MODEL：TS-700-148

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RATED POWER (TYP)	700W	IP: 48VDC Ta:25℃	700 W	P
2	WAVEFORM	True sine wave (THD<3%)	IP: 48VDC OP: FULL LOAD/NO LOAD Ta:25℃	FULL LOAD: 1.17 % NO LOAD: 0.66 %	P
3	FREQUENCY	60HZ ± 0.1HZ	IP: 48VDC OP: FULL LOAD/NO LOAD Ta:25℃	FULL LOAD: 60 HZ NO LOAD: 59.98 HZ	P
4	AC REGULATION (TYP)	3%~-3%	IP: 48VDC OP: FULL LOAD/NO LOAD Ta:25℃	0.8% ~ -0.8 %	P
5	SAVING MODE TO NORMAL	≦6S (5W~25W)	IP: 48VDC OP: TESTING Ta:25℃	> 13 W 5 SEC	P
6	NORMAL TO SAVING MODE	≦6S (5W~15W)	IP: 48VDC OP: TESTING Ta:25℃	< 11 W 5 SEC	P
7	MAXIMUM OUTPUT POWER (TYP)	800W/180sec 1050w/10sec 1400W / 30cycle	IP: 48VDC OP:TESTING Ta:25℃	800 W 180 SEC 1000 W 10 SEC 1341 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)	19A	IP: 48VDC OP:FULL LOAD Ta:25℃	16.7A	P
2	NO LOAD DISSIPATION	≤ 6W @ saving mode	IP: 48VDC OP:NO LOAD Ta:25℃	5.33W	P
3	OFF MODE DRAW CURRENT	≤1mA	IP: SW OFF OP:NO LOAD Ta:25℃	0.45mA	P
4	VOLTAGE RANGE (TYP)	42VDC~60VDC	IP: TESTING OP:NO LOAD Ta:25℃	42.1VDC~ 60 VDC	P
5	EFFICIENCY (TYP)	89%	IP: 52VDC OP: 530W Ta:25℃	89.8%	P

INPUT PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	BAT LOW ALARM	45VDC ±4%	IP: TESTING OP: NO LOAD SW:ON Ta:25℃	45V	P
2	BAT LOW SHUT DOWN	42VDC ± 4%	IP: TESTING OP: NO LOAD SW:ON Ta:25℃	42.1V Shut down Recovery	P
3	BAT. RECOVERY VOLTAGE	48VDC~60VDC	IP: TESTING OP: NO LOAD SW:ON Ta:25℃	51.3V	P
4	BAT POLARITY	BY INTERNAL FUSE	IP: 48VDC OP: NO LOAD SW:ON Ta:25℃	OK	P

OUTPUT PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER TEMPERATURE	80 ℃ ±5 ℃ (RTH3) detect on heatsink of power transistor	IP: 48VDC 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: 48VDC 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: 48VDC OP:TESTING Ta:25℃	800 W 180 SEC 1000 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: 48VDC OP:0.5HP SW:ON Ta:25℃	INVERTER TURN ON/OFF :OK INDUCTION MOTOR ON/OFF:OK	P
2	INCANDESCENT LAMPS	700W	IP: 48VDC OP: 700W SW:ON Ta:25℃	INVERTER TURN ON/OFF :OK INDUCTION MOTOR ON/OFF:OK	P
3	ELECTRONIC HOT BLOWERS	700W	IP:48VDC OP: 700W 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**	**P**
★ flash per second	**Saving mode**	**P**

Battery LIGHT	CONDITION	RESULT
🔴	**Vin < 44.4V**	**<46.2V**
🟠	**---**	**47V-48V**
🟢	**Vin >50.4V**	**>48.4V**

Load LIGHT	CONDITION	RESULT
🔴	**LOAD > 595W**	**>590W**
🟠	**LOAD=385W~525W**	**366W-581W**
🟢	**LOAD < 315W**	**<362W**

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	★ ★ ●	P
Disable	★ ★ ○	P

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%±10% error code	P
100	★ ○ ○	OTP error code	P
110	★ ★ ○	INV fault error code (Output short)	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-700-112
1. ROOM AMBIENT BURN-IN：1.5 HRS
I/P: 12 VDC O/P: FULL LOAD Ta=27.1 ℃
2. HIGH AMBIENT BURN-IN：1 HRS
I/P: 12 VDC O/P: FULL LOAD Ta=52.9 ℃</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=27.1 ℃</th><th>HIGH AMBIENT Ta=52.9 ℃</th></tr>
<tr><td>6</td><td>C302</td><td>3300U/16V 105℃ KY</td><td>57.2℃</td><td>84.3℃</td></tr>
<tr><td>7</td><td>L301</td><td>TF-1750</td><td>93.7℃</td><td>123.4℃</td></tr>
<tr><td>8</td><td>C308</td><td>565/250V</td><td>72.3℃</td><td>99.3℃</td></tr>
<tr><td>9</td><td>T301</td><td>TF-1753</td><td>78.3℃</td><td>105.5℃</td></tr>
<tr><td>10</td><td>D403</td><td>SF20LC30 20A/300V</td><td>55.7℃</td><td>80.8℃</td></tr>
<tr><td>11</td><td>C416</td><td>330U/250V 105℃ MXG</td><td>48.9℃</td><td>75.5℃</td></tr>
<tr><td>12</td><td>L13</td><td>TR-792</td><td>63.3℃</td><td>90.2℃</td></tr>
<tr><td>13</td><td>L1</td><td>TR-794</td><td>41.9℃</td><td>69.3℃</td></tr>
<tr><td>14</td><td>C7</td><td>7u/250Vac</td><td>33.2℃</td><td>60.1℃</td></tr>
<tr><td>15</td><td>Q309</td><td>IRFZ44V 55A/60V</td><td>50.9℃</td><td>80.2℃</td></tr>
<tr><td>16</td><td>Q307</td><td>IXT160N075T</td><td>42.6℃</td><td>71.5℃</td></tr>
<tr><td>17</td><td>U307</td><td>TL3845P</td><td>60.1℃</td><td>89.3℃</td></tr>
<tr><td>18</td><td>C328</td><td>100U/25V 105℃ YXG</td><td>41.1℃</td><td>69.1℃</td></tr>
<tr><td>19</td><td>D308</td><td>HER203 2A/200V</td><td>50.9℃</td><td>79.9℃</td></tr>
<tr><td>20</td><td>Q13</td><td>HGTG12N60A4D 12A/600V</td><td>59.4℃</td><td>86.7℃</td></tr>
<tr><td>21</td><td>U501</td><td>PIC18F65J10</td><td>36.0℃</td><td>63.3℃</td></tr>
<tr><td>22</td><td>RTH3</td><td>10KΩ 1%</td><td>54.1℃</td><td>80.1℃</td></tr>
<tr><td>23</td><td>RG300</td><td>LM317T 1.5A</td><td>35.5℃</td><td>63.9℃</td></tr>
<tr><td>24</td><td>Q601</td><td>IRF540N 27A/100V</td><td>41.4℃</td><td>71.2℃</td></tr>
<tr><td>25</td><td>RG601</td><td>LM317T 1.5A</td><td>39.4℃</td><td>68.5℃</td></tr>
<tr><td>26</td><td>D630</td><td>21DQ10 2A/100V</td><td>39.5℃</td><td>68.0℃</td></tr>
<tr><td>27</td><td>INTERNAL TA</td><td>2 cm above C416</td><td>48.4℃</td><td>75.2℃</td></tr>
<tr><td>28</td><td>CASE</td><td>Attach CASE</td><td>47.1℃</td><td>73.3℃</td></tr>
</table></td></tr>
<tr><td>2</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>3</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: 14.6VDC
OP:FULL LOAD
Ta:= 40℃
HUMIDITY= 95 %R.H</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>4</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: 5.77 mA AC O/P-FG: 4.33 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: 19.9 GΩ BAT I/P-FG: 30 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25℃	14 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:48VDC 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: 48VDC O/P:100 %LOAD Ta:25℃	CRITERIA A	P
3	E.F.T	EN 61000-4-4 LIGHT INDUSTRY INPUT: 1KV	I/P: 48VDC 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: 48 VDC 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-700-112 : SUPPOSE C302 IS THE MOST CRITICAL COMPONENT I/P: 12VDC O/P:FULL LOAD Ta= 25℃ LIFE TIME=274897 HRS I/P: 12VDC O/P:FULL LOAD Ta= 40℃ LIFE TIME=88835 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 IRFB4229PBF 91A/250V	I/P:58 VDC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 167 V (2) 122 V	P
2	DCTO DC Diode Peak **Voltage**	D 400 Rated SF20LC30 20A/300V	I/P:58 VC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 225 V (2) 225 V	P
3	**DC BUS Capacitor Voltage**	C415 Rated 330u/250V 105℃	I/P:58VDC O/P: (1)Full Load Turn SW On /Off (2) Min load Turn SW On /Off Ta:25℃	(1) 217 V (2) 222 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:58 VDC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 291 V (2) 315 V	P
7	DC TO FAN Power Transistor (D to S) or (C to E) **Peak Voltage**	Q 309 Rated 2SK2508 12A/250V	I/P:58VDC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 189 V (2) 121 V	P
8	DCTO FAN Diode Peak **Voltage**	D 450 Rated HER303 3A/200V	I/P:58 VDC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 82 V (2) 44 V	P
9	FAN TO CPU Power Transistor (D to S) or (C to E) **Peak Voltage**	Q601 Rated IRF540N 27A/100V	I/P:58 VDC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 46 V (2) 30 V	P
10	FAN TO CPU Diode Peak **Voltage**	D 630 Rated 21DQ10 2A/100V	I/P:58 VDC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 31 V (2) 30 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2008/4/29	RD SAMPLE	PASS	SANFORD SU	VINCENT TSENG
2008/8/7	PRODUCT SAMPLE W0804C23	PASS	SANFORD SU	VINCENT TSENG
2008/9/16	PRODUCT SAMPLE W0808C64	PASS	SANFORD SU	VINCENT TSENG

2003/12/12 A50-F023