

MODEL : GS60A15-P1J

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1:100 mVp-p (Max)	I/P: 230VAC O/P:FULL LOAD Ta:25°C	V1: 60 mVp-p (Max)	P
2	OUTPUT VOLTAGE TOLERANCE	V1: 3 %- -3 % (Max)	I/P: 100 VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25°C	V1: 1 %- -1 %	P
3	LINE REGULATION	V1: 1 %- -1 % (Max)	I/P: 100 VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0.08 %- -0.08 %	P
4	LOAD REGULATION	V1: 3 %- -3 % (Max)	I/P: 230 VAC O/P:FULL -MIN LOAD Ta:25°C	V1: 1 %- -1 %	P
5	SET UP TIME	230VAC: 600 ms (Max) 115 VAC: 600 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 354 ms 115VAC/ 354 ms	P
6	RISE TIME	230VAC: 30 ms (Max) 115VAC: 30 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 10 ms 115VAC/ 10 ms	P
7	HOLD UP TIME	230VAC: 50 ms (TYP) 115VAC: 15 ms (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 80 ms 115VAC/ 15.6 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: 1500 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	413 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	76 V~264V	P
			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)	TEST: OK	
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE OSC	I/P: 100 VAC ~ 264 VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK	P
3	EFFICIENCY	88.5% (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	88.9 %	P
4	INPUT CURRENT	230V/ 1 A (TYP) 115V/ 1.4 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 0.5 A/ 230 VAC I = 1.10 A/ 115 VAC	P
5	INRUSH CURRENT	230V/ 65 A (TYP) COLD START	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	I = 55 A/ 230 VAC	P
6	LEAKAGE CURRENT	< 0.75 mA / 240 VAC	I/P: 264 VAC O/P:Min LOAD Ta:25°C	L-FG: 0.04 mA N-FG: 0.04 mA	P
7	NO LOAD CONSUMPTION	< 0.3 W/240VAC	I/P: 240 VAC O/P:NO LOAD Ta:25°C	0.24 W	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 %- 150 %	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25°C	116 %/ 230 VAC 109 %/ 115 VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1: 15.75 V~ 20.25 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	18.69 V/ 230 VAC 18.70 V/ 115 VAC Shunt down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	SPEC: RTH2>70°C O.T.P. NO DAMAGE	I/P: 230 VAC O/P:FULL LOAD	O.T.P. Active Shunt down Re-power ON	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 : GS60A24-P1J				P		
		1. ROOM AMBIENT BURN-IN : 12 HRS						
		I/P: 230VAC O/P: FULL LOAD Ta=27.1°C						
		2. HIGH AMBIENT BURN-IN : 2.5HRS						
		I/P: 230VAC O/P: FULL LOAD Ta=43.7°C						
		NO	Position	P/N	ROOM AMBIENT Ta= 27.1 °C		HIGH AMBIENT Ta=43.7°C	
		1	BD1	UD4KB80 4A/800V	65.3°C		78.2°C	
		2	LF2	TR-367	63.6°C		76.4°C	
		3	C5	120U/400V 105°C KMG	63.4°C		76.0°C	
		4	D1	2A/800V GP20K	78.6°C		92.8°C	
		5	ZD1	P6KE250A	71.2°C		84.4°C	
		6	D100	STPS20120CT 20A/120V	66.5°C		77.5°C	
7	T1 COIL	TF-1744	65.8°C	78.0°C				
8	Q1	2SK3673-01MR 10A/700V	68.5°C	81.9°C				
9	C105	470U/35V 105°C KY	61.2°C	72.8°C				
10	C40	100U/25V 105°C YXG	66.7°C	79.5°C				
11	RTH1	330K ± 1%	60.7°C	73.4°C				
12	U1	NCP1230D65R2G	61.2°C	74.4°C				
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 230 VAC O/P:132% 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 40 °C NO DAMAGE	I/P: 272 VAC O/P:FULL LOAD Ta=40°C HUMIDITY= 95 %R.H	TEST : OK	P			
5	TEMPERATURE COEFFICIENT	± 0.03 %(0-50°C)	I/P: 230 VAC O/P:FULL LOAD	± 0.017 %(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-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: 1.715 mA I/P-FG: 0.670 mA O/P-FG: 0.67 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 / 70%RH	I/P-O/P: 30 GΩ I/P-FG: 1.52 GΩ O/P-FG: 30 GΩ NO DAMAGE	P
3	APPROVAL	TUV: Certificate NO : S50127275 UL: File NO :			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	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	GS-60A-24 : SUPPOSE C105 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25°C LIFE TIME= 200080 HRS I/P: 230VAC O/P:FULL LOAD Ta= 40°C LIFE TIME= 100040 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 711K HRS			P
3	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure : Above 20,000 hours @ TA 40°C			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q 1 Rated 2SK3673-01MR 10A/700V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Output Short Ta:25°C	(1) 615 V (2) 535 V	P
2	Diode Peak Voltage	D 100 Rated STPS20H100CT 20A/100V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2)Output Short Ta:25°C	(1) 66 V (2) 49 V	P
3	Clamp Diode Peak Voltage	D 1 Rated GP20K : 800 V 2 A	I/P:High-Line +3V = 267 V O/P: (1) Dynamic Load 90%Duty/1KHz Ta:25°C	(1) 540 V	P
4	Input Capacitor Voltage	C 5 Rated 120u/400V 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) 376 V (2) 378 V (3) 378 V	P
5	Control IC Voltage Test	U 1Rated NCP1230D65R2G : 18 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) 12.014 V (2) 10.4 V (3) 12.014 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2008/1/22	RD SAMPLE	PASS	SANFORD SU	VINCENT TSENG
2008/4/18	PRODUCT SAMPLE W0803A73	PASS	SANFORD SU	VINCENT TSENG
2008/7/15	PRODUCT SAMPLE W0806A48	PASS	SANFORD SU	VINCENT TSENG

2003/12/12 A50-F023