



MODEL : SE-1000-15

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: 58 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 13.5V- 16.5V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	11.98 V- 18.13 V/ 230 VAC 11.98 V- 18.13 V/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 1 %- -1 % (Max)	I/P: 200 VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25°C	V1: 0.06 %- -0.06 %	P
4	LINE REGULATION	V1: 0.5 %- -0.5 % (Max)	I/P: 200VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0.04 %- -0.04 %	P
5	LOAD REGULATION	V1: 0.5 %- -0.5 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0.04 %- -0.04 %	P
6	SET UP TIME	230VAC: 1500 ms (Max) 115 VAC: 1500 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 162 ms 115VAC/ 124 ms	P
7	RISE TIME	230VAC: 50 ms (Max) 115VAC: 50 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 18 ms 115VAC/ 20 ms	P
8	HOLD UP TIME	230VAC: 20 ms (TYP) 115VAC: 15 ms(TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 23 ms 115VAC/ 17.9 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: 1500 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	428 mVp-p	P

## INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	180VAC~264 VAC)	I/P:TESTING O/P:FULL LOAD Ta:25°C	157 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: 180VAC - 264 VAC O/P:FULL-MIN LOAD Ta:25°C	TEST: OK	P
3	EFFICIENCY	86 % (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	87.6 %	P
4	INPUT CURRENT	230V/ 10 A (TYP) 115V/ 17.5 A(TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 9.75 A/ 230 VAC I = 16.6 A/ 115 VAC	P
5	INRUSH CURRENT	230V/ 55 A (TYP) 115V/ 35 A(TYP) COLD START	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 52 A/ 230 VAC I = 27 A/ 115 VAC	P
6	LEAKAGE CURRENT	< 2.5 mA / 240 VAC	I/P: 254 VAC O/P:Min LOAD Ta:25°C	L-FG: 1.4 mA N-FG: 1.4 mA	P

### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 %- 125 %	I/P: 230 VAC I/P: 115 VAC O/P: TESTING Ta: 25°C	114 %/ 230 VAC 114 %/ 115 VAC Shunt down Re-power ON	P
2	OVER VOLTAGE PROTECTION	CH1: 18 V~ 21 V	I/P: 230 VAC I/P: 115 VAC O/P: MIN LOAD Ta: 25°C	20.1 V/ 230 VAC 20.1 V/ 115 VAC Shunt down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	SPEC: TSW1: 70°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	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	FAN LOCK TEST	POWER SUPPLY SHUT DOWN	I/P: 230 VAC O/P: FULL LOAD	OK	P
2	FAN SPEED CONTROL	-----	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	Fan Voltage= 12.65 V	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 ~ 2V POWER ON 2.1V ~ 10V 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: 5.2 V POWER OFF: 0V	P
5	REMOTE SENSE	>0.3V	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	>0.3V	P

## ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : SE-1000-12 1. ROOM AMBIENT BURN-IN : 1.5 HRS I/P: 230VAC O/P: FULL LOAD Ta= 22.5 °C 2. HIGH AMBIENT BURN-IN : 2.5 HRS I/P: 230VAC O/P: FULL LOAD Ta= 50.1 °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= -20°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	± 0.02 %(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

## M.T.B.F & LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	SUPPOSE C105 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 843598 HRS I/P: 230VAC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 164300 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 251.6K HRS			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: 10.37 mA I/P-FG: 8.74 mA O/P-FG: 7.63 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: 2 GΩ I/P-FG: 1 GΩ O/P-FG: 1 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	10 mΩ	P
4	APPROVAL	TUV: Certificate NO : ----- UL: File NO : E183223			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor ( D to S) or (C to E) <b>Peak Voltage</b>	Q1 Rated IRGP35B60PD : 600V 35 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 450 V (2) 408 V (3) 152 V	P
2	Diode <b>Peak Voltage</b>	D100 Rated 60CPQ150 : 150V 60A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 127 V (2) 126 V (3) 145 V	P
3	<b>Input Capacitor Voltage</b>	C5 Rated :1500u / 200V/ 85°C	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 (4)Burn in 1hour Ta:25°C	(1) 178 V (2) 190 V (3) 178 V (4) 178 V	P
4	<b>Control IC Voltage Test</b>	U2 Rated SG3525AN : 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) 15.5 V (2) 15.6 V (3) 15.5 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2005/12/21	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2006/3/9	PRODUCT SAMPLE W0601B20	PASS	VINCENT TSENG	MAX LIN
2006/5/11	PRODUCT SAMPLE W0604B22	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023