

MODEL : SP-320-24

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 150 mVp-p (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	V1: 40 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 20 V- 26.4 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	18.4V~ 27.2 V/230 VAC 18.4V~ 27.2V/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 1 %~ -1 % (Max)	I/P: 264 VAC / 100 VAC O/P:FULL/ MIN % LOAD Ta:25°C	V1: 0.15 %~ -0.15 %	P
4	LINE REGULATION	V1:0.2 %~ 0.2 % (Max)	I/P: 100 VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0 %~ 0 %	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 %~ -0.07 %	P
6	SET UP TIME	230 VAC/ 800 ms (Max) 115 VAC/ 2500 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230 VAC/ 466 ms 115 VAC/ 1500 ms	P
7	RISE TIME	230 VAC/ 50 ms (Max) 115 VAC/ 50 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230 VAC/ 26 ms 115 VAC/ 26 ms	P
8	HOLD UP TIME	230 VAC/ 20 ms (TYP) 115 VAC/ 20 ms (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230 VAC/ 22 ms 115 VAC/ 22 ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: OK	P
10	DYNAMIC LOAD	V1: 2400 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	341 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	88VAC ~ 264 VAC	I/P: TESTING O/P: FULL LOAD Ta: 25°C	78 V ~ 264 V	P
			I/P: LOW-LINE -3V = 85 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	47 HZ ~ 63 HZ NO DAMAGE OSC	I/P: 135 VAC ~ 264 VAC O/P: FULL-MIN LOAD Ta: 25°C	TEST: OK	P
3	POWER FACTOR	230VAC/0.95 (TYP) 115VAC/0.98 (TYP)	I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	PF = 0.98 / 230 VAC PF = 0.99 / 115 VAC	P
4	EFFICIENCY	87 % (TYP)	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	87.9 %	P
5	INPUT CURRENT	230 V / 2.5 A (TYP) 115 V / 5 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	I = 1.5 A / 230 VAC I = 3.2 A / 115 VAC	P
6	INRUSH CURRENT	230 V / 40 A (TYP) 115 V / 22 A (TYP) COLD START	I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	I = 28 A / 230 VAC I = 18 A / 115 VAC	P
7	LEAKAGE CURRENT	< 1 mA / 240 VAC	I/P: 254VAC O/P: Min LOAD Ta: 25°C	L-FG: 0.7 mA N-FG: 0.7 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 %~ 135 %	I/P: 230 VAC I/P: 115 VAC O/P: TESTING Ta: 25°C	121 %/ 230 VAC 121 %/ 115 VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1: 27.6 V~ 32.4V	I/P: 230 VAC I/P: 115 VAC O/P: MIN LOAD Ta: 25°C	28.2 V/ 230 VAC 28.2 V/ 115 VAC Shunt down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	SPEC: 80°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: 100% LOAD Ta: 25°C	NO DAMAGE Hiccup Mode	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: 5.2 mA I/P-FG: 4.3 mA O/P-FG: 4 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: 7G Ω I/P-FG: 6G Ω O/P-FG: 5G Ω NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	39 mΩ	P
4	APPROVAL	TUV: Certificate NO : R50026832 UL: File NO : E183223			P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	PASS	P
2	CONDUCTION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab	P
3	RADIATION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25°C	PASS Test by certified Lab	P
4	E.S.D	EN61000-4-2 LIGHT INDUSTRY AIR:8KV / Contact:4KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
5	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT: 1KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
6	SURGE	IEC61000-4-5 LIGHT INDUSTRY L-N :1KV L,N-PE:2KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
7	Test by certified Lab & Test Report Prepare				

M.T.B.F & LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	SUPPOSE C 52 IS THE MOST CRITICAL COMPONENT I/P: 230 VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 1482897 HRS I/P: 230 VAC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 258526 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 207k HRS			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q 2 Rated 2SK2611: 900 V/ 9 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) 732 V (2) 772 V (3) 804 V	P
2	Diode Peak Voltage	D 19 Rated D9202 :200 V/20 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) 58 V (2) 102 V (3) 105 V	P
3	Clamp Diode Peak Voltage	D 4 Rated HER208 : 1K V/ 2 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load (2) Dynamic Load 90%Duty/1KHz Ta:25°C	(1) 756 V (2) 756 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2003/4/1	RD SMAPLE	PASS	VINCENT TSENG	MAX LIN
2003/5/2	PRODUCT SMAPLE A304B28	PASS	VINCENT TSENG	MAX LIN
2003/6/22	PRODUCT SMAPLE A306A21	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023