MODEL：TN-1000-212

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RATED POWER (TYP)	1000W	IP: 12VDC Ta:25℃	1000 W	P
2	WAVEFORM	True sine wave (THD<3%)	IP: 13VDC OP: FULL LOAD/NO LOAD Ta:25℃	FULL LOAD: 0.93 % NO LOAD: 0.51 %	P
3	FREQUENCY	50HZ ± 0.1HZ	IP: 12VDC OP: FULL LOAD/NO LOAD Ta:25℃	FULL LOAD: 49.98 HZ NO LOAD: 49.99 HZ	P
4	AC REGULATION (TYP)	3%~-3%	IP: 12VDC OP: FULL LOAD/NO LOAD Ta:25℃	0.18% ~ -0.18 %	P
5	SAVING MODE TO NORMAL	≦6S (5W~25W)	IP: 12VDC OP: TESTING Ta:25℃	> 12 W 5 SEC	P
6	NORMAL TO SAVING MODE	≦6S (5W~15W)	IP: 12VDC OP: TESTING Ta:25℃	< 10 W 5SEC	P
7	MAXIMUM OUTPUT POWER (TYP)	1150W/180sec 1500w/10sec 2000W / 30cycle	IP: 12VDC OP:TESTING LOAD Ta:25℃	1100 W 180 SEC 1400 W 10SEC 1953 W 30 cycle Shut down o/p voltage , re-power on to recover	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	DC CURRENT (TYP)	100A	IP: 12VDC OP:FULL LOAD Ta:25℃	95.2A	P
2	NO LOAD DISSIPATION	≤ 6W @ saving mode	IP: 12VDC OP:NO LOAD Ta:25℃	5.22W	P
3	OFF MODE DRAW CURRENT	≤1mA	IP: SW OFF OP:NO LOAD Ta:25℃	0.58mA	P
4	VOLTAGE RANGE (TYP)	10.5VDC~15VDC	IP: TESTING OP:NO LOAD Ta:25℃	10.47VDC~ 15.1 VDC	P
5	EFFICIENCY (TYP)	90%	IP: 13VDC OP: 750W Ta:25℃	90.2%	P

INPUT PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	BAT LOW ALARM	11.3VDC ±4%	IP: TESTING OP: NO LOAD SW:ON Ta:25℃	11.3V	P
2	BAT LOW SHUT DOWN	10.5VDC ± 4%	IP: TESTING OP: NO LOAD SW:ON Ta:25℃	10.47V Shut down Recovery	P
3	BAT. RECOVERY VOLTAGE	12VDC~15VDC	IP: TESTING OP: NO LOAD SW:ON Ta:25℃	13.5V	P
4	BAT POLARITY	BY INTERNAL FUSE	IP: 12VDC OP: NO LOAD SW:ON Ta:25℃	OK	P

OUTPUT PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER TEMPERATURE	65 ℃ ± 5 ℃ (RTH3) detect on heatsink of power transistor	IP: 12VDC OP: FULL LOAD SW:ON Ta:25℃	O.T.P Active Shut down o/p voltage , re-power on to recover	P
2	OUTPUT SHORT	Shut-off :Shut down o/p voltage , re-power onto recover	IP: 12VDC OP: FULL LOAD SW:ON Ta:25℃	Shut down o/p voltage , re-power on to recover	P
3	OVER LOAD (TYP)	105%~115% LOAD for 180sec 115%~150% LOAD for 10sec	IP: 12VDC OP:TESTING Ta:25℃	1100 W 180 SEC 1400 W 10SEC Shut down o/p voltage , re-power on to recover	P

APPLICATION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INDUCTION MOTOR	0.5HP	IP: 12VDC OP:0.5HP SW:ON Ta:25℃	INVERTER TURN ON/OFF :OK INDUCTION MOTOR ON/OFF:OK	P
2	SWITCHING POWER SUPPLY	RSP-1500-48(Pin=1000W)	IP: 12VDC OP: RSP-1500-48 SW:ON Ta:25℃	INVERTER TURN ON/OFF :OK INDUCTION MOTOR ON/OFF:OK	P
3	INCANDESCENT LAMPS	1000W	IP: 12VDC OP: 1000W SW:ON Ta:25℃	INVERTER TURN ON/OFF :OK INDUCTION MOTOR ON/OFF:OK	P

LED CONTROL TEST

LED IS TREECOLOR LIGHT (● ● ●)	PANEL
● ● ●	**Status** **Battery** **Load**

Status LIGHT	CONDITION	RESULT
●	**Inverter Ok**	**OK**
★ flash per second	**Saving mode**	**OK**

Battery LIGHT	CONDITION	RESULT
●	**Vin < 11V**	**<11.6**
●	**---**	**11.65V-11.97V**
●	**Vin >12.6V**	**>12V**

Load LIGHT	CONDITION	RESULT
●	**LOAD > 850W**	**>780W**
●	**LOAD=550W~750W**	**470W-765W**
●	**LOAD < 450W**	**<460W**

VOLTAGE AND SAVING MODE SETTING CODES

★ flash per second. ● Light on. ○ Light off.

	100V (200V)	110V (220V)	115V (230V)	120V (240V)
50Hz	● ○ ○	● ○ ●	● ● ○	● ● ●
RESULT	OK	OK	OK	OK
60Hz	★ ○ ○	★ ○ ●	★ ● ○	★ ● ●
RESULT	OK	OK	OK	OK

Saving Status	LIGHT	RESULT
Enable	★ ★ ●	OK
Disable	★ ★ ○	OK

ERROR CODE LED

Error Code	LIGHT	EXTRAORDINARY	RESULT
001	○ ○ ★	OLP 105±5%~115±5% error code	P
010	○ ★ ○	OLP 115%±5%~ 150±10% error code	P
011	○ ★ ★	OLP 150% error code	P
100	★ ○ ○	OTP error code	P
110	★ ★ ○	INV fault error code	P
111	★ ★ ★	Battery Shut Down (Low: No Alarm)	P

ENVIRONMENT TEST

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>SPECIFICATION</th><th>TEST CONDITION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>1</td><td>TEMPERATURE RISE TEST</td><td colspan="3">MODEL：TS-1000-224
1. ROOM AMBIENT BURN-IN：3 HRS
I/P: 12 VDC O/P: FULL LOAD Ta= 36.2℃
2. HIGH AMBIENT BURN-IN：2.5 HRS
I/P: 12 VDC O/P: FULL LOAD Ta= 44.3 ℃</td><td>P</td></tr>
<tr><td colspan="6">
<table>
<tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT
Ta= 36.2℃</th><th>HIGH AMBIENT
Ta= 44.3℃</th></tr>
<tr><td>6</td><td>C302</td><td>680u/35V 105℃ KY</td><td>64.4℃</td><td>80.7℃</td></tr>
<tr><td>7</td><td>L301</td><td>TF-1620</td><td>67.5℃</td><td>85.5℃</td></tr>
<tr><td>8</td><td>C309</td><td>565/250V</td><td>66.0℃</td><td>82.2℃</td></tr>
<tr><td>9</td><td>T301</td><td>TF-1626</td><td>76.4℃</td><td>94.6℃</td></tr>
<tr><td>10</td><td>C416</td><td>150U/450V 105℃ HU</td><td>62.4℃</td><td>77.9℃</td></tr>
<tr><td>11</td><td>L13</td><td>TR-749</td><td>84.0℃</td><td>98.9℃</td></tr>
<tr><td>12</td><td>L1</td><td>TR-750</td><td>40.4℃</td><td>55.6℃</td></tr>
<tr><td>13</td><td>D401</td><td>YG975C6R 20A/600V</td><td>50.7℃</td><td>67.8℃</td></tr>
<tr><td>14</td><td>Q309</td><td>CEP540A 30A/100V</td><td>52.2℃</td><td>66.6℃</td></tr>
<tr><td>15</td><td>Q300</td><td>STP80NF10 80A/100V</td><td>53.3℃</td><td>68.9℃</td></tr>
<tr><td>16</td><td>U307</td><td>TL3845P</td><td>49.6℃</td><td>63.8℃</td></tr>
<tr><td>17</td><td>C328</td><td>100U/25V 105℃ YXG</td><td>47.3℃</td><td>60.9℃</td></tr>
<tr><td>18</td><td>D307</td><td>HER203 2A/200V</td><td>46.1℃</td><td>59.8℃</td></tr>
<tr><td>19</td><td>Q10</td><td>HGTG12N60A4D 12A/600V</td><td>46.5℃</td><td>60.8℃</td></tr>
<tr><td>20</td><td>RTH3</td><td>10KΩ 1%</td><td>47.3℃</td><td>61.4℃</td></tr>
<tr><td>21</td><td>RG300</td><td>LM317T 1.5A</td><td>42.1℃</td><td>56.4℃</td></tr>
<tr><td>22</td><td>Q601</td><td>IRF540N 27A/100V</td><td>44.1℃</td><td>58.7℃</td></tr>
<tr><td>23</td><td>RG601</td><td>LM317T 1.5A</td><td>40.6℃</td><td>55.3℃</td></tr>
<tr><td>24</td><td>D630</td><td>21DQ10 2A/100V</td><td>42.8℃</td><td>56.5℃</td></tr>
<tr><td>25</td><td>C506</td><td>2.2U/50V 105℃ KY</td><td>38.9℃</td><td>53.3℃</td></tr>
<tr><td>26</td><td>U501</td><td>PIC18F65J10</td><td>40.2℃</td><td>53.6℃</td></tr>
<tr><td>27</td><td>C7</td><td>505/250V</td><td>41.1℃</td><td>56.6℃</td></tr>
<tr><td>28</td><td>內 TA</td><td>C416 上方</td><td>66.0℃</td><td>82.6℃</td></tr>
<tr><td>29</td><td>CASE</td><td>CASE 上方</td><td>47.0℃</td><td>59.5℃</td></tr>
</table>
</td></tr>
<tr><td>3</td><td>LOW TEMPERATURE
TURN ON TEST</td><td>TURN ON AFTER 2 HOUR</td><td>IP: 12VDC
OP:FULL LOAD
Ta= -5℃</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>4</td><td>HIGH HUMIDITY
HIGH TEMPERATURE
HIGH VOLTAGE
TURN ON TEST</td><td>AFTER 12 HOURS
IN CHAMBER ON
CONTROL 40℃
NO DAMAGE</td><td>IP: 13.6VDC
OP:FULL LOAD
Ta:= 40℃
HUMIDITY= 95 %R.H</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>5</td><td>VIBRATION TEST</td><td colspan="2">1 Carton & 1 Set
(1) Waveform: Sine Wave (2) Frequency:10~500Hz
(3) Sweep Time:10min/sweep cycle (4) Acceleration:3G
(5) Test Time:1 hour in each axis (X.Y.Z) (6) Ta:25℃</td><td>TEST：OK</td><td>P</td></tr>
</table>

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	BAT I/P-AC O/P: 3 KVAC/min AC O/P-FG: 1.5 KVAC/min	BAT I/P-AC O/P: 3.6 KVAC/min AC O/P-FG: 1.8 KVAC/min Ta:25℃	BAT I/P-AC O/P: 6.82 mA AC O/P-FG: 4.92 mA NO DAMAGE	P
2	ISOLATION RESISTANCE	BAT I/P-AC O/P:500VDC>100MΩ BAT I/P-FG: 500VDC>100MΩ	BAT I/P-AC O/P: 500 VDC BAT I/P-FG: 500 VDC Ta:25℃	BAT I/P-AC O/P: 11.4GΩ BAT I/P-FG: 14GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25℃	8 mΩ	P
4	APPROVAL	TUV: Certificate NO : UL: File NO :			N

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RADIATION	EN 55022 CLASS B	I/P:12 VDC O/P: :FULL/50% LOAD Ta:25℃	PASS	P
2	E.S.D	EN 61000-4-2 LIGHT INDUSTRY AIR:8KV / Contact:4KV	I/P: 12VDC O/P:100 %LOAD Ta:25℃	CRITERIA A	P
3	E.F.T	EN 61000-4-4 LIGHT INDUSTRY INPUT: 1KV	I/P: 12VDC O/P:100 %LOAD Ta:25℃	CRITERIA A	P
4	SURGE	EN 61000-4-5 LIGHT INDUSTRY L-N :1KV L,N-PE:1KV	I/P: 12VDC O/P:100 %LOAD Ta:25℃	CRITERIA A	P
5	Test by certified Lab & Test Report Prepare				

M.T.B.F & LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	TS-1000-224 : SUPPOSE C302 IS THE MOST CRITICAL COMPONENT I/P: 12VDC O/P:FULL LOAD Ta= 25℃ LIFE TIME= 407812 HRS I/P: 12VDC O/P:FULL LOAD Ta= 40℃ LIFE TIME= 126450 HRS			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	DC TO DC Power Transistor (D to S) or (C to E) **Peak Voltage**	Q 300 Rated IRF1405Z 75A/55V	I/P:14.5 VDC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 53.4 V (2) 44 V	P
2	DCTO DC Diode Peak **Voltage**	D 400 Rated YG975C6R 20A/600V	I/P:14.5 VC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 462 V (2) 476 V	P
3	**DC BUS Capacitor Voltage**	C415 Rated 150u/450V 105℃	I/P:14.5VDC O/P: (1)Full Load Turn SW On /Off (2) Min load Turn SW On /Off Ta:25℃	(1) 413 V (2) 443 V	P
4	DC TO AC Power Transistor (D to S) or (C to E) **Peak Voltage**	Q 11 Rated HGTG12N60A4D 12A/600V	I/P:14.5 VDC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 496 V (2) 526 V	P
7	DC TO FAN Power Transistor (D to S) or (C to E) **Peak Voltage**	Q 309 Rated IRFZ44V 55A/60V	I/P:14.5VDC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 51 V (2) 48 V	P
8	DCTO FAN Diode Peak **Voltage**	D 450 Rated HER303 3A/200V	I/P:14.5 VDC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 74 V (2) 46 V	P
9	FAN TO CPU Power Transistor (D to S) or (C to E) **Peak Voltage**	Q601 Rated IRF540N 27A/100V	I/P:14.5 VDC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 48 V (2) 32 V	P
10	FAN TO CPU Diode Peak **Voltage**	D 630 Rated 21DQ10 2A/100V	I/P:14.5 VDC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 53 V (2) 51 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2007/11/13	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2008/3/24	PRODUCT SAMPLE W0712B58	PASS	SANFORD SU	VINCENT TSENG
2008/6/17	PRODUCT SAMPLE W084C23	PASS	SANFORD SU	VINCENT TSENG

2003/12/12 A50-F023