

MODEL : SE-1500-12

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1 : 150 mVp-p (Max)	I/P : 230VAC O/P : FULL LOAD Ta : 25°C	V1 : 67 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1 : 10.8V~ 13.5V	I/P : 230 VAC I/P : 200VAC O/P : MIN LOAD Ta : 25°C	9.541 V~ 14.010 V/230VAC 9.561 V~ 14.019 V/200VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1 : 1%~ -1% (Max)	I/P : 200 VAC / 264 VAC O/P : FULL/ MIN LOAD Ta : 25°C	V1 : 0.08 %~ -0.08 %	P
4	LINE REGULATION	V1 : 0.5 %~ -0.5% (Max)	I/P : 200VAC ~ 264 VAC O/P : FULL LOAD Ta : 25°C	V1 : 0.05 %~ -0.05 %	P
5	LOAD REGULATION	V1 : 0.5 %~ -0.5% (Max)	I/P : 230 VAC O/P : FULL ~MIN LOAD Ta : 25°C	V1 : 0.05 %~ -0.05 %	P
6	SET UP TIME	230VAC : 150 ms (Max)	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 62 ms	P
7	RISE TIME	230VAC : 12 ms (Max)	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 4.6 ms	P
8	HOLD UP TIME	230VAC : 26 ms (TYP)	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 30 ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	TEST : < 5 %	P
10	DYNAMIC LOAD	V1 : 1200 mVp-p	I/P : 230 VAC O/P : FULL /Min LOAD 90%DUTY/1KHZ Ta : 25°C	518 mVp-p	P

## INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	180VAC~264 VAC	I/P : TESTING O/P : FULL LOAD Ta : 25°C	173 V~264V	P
			I/P : LOW-LINE-3V= 177 V HIGH-LINE+15%=300 V O/P : FULL/MIN LOAD ON : 30 Sec . OFF : 30 Sec 10MIN ( AC POWER ON/OFF NO DAMAGE )	TEST : OK	
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE OSC	I/P : 200VAC ~ 264 VAC O/P : FULL~MIN LOAD Ta : 25°C	TEST : OK	P
3	EFFICIENCY	85 % (TYP)	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	86.8 %	P
4	INPUT CURRENT	230V/ 17.5 A	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	I = 11.75 A/230VAC	P
5	INRUSH CURRENT	230V/ 60 A  COLD START	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	I = 50 A/230VAC	P
6	LEAKAGE CURRENT	< 3.5 mA / 240 VAC	I/P : 264 VAC O/P : Min LOAD Ta : 25°C	L-FG : 1.15 mA N-FG : 1.1 mA	P

### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 %~ 125 %	I/P : 230 VAC I/P : 200 VAC O/P : TESTING Ta : 25°C	115%/ 230 VAC 114%/ 200 VAC Shut down Re-power ON	P
2	OVERVOLTAGE PROTECTION	CH1 : 14.5 V~ 16.2 V	I/P : 230 VAC I/P : 200 VAC O/P : MIN LOAD Ta : 25°C	15.02 V/ 230 VAC 14.92V/ 200 VAC Shut down Re-power ON	P
3	OVERTEMPERATURE PROTECTION	SPEC : TSW1 : 85°C±5°C O.T.P. NO DAMAGE	I/P : 230 VAC O/P : FULL LOAD	O.T.P. Active Shut down o/p voltage , recovers automatically after temperature goes down	P
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P : 264 VAC O/P : FULL LOAD Ta : 25°C	NO DAMAGE Shunt down Re-power ON	P

### CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	FAN LOCK TEST	POWER SUPPLY SHUT DOWN	I/P : 230 VAC O/P : FULL LOAD	OK	P
3	REMOTE CONTROL	Rc+ / Rc- 0V~ 0.8V POWER ON 4V~10V POWER OFF	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	0V ~ 1.8V POWER ON 1.9V ~ 10 V POWER OFF	P
4	DC OK SIGNAL	POWER ON : 3.3V~5.6V POWER OFF : 0V~1V	I/P : 230 VAC O/P : FULL LOAD/NO LOAD Ta : 25°C	POWER ON : 5.223 V POWER OFF : 0 V	P
5	REMOTE SENSE	>0.25V	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	➤ 0.25 V	P

### ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : SE-1500-24 1. ROOM AMBIENT BURN-IN : 1.5 HRS I/P : 230VAC O/P : FULL LOAD Ta= 31.1 °C 2. HIGH AMBIENT BURN-IN : 1 HRS I/P : 230VAC O/P : FULL LOAD Ta= 43 °C			P
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN )	I/P : 230 VAC O/P : 112 % LOAD Ta : 25 °C	TEST : OK	P
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 230 VAC O/P : 100 % LOAD Ta : -25 °C	TEST : OK	P
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE	I/P : 272 VAC O/P : FULL LOAD Ta : 50 °C HUMIDITY= 95 %R.H	TEST : OK	P
5	TEMPERATURE COEFFICIENT	± 0.05 % (0~50°C)	I/P : 230 VAC O/P : FULL LOAD	± 0.0035 % (0~50°C)	P

6	VIBRATION TEST	1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10~500Hz (3) Sweep Time : 10min/sweep cycle (4) Acceleration : 2G (5) Test Time : 1 hour in each axis (X.Y.Z) (6) Ta : 25°C	TEST : OK	P
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### M.T.B.F & LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	SE-1500-24 : SUPPOSE C119	IS THE MOST CRITICAL COMPONENT I/P : 230VAC O/P : FULL LOAD Ta= 25 °C LIFE TIME= 8511819 HRS I/P : 230VAC O/P : FULL LOAD Ta= 50 °C LIFE TIME= 1346732 HRS		P
2	MTBF	Conducted by Parts Stress Analysis Prediction 999.9K hrs min. Telcordia SR-332 (Bellcore) ; 134.5K hrs min. MIL-HDBK-217F (25°C)			P
3	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure : Above 20,000 hours @ TA 50°C			P

### SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P : 3 KVAC/min I/P-FG : 1.5 KVAC/min O/P-FG : 0.5 KVAC/min	I/P-O/P : 3.6 KVAC/min I/P-FG : 1.8 KVAC/min O/P-FG : 0.6 KVAC/min Ta : 25°C	I/P-O/P : 8.71 mA I/P-FG : 6.9 mA O/P-FG : 8.17 mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P : 500VDC>100MΩ I/P-FG : 500VDC>100MΩ O/P-FG : 500VDC>100MΩ	I/P-O/P : 500 VDC I/P-FG : 500 VDC O/P-FG : 500 VDC Ta : 25°C	I/P-O/P : 13.9 GΩ I/P-FG : 12.1 GΩ O/P-FG : 30 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta : 25°C	16 mΩ	P
4	APPROVAL	TUV : Certificate NO : UL : File NO : E183223			P

### E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	CONDUCTION	EN55022 CLASS B	I/P : 230 VAC (50HZ)/115V(60HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS Test by certified Lab	P
2	RADIATION	EN55022 CLASS B	I/P : 230 VAC (50HZ) /115V(60HZ) O/P : FULL LOAD Ta : 25°C	PASS Test by certified Lab	P



**COMPONENT STRESS TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor ( D to S) or (C to E) Peak Voltage	Q900 Rated IRGP20B60PDPbF 20A/600V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2) Full Load (3)Output Short Ta : 25°C	(1) 416 V (2) 394 V (3) 408 V	P
2	Diode Peak Voltage	D100 Rated S30JC10 30A/100V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2) Full Load (3)Output Short Ta : 25°C	(1) 67.6 V (2) 67.2 V (3) 75.2 V	P
3	Input Capacitor Voltage	C5 Rated 560u/400V 85°C SMQ	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load/Min load Change Ta : 25°C	(1) 355.4 V (2) 382.1 V (3) 382.3 V	P
4	Control IC Voltage Test	U150 Rated SG3525AN : 8V~ 40 V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta : 25°C	(1) 12.754 V (2) 12.789 V (3) 12.789 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2008/12/22	RD SAMPLE	PASS	SANFORD SU	VINCENT TSENG
2009/3/11	PRODUCT SAMPLE W0901A26	PASS	SANFORD SU	VINCENT TSENG
2009/5/5	PRODUCT SAMPLE W0903C24	PASS	SANFORD SU	VINCENT TSENG

2003/12/12 A50-F023