

MODEL : GS220A12-R7B

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1 : 80 mVp-p (Max)	I/P : 230VAC O/P : FULL LOAD Ta : 25°C	V1 : 30 mVp-p (Max)	P
2	OUTPUT VOLTAGE TOLERANCE	V1 : 5%~ -5% (Max)	I/P : 100 VAC / 264 VAC O/P : FULL/ MIN LOAD Ta : 25°C	V1 : 2%~ -2%	P
3	LINE REGULATION	V1 : 1%~ -1% (Max)	I/P : 100VAC ~ 264 VAC O/P : FULL LOAD Ta : 25°C	V1 : 0.05%~ -0.05%	P
4	LOAD REGULATION	V1 : 5%~ -5% (Max)	I/P : 230 VAC O/P : FULL ~MIN LOAD Ta : 25°C	V1 : 2%~ -2%	P
5	SET UP TIME	230VAC : 2000 ms (Max) 115VAC : 2000 ms (Max)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 1142 ms 115VAC/ 1210 ms	P
6	RISE TIME	230VAC : 20 ms (Max) 115VAC : 20 ms (Max)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 4 ms 115VAC/ 4 ms	P
7	HOLD UP TIME	230VAC : 20 ms (TYP) 115VAC : 20 ms (TYP)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 32 ms 115VAC/ 31 ms	P
8	OVER/UNDERSHOOT TEST	< ±5%	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	TEST : < 5%	P
9	DYNAMIC LOAD	V1 : 1200 mVp-p	I/P : 230 VAC O/P : FULL /Min LOAD 90%DUTY/ 1KHZ Ta : 25°C	791 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90VAC~264 VAC	I/P : TESTING O/P : FULL LOAD Ta : 25°C I/P : LOW-LINE -3V= 87 V HIGH-LINE+15%=300 V O/P : FULL/MIN LOAD ON : 30 Sec . OFF : 30 Sec 10MIN (AC POWER ON/OFF NO DAMAGE)	71V~264V TEST : OK	P
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE OSC	I/P : 90 VAC ~ 264 VAC O/P : FULL-MIN LOAD Ta : 25°C	TEST : OK	P
3	POWER FACTOR	0.91 / 230 VAC(TYP) 0.98 / 115 VAC(TYP)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	PF= 0.937 / 230 VAC PF= 1 / 115 VAC	P
4	EFFICIENCY	90 % (TYP)	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	90.3 %	P
5	INPUT CURRENT	230V/ 2 A (TYP) 115V/ 4 A (TYP)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I = 0.907 A/ 230 VAC I = 1.756 A/ 115 VAC	P
6	INRUSH CURRENT	230V/ 120 A (TYP) COLD START	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I = 105 A/ 230 VAC	P
7	LEAKAGE CURRENT	< 1.5 mA / 240 VAC	I/P : 264 VAC O/P : Min LOAD Ta : 25°C	L-FG : 0.9 mA N-FG : 0.9 mA	P
8	No load power consumption	<0.5W	I/P : 230 VAC I/P : 115 VAC O/P : NO LOAD Ta : 25°C	0.32 W / 230VAC 0.41 W / 115VAC	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	130 %/ 230 VAC 130 %/ 115 VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1 : 12.6 V- 16.2 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	14.52 V/ 230 VAC 14.42 V/ 115 VAC Shut down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	SPEC : TSW1 : 95 ± 5°C O.T.P. detect on heatsink of power transistor 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 Hiccup Mode	P

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : GS220A12-R7B 1. ROOM AMBIENT BURN-IN : 3 HRS I/P : 230VAC O/P : FULL LOAD Ta= 30.4 °C 2. HIGH AMBIENT BURN-IN : 4 HRS I/P : 230VAC O/P : FULL LOAD Ta= 53.4 °C			P
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 119 % 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= -15 °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	± 0.03 %(0-50°C)	I/P : 230 VAC O/P : FULL LOAD	± 0.003 %(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

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P : 3 KVAC/min	I/P-O/P : 3.6 KVAC/min Ta : 25°C	I/P-O/P : 11.2 mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P : 500VDC>100MΩ	I/P-O/P : 500 VDC Ta : 25°C/70%RH	I/P-O/P : 14.8 GΩ NO DAMAGE	P
3	APPROVAL	TUV : Certificate NO : S50158826 UL : File NO : E183223			P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A CLASS D	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	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	GS220A12-R7B : SUPPOSE C 101 IS THE MOST CRITICAL COMPONENT	I/P : 230VAC O/P : FULL LOAD Ta= 25 °C LIFE TIME= 23591 HRS I/P : 230VAC O/P : FULL LOAD Ta= 50 °C LIFE TIME= 6701 HRS I/P : 230VAC O/P : 75% LOAD Ta= 50 °C LIFE TIME= 19992 HRS		P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE : 191.3KHRS			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q6 Rated : STF16NM50N :15A/550V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2) Output Short Ta : 25°C	(1) 442 V (2) 484 V	P
2	Diode Peak Voltage	Q101 Rated : IRF1404 : 162A/40V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2)Output Short Ta : 25°C	(1) 36.2 V (2) 21.5 V	P
3	Input Capacitor Voltage	C5 Rated : 220u/450V 105°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 Ta : 25°C	(1) 405 V (2) 424 V (3) 418 V	P
4	Control IC Voltage Test	U900 Rated : L6599AD: 8.85V-16V	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) 13.335 V (2) 12.581 V (3) 13.355 V	P
		U1 Rated : NCP1605DR2G : 10V-20V		(1) 13.297 V (2) 12.514 V (3) 13.339 V	
5	Power Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated : STF16NM50N: 15A/550V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2) Output Short Ta : 25°C	(1) 454 V (2) 476 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2009/4/7	RD SAMPLE	PASS	SANFORD SU	VINCENT TSENG
2009/6/16	PRODUCT SAMPLE W0904E47	PASS	SANFORD SU	VINCENT TSENG

2003/12/12 A50-F023