

MODEL : TS-1500-112

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RATED POWER (TYP)	1500W	IP: 12VDC Ta:25°C	1430W	P
2	WAVEFORM	True sine wave (THD<3%)	IP: 13VDC OP: FULL LOAD/NO LOAD Ta:25°C	FULL LOAD: 1.69 % NO LOAD: 0.91 %	P
3	FREQUENCY	60HZ ± 1HZ	IP: 12VDC OP: FULL LOAD/NO LOAD Ta:25°C	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°C	0.8% - -0.8 %	P
5	SAVING MODE TO NORMAL	≤3S (5W~25W)	IP: 12VDC OP:NO LOAD Ta:25°C	OK	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	DC CURRENT (TYP)	150A	IP: 13VDC OP:NO LOAD Ta:25°C	150.7A	P
2	NO LOAD DISSIPATION	≤18W @ saving mode	IP: 12VDC OP:NO LOAD Ta:25°C	14 W	P
3	OFF MODE DRAW CURRENT	≤1mA	IP: SW OFF OP:NO LOAD Ta:25°C	0.04mA	P
4	VOLTAGE RANGE (TYP)	10.5VDC~15VDC	IP: TESTING OP:NO LOAD Ta:25°C	10.5 VDC- 15 VDC	P
5	EFFICIENCY (TYP)	87%	IP: 13VDC OP: 1000W Ta:25°C	87.7%	P

BATTERY INPUT PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
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1	BAT LOW ALARM	11.3VDC \pm 4%	IP: TESTING OP: NO LOAD Ta:25°C	11.1V	P
2	BAT LOW SHUT DOWN	10.5VDC \pm 4%	IP: TESTING OP: NO LOAD Ta:25°C	10.5V Shut down Recovery	P
3	BAT POLARITY	BY INTERNAL FUSE	IP: 12VDC OP: NO LOAD Ta:25°C	OK	P

OUTPUT PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER TEMPERATURE	40°C~45°C at full load , Reset: re-power on	IP: 12VDC OP: FULL LOAD Ta:25°C	O.T.P Active Reset: re-power on	P
2	OUTPUT SHORT	Shut-off , Reset: re-power on	IP: 12VDC OP: FULL LOAD Ta:25°C	Shut-off , Reset: re-power on	P
3	OVER LOAD (INVERTER)	105%~115% \pm 5% LOAD 180sec 115%~150% \pm 5% LOAD 10sec Shunt down Re-power ON	IP: 12VDC OP: TESTING Ta:25°C	107 %/ 180 SEC 117%/ 10 SEC Shut down Re-power ON	P
4	OVER LOAD (AC LINE)	CIRCUIT BREAKER PROTECTION	IP: 110VAC OP: TESTING Ta:25°C	CIRCUIT BREAKER PROTECTION	P

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																																																																																				
1	TEMPERATURE RISE TEST	MODEL : TS-1500-112 1. ROOM AMBIENT BURN-IN : 2HRS I/P: 12 VDC O/P: FULL LOAD Ta= 31.5 °C 2. HIGH AMBIENT BURN-IN : 1 HRS I/P: 12 VDC O/P: FULL LOAD Ta= 41.1 °C	<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 31.5°C</th> <th>HIGH AMBIENT Ta= 41.1°C</th> </tr> </thead> <tbody> <tr><td>1</td><td>L301</td><td>118.8°C</td><td>128.6°C</td></tr> <tr><td>2</td><td>C311</td><td>71.8°C</td><td>81.3°C</td></tr> <tr><td>3</td><td>C301</td><td>77.5°C</td><td>86.2°C</td></tr> <tr><td>4</td><td>D417</td><td>60.3°C</td><td>69.1°C</td></tr> <tr><td>5</td><td>D413</td><td>63.3°C</td><td>71.9°C</td></tr> <tr><td>6</td><td>T302</td><td>82.3°C</td><td>91.6°C</td></tr> <tr><td>7</td><td>C416</td><td>60.2°C</td><td>69.5°C</td></tr> <tr><td>8</td><td>L13</td><td>64.7°C</td><td>75.2°C</td></tr> <tr><td>9</td><td>C7</td><td>41.5°C</td><td>49.5°C</td></tr> <tr><td>10</td><td>RY2</td><td>41.7°C</td><td>50.2°C</td></tr> <tr><td>11</td><td>L1</td><td>42.8°C</td><td>53.2°C</td></tr> <tr><td>12</td><td>CT1</td><td>34.4°C</td><td>44.8°C</td></tr> <tr><td>13</td><td>Q326</td><td>85.5°C</td><td>96.0°C</td></tr> <tr><td>14</td><td>Q328</td><td>88.7°C</td><td>98.4°C</td></tr> <tr><td>15</td><td>Q330</td><td>81.0°C</td><td>92.2°C</td></tr> <tr><td>16</td><td>RTH3</td><td>77.8°C</td><td>88.4°C</td></tr> <tr><td>17</td><td>Q11</td><td>84.0°C</td><td>94.8°C</td></tr> <tr><td>18</td><td>Q13</td><td>74.2°C</td><td>85.5°C</td></tr> <tr><td>19</td><td>U301</td><td>56.8°C</td><td>65.8°C</td></tr> <tr><td>20</td><td>Q602</td><td>83.2°C</td><td>94.8°C</td></tr> <tr><td>21</td><td>D601</td><td>54.9°C</td><td>64.1°C</td></tr> <tr><td>22</td><td>RG602</td><td>52.0°C</td><td>61.3°C</td></tr> <tr><td>23</td><td>RG601</td><td>54.0°C</td><td>63.9°C</td></tr> <tr><td>24</td><td>U509</td><td>45.4°C</td><td>54.5°C</td></tr> <tr><td>25</td><td>Q702</td><td>48.0°C</td><td>57.3°C</td></tr> <tr><td>26</td><td>D806</td><td>49.2°C</td><td>59.9°C</td></tr> <tr><td>27</td><td>BD701</td><td>47.9°C</td><td>56.9°C</td></tr> <tr><td>28</td><td>T701</td><td>49.4°C</td><td>59.7°C</td></tr> <tr><td>29</td><td>Q802</td><td>49.8°C</td><td>60.4°C</td></tr> <tr><td>30</td><td>C812</td><td>49.2°C</td><td>60.0°C</td></tr> <tr><td>31</td><td>C720</td><td>51.6°C</td><td>61.7°C</td></tr> <tr><td>32</td><td>U701</td><td>51.7°C</td><td>62.5°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta= 31.5°C	HIGH AMBIENT Ta= 41.1°C	1	L301	118.8°C	128.6°C	2	C311	71.8°C	81.3°C	3	C301	77.5°C	86.2°C	4	D417	60.3°C	69.1°C	5	D413	63.3°C	71.9°C	6	T302	82.3°C	91.6°C	7	C416	60.2°C	69.5°C	8	L13	64.7°C	75.2°C	9	C7	41.5°C	49.5°C	10	RY2	41.7°C	50.2°C	11	L1	42.8°C	53.2°C	12	CT1	34.4°C	44.8°C	13	Q326	85.5°C	96.0°C	14	Q328	88.7°C	98.4°C	15	Q330	81.0°C	92.2°C	16	RTH3	77.8°C	88.4°C	17	Q11	84.0°C	94.8°C	18	Q13	74.2°C	85.5°C	19	U301	56.8°C	65.8°C	20	Q602	83.2°C	94.8°C	21	D601	54.9°C	64.1°C	22	RG602	52.0°C	61.3°C	23	RG601	54.0°C	63.9°C	24	U509	45.4°C	54.5°C	25	Q702	48.0°C	57.3°C	26	D806	49.2°C	59.9°C	27	BD701	47.9°C	56.9°C	28	T701	49.4°C	59.7°C	29	Q802	49.8°C	60.4°C	30	C812	49.2°C	60.0°C	31	C720	51.6°C	61.7°C	32	U701	51.7°C	62.5°C		P
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3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	IP: 12VDC OP:FULL LOAD Ta= -10°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: 13.6VDC 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:3G (6) Ta:25°C	TEST : OK	P																																																																																																																																				

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	BAT I/P-AC I/P: 3 KVAC/min BAT I/P-AC O/P: 3 KVAC/min AC I/P-FG: 1.5 KVAC/min	BAT I/P-AC I/P: 3.3 KVAC/min BAT I/P-AC O/P: 3.3 KVAC/min AC I/P-FG: 1.8 KVAC/min Ta:25°C	BAT I/P-AC I/P: 8.66 mA BAT I/P-AC O/P: 8.66mA AC I/P-FG: 9.32 mA NO DAMAGE	P
2	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	22 mΩ	P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	CONDUCTION	FCC CLASS A	I/P: 110 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab	P
2	RADIATION	FCC CLASS A	I/P: 110 VAC (50HZ) O/P:FULL LOAD Ta:25°C	PASS Test by certified Lab	P
3	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-1500-112 : SUPPOSE C812 IS THE MOST CRITICAL COMPONENT I/P: 12VDC O/P:FULL LOAD Ta= 25°C LIFE TIME= 420711 HRS I/P: 12VDC O/P:FULL LOAD Ta= 40°C LIFE TIME= 136874 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	Q324 Rated IRF1405Z : 55V 75A	I/P:14 VDC O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 60 V (2) 50 V (3) 49 V	P
2	DCTO DC Diode Peak Voltage	D414 Rated SF20LC30 : 300V 20A	I/P:14VDC O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 252 V (2) 236 V (3) 256 V	P
3	Input Capacitor Voltage	C417 Rated : 330u / 250V/ 105°C	I/P:14VDC O/P: (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change (4)Burn in 1hour Ta:25°C	(1) 209 V (2) 230 V (3) 209 V	P
4	INVERTER Power Transistor (D to S) or (C to E) Peak Voltage	Q12 Rated IRGP50B60PD : 600V 50A	I/P:14VDC O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 430 V (2) 362 V (3) 372 V	P



DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2006/4/18	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2006/9/25	PRODUCT SAMPLE W0605A45	PASS	VINCENT TSENG	MAX LIN
2007/5/15	PRODUCT SAMPLE W0703A19	PASS	VINCENT TSENG	MAX LIN
2007/1/17	PRODUCT SAMPLE W0711B50	PASS	SANFORD SU	VINCENT TSENG

2003/12/12 A50-F023