MODEL：TS-400-112

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RATED POWER (TYP)	400W	IP: 12VDC Ta:25℃	400W	P
2	WAVEFORM	True sine wave (THD<3%)	IP: 12VDC OP: FULL LOAD/NO LOAD Ta:25℃	FULL LOAD: 1.45 % NO LOAD: 0.6 %	P
3	FREQUENCY	50/60HZ ± 0.1HZ	IP: 12VDC OP: FULL LOAD/NO LOAD Ta:25℃	FULL LOAD: 60.03 HZ NO LOAD: 59.96 HZ	P
4	AC REGULATION (TYP)	3%~-3%	IP: 12VDC OP: FULL LOAD/NO LOAD Ta:25℃	1.1% ~ -1.1 %	P
7	MAXIMUM OUTPUT POWER (TYP)	460W/180sec 600w/10sec 800W / 30cycle	IP: 12VDC OP:TESTING Ta:25℃	455 W 180 SEC 570 W 7 SEC 722 W 31 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)	40A	IP: 12VDC OP:FULL LOAD Ta:25℃	39.94A	P
2	NO LOAD POWER DRAW	≤1.25A	IP: 12VDC OP:NO LOAD Ta:25℃	0.93A	P
3	OFF MODE DRAW CURRENT	≤1mA	IP: SW OFF OP:NO LOAD Ta:25℃	0.33mA	P
4	VOLTAGE RANGE (TYP)	10.5VDC~15VDC	IP: TESTING OP:NO LOAD Ta:25℃	10.3VDC~14.7 VDC	P
5	EFFICIENCY (TYP)	84.5 %	IP: 12VDC OP: 300W Ta:25℃	85.4%	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 Ta:25℃	11.3V	P
2	BAT LOW SHUT DOWN	10.5VDC ± 4%	IP: TESTING OP: NO LOAD Ta:25℃	10.3V Shut down Recovery	P
3	BAT. RECOVERY VOLTAGE	12VDC~15VDC	IP: TESTING OP: NO LOAD Ta:25℃	12.8V	P
4	BAT POLARITY	BY INTERNAL FUSE	IP: 12VDC OP: NO LOAD Ta:25℃	OK	P

OUTPUT PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER TEMPERATURE	85℃±5℃(RTH1) detect power MOSFET	IP: 12VDC OP: FULL LOAD 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 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℃	460 W 180 SEC 600 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 Ta:25℃	INVERTER TURN ON/OFF :OLP protect INDUCTION MOTOR ON/OFF:OLP protect	P
2	INCANDESCENT LAMPS	400W	IP: 12VDC OP:400W Ta:25℃	INVERTER TURN ON/OFF :OK INDUCTION MOTOR ON/OFF:OK	P
3	ELECTRONIC HOT BLOWERS	400W	IP:12VDC OP: 400W Ta:25℃	INVERTER TURN ON/OFF :OK INDUCTION MOTOR ON/OFF:OK	P

LED instruction ：(★ Flash ● Light ON)

LED IS TREECOLOR LIGHT	status	RESULT
●	Inverter fail	P
★	Remote OFF	P
●	Inverter OK	P

VOLTAGE AND FREQUENCY SETTING CODES

Vout	100V	110V	115V	120V
LED	●	★	●	★
RESULT	P	P	P	P

Frequency	LED	RESULT
50HZ	●	P
60HZ	★	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-400-112
1. ROOM AMBIENT BURN-IN：1 HRS
I/P: 12 VDC O/P: FULL LOAD Ta= 27.8 ℃
2. HIGH AMBIENT BURN-IN：2 HRS
I/P: 12 VDC O/P: FULL LOAD Ta=42.8 ℃
<table>
<tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta= 27.8 ℃</th><th>HIGHAMBIENT Ta=42.8 ℃</th></tr>
<tr><td>1</td><td>C301</td><td>2200u/16V L10Kh 12.5*25 YXG</td><td>34.8℃</td><td>51.1℃</td></tr>
<tr><td>2</td><td>C302</td><td>106/250V 5% P=32.5 MPE</td><td>41.9℃</td><td>58.4℃</td></tr>
<tr><td>3</td><td>T310</td><td>TF1851</td><td>89.2℃</td><td>105.0℃</td></tr>
<tr><td>4</td><td>Q311</td><td>STP75NF75 80A/75V</td><td>55.0℃</td><td>72.4℃</td></tr>
<tr><td>5</td><td>LF500</td><td>LF105-R2</td><td>47.6℃</td><td>63.9℃</td></tr>
<tr><td>6</td><td>D400</td><td>STTH2003CT 20A/300V</td><td>71.1℃</td><td>87.7℃</td></tr>
<tr><td>7</td><td>L500</td><td>TR832</td><td>74.5℃</td><td>90.4℃</td></tr>
<tr><td>8</td><td>Q540</td><td>STP21NM60N 17A/600V</td><td>54.0℃</td><td>69.8℃</td></tr>
<tr><td>9</td><td>L300</td><td>TF1848</td><td>46.5℃</td><td>64.2℃</td></tr>
<tr><td>10</td><td>T600</td><td>DT TF1857</td><td>39.7℃</td><td>55.9℃</td></tr>
<tr><td>11</td><td>Q600</td><td>STP60NF06L 60A/60V</td><td>40.4℃</td><td>56.1℃</td></tr>
<tr><td>12</td><td>RG630</td><td>RG LM317T 1.5A</td><td>32.4℃</td><td>47.8℃</td></tr>
<tr><td>13</td><td>D600</td><td>HER104 1A/300V</td><td>36.4℃</td><td>52.5℃</td></tr>
<tr><td>14</td><td>U100</td><td>CPU PIC18F65J10-I</td><td>38.3℃</td><td>54.0℃</td></tr>
<tr><td>15</td><td>U600</td><td>PWM TL3845D</td><td>35.3℃</td><td>51.1℃</td></tr>
<tr><td>16</td><td>C733</td><td>47u/35V L6Kh 5*11 ZLH RUBYCON</td><td>36.3℃</td><td>52.3℃</td></tr>
<tr><td>17</td><td>RTH1</td><td>NTC 10KΩ 4Φ TTC3A103F34D1EY 1%</td><td>49.0℃</td><td>65.4℃</td></tr>
<tr><td>18</td><td>C400</td><td>330u/250V 105℃ 22*30 HU5 HITACHI</td><td>54.4℃</td><td>70.6℃</td></tr>
<tr><td>19</td><td>C500</td><td>C/X2 225/275VAC</td><td>46.7℃</td><td>62.7℃</td></tr>
</table></td><td>P</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= -10℃</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: 4.38 mA AC O/P-FG: 5.31 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: 19.5 GΩ BAT I/P-FG: 2.5 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25℃	11 mΩ	P
4	APPROVAL	TUV: Certificate NO : UL: File NO :			N/A

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RADIATION	EN 55022 CLASS A	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: 12 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-400-112: SUPPOSE C301 IS THE MOST CRITICAL COMPONENT I/P: 12VDC O/P:FULL LOAD Ta= 25℃ LIFE TIME=1563692 HRS I/P: 12VDC O/P:FULL LOAD Ta= 40℃ LIFE TIME=505027 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 310 Rated STP75NF75 80A/75V	I/P:14.5 VDC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 55 V (2) 40 V	P
2	DCTO DC Diode Peak Voltage	D 400 Rated STTH2003CT 20A/300V	I/P:14.5 VC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 253 V (2) 271 V	P
3	DC BUS Capacitor Voltage	C400 Rated 330u/250V 105℃ 22*30 HU5	I/P:14.5VDC O/P: (1)Full Load Turn On /Off (2) Min load Turn On /Off Ta:25℃	(1) 240 V (2) 244 V	P
4	DC TO AC Power Transistor (D to S) or (C to E) Peak Voltage	Q 520 Rated HGTG12N60A4D 12A/600V	I/P:14.5 VDC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 306 V (2) 358 V	P
5	DC TO FAN Power Transistor (D to S) or (C to E) Peak Voltage	Q600 Rated STP60NF06L 60A/60V	I/P:14.5VDC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 45.6 V (2) 48 V	P
6	DCTO FAN Diode Peak Voltage	D 700 Rated HER203 2A/200V	I/P:14.5 VDC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 45 V (2) 43 V	P
7	DC TO CPU Power Transistor (D to S) or (C to E) Peak Voltage	D710 Rated HER203 2A/200V	I/P:14.5 VDC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 85 V (2) 71 V	P
8	FAN TO CPU Diode Peak Voltage	D 730 Rated MBR1200 1A/200V	I/P:14.5 VDC O/P: (1)Full Load Turn On (2) Output Short Ta:25℃	(1) 126 V (2) 124 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2009/4/15	RD SAMPLE	PASS	SANFORD SU	VINCENT TSENG
2009/6/3	PRODUCT SAMPLE W0904E57	PASS	SANFORD SU	VINCENT TSENG

2003/12/12 A50-F023