

MODEL : TS-1000-112

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RATED POWER (TYP)	1000W	IP: 12VDC Ta:25°C	1000 W	P
2	WAVEFORM	True sine wave (THD<3%)	IP: 13VDC OP: FULL LOAD/NO LOAD Ta:25°C	FULL LOAD: 0.88 % NO LOAD: 0.63 %	P
3	FREQUENCY	60HZ ± 0.1HZ	IP: 12VDC OP: FULL LOAD/NO LOAD Ta:25°C	FULL LOAD: 59.96 HZ NO LOAD: 60.02 HZ	P
4	AC REGULATION (TYP)	3%~3%	IP: 12VDC OP: FULL LOAD/NO LOAD Ta:25°C	0.6% ~ -0.6 %	P
5	SAVING MODE TO NORMAL	≤6S (5W-25W)	IP: 12VDC OP: TESTING Ta:25°C	≥14 W_5_SEC	P
6	NORMAL TO SAVING MODE	≤6S (5W-15W)	IP: 12VDC OP: TESTING Ta:25°C	<9 W_5SEC	P
7	MAXIMUM OUTPUT POWER (TYP)	1150W/180sec 1500w/10sec 2000W / 30cycle	IP: 12VDC OP:TESTING Ta:25°C	<u>1100 W 180_SEC</u> <u>1400 W 10_SEC</u> <u>1933 W 30_cycle</u> 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°C	98A	P
2	NO LOAD DISSIPATION	≤ 6W @ saving mode	IP: 12VDC OP:NO LOAD Ta:25°C	5.39W	P
3	OFF MODE DRAW CURRENT	≤1mA	IP: SW OFF OP:NO LOAD Ta:25°C	0.57mA	P
4	VOLTAGE RANGE (TYP)	10.5VDC~15VDC	IP: TESTING OP:NO LOAD Ta:25°C	10.56VDC~15.1 VDC	P
5	EFFICIENCY (TYP)	88%	IP: 13VDC OP: 750W Ta:25°C	88%	P

INPUT PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	BAT LOW ALARM	11.3VDC \pm 4%	IP: TESTING OP: NO LOAD SW:ON Ta:25°C	11.32V	P
2	BAT LOW SHUT DOWN	10.5VDC \pm 4%	IP: TESTING OP: NO LOAD SW:ON Ta:25°C	10.56V Shut down Recovery	P
3	BAT. RECOVERY VOLTAGE	12VDC-15VDC	IP: TESTING OP: NO LOAD SW:ON Ta:25°C	13.1V	P
4	BAT POLARITY	BY INTERNAL FUSE	IP: 12VDC OP: NO LOAD SW:ON Ta:25°C	OK	P

OUTPUT PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER TEMPERATURE	70 °C \pm 5 °C (RTH3) detect on heatsink of power transistor	IP: 12VDC OP: FULL LOAD SW:ON Ta:25°C	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°C	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°C	<u>1100 W 180 SEC</u> <u>1400 W 10SEC</u> 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°C	INVERTER TURN ON/OFF :OK INDUCTION MOTOR ON/OFF:OK	P
2	INCANDESCENT LAMPS	1000W	IP: 12VDC OP: 1000W SW:ON Ta:25°C	INVERTER TURN ON/OFF :OK INDUCTION MOTOR ON/OFF:OK	P
3	ELECTRONIC HOT BLOWERS	1000W	IP:12VDC OP: 1000W SW:ON Ta:25°C	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 < 11.1V	<11.7V
●	---	11.7V-12V
●	Vin >12.6V	>12.1

Load LIGHT	CONDITION	RESULT
●	LOAD > 850W	>800W
●	LOAD=550W~750W	500W-780W
●	LOAD < 450W	<480W

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

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																																																																																		
1	TEMPERATURE RISE TEST	MODEL : TS-100-112 1. ROOM AMBIENT BURN-IN : 1.5 HRS I/P: 12 VDC O/P: FULL LOAD Ta= 28.9°C 2. HIGH AMBIENT BURN-IN : 2.5 HRS I/P: 12 VDC O/P: FULL LOAD Ta= 41.9 °C																																																																																																																																					
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3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	IP: 12VDC OP: FULL LOAD Ta= -5°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	IP: 14.5VDC OP: FULL LOAD Ta= 40°C HUMIDITY= 95 %R.H	TEST : OK	P																																																																																																																																		
5	VIBRATION TEST	1 Carton & 1 Set (1) Waveform: Sine Wave (3) Sweep Time: 10min/sweep cycle (5) Test Time: 1 hour in each axis (X.Y.Z)	(2) Frequency: 10-500Hz (4) Acceleration: 5G (6) Ta: 25°C	TEST : OK	P																																																																																																																																		

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°C	BAT I/P-AC O/P:6.40 mA AC O/P-FG: 4.52 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°C	BAT I/P-AC O/P: 15.1 GΩ BAT I/P-FG: 20.3 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	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°C	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°C	CRITERIA A	P
3	E.F.T	EN 61000-4-4 LIGHT INDUSTRY INPUT: 1KV	I/P: 12VDC O/P: 100 %LOAD Ta:25°C	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°C	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-1000-112 : SUPPOSE C302 IS THE MOST CRITICAL COMPONENT	I/P: 12VDC O/P:FULL LOAD Ta= 25°C LIFE TIME= 147508 HRS I/P: 12VDC O/P:FULL LOAD Ta= 40°C LIFE TIME= 30336 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°C	(1) 60.2 V (2) 46.8 V	P
2	DCTO DC Diode Peak Voltage	D 400 Rated SF20LC30 20A/300V	I/P:14.5 VC O/P: (1)Full Load Turn On (2) Output Short Ta:25°C	(1) 246 V (2) 250 V	P
3	DC BUS Capacitor Voltage	C415 Rated 330u/250V 105°C	I/P:14.5VDC O/P: (1)Full Load Turn SW On /Off (2) Min load Turn SW On /Off Ta:25°C	(1) 213 V (2) 232 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°C	(1) 416 V (2) 428 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°C	(1) 49 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°C	(1) 105 V (2) 73 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°C	(1) 43 V (2) 31 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°C	(1) 53 V (2) 48 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