C | 92.8°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | C956 | 47u/50V L5Kh 6.3*11 YXF | 72.3°C | 89.8°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | TSW1 | ST-22W-R0 170mm | 82.0°C | 98.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | TSW2 | ST-22W-R0 170mm | 82.3°C | 98.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OVER LOAD BURN-IN TEST | NO DAMAGE 1 HOUR (MIN) | I/P : 230 VAC O/P : 122 % LOAD Ta : 25°C | TEST : OK | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | LOW TEMPERATURE TURN ON TEST | TURN ON AFTER 2 HOUR | I/P : 264VAC/100VAC O/P : 100 % LOAD Ta= -40 °C | TEST : OK | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST | AFTER 12 HOURS IN CHAMBER ON CONTROL 40 °C NO DAMAGE | I/P : 272 VAC O/P : FULL LOAD Ta= 40°C HUMIDITY= 95 %R.H | TEST : OK | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | TEMPERATURE COEFFICIENT | ± 0.04 %(0~50°C) | I/P : 230 VAC O/P : FULL LOAD | ± 0.006 %(0~50°C) | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | STORAGE TEMPERATURE TEST | 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 : 5 CYCLE 5. Input/Output condition : STATIC | | OK | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



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| 7 | THERMAL SHOCK TEST | 1. Thermal shock Temperature : -40°C~ +45°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 : 230VAC/Full Load | OK | P |
| 8 | VIBRATION TEST | 1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10~500Hz (3) Sweep Time : 10min/sweep cycle (4) Acceleration : 5G (5) Test Time : 60min in each axis (X.Y.Z) (6) Ta : 25°C | TEST : OK | P |
| 9 | CAPACITOR LIFE CYCLE | MSP-200-24:SUPPOSE C105 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= 40 °C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta= 40 °C LIFE TIME | (1) 185942HRS (2) 67159HRS (3) 111374HRS | P |
| 10 | MTBF | MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE : 189.1K HRS | | P |

| DATE | SAMPLE | TEST RESULT | TESTER | APPROVAL |
|-----------|----------------|-------------|------------|---------------|
| 2012/6/14 | PRODUCT SAMPLE | PASS | SANFORD SU | VINCENT TSENG |

2009/08/04 A50-F023