

MODEL : ELN-60-12

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 120 mVp-p (Max)	I/P: 230VAC O/P: 100% LOAD Ta:25°C	V1: 16 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 10.8V- 13.2V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	10.27V~ 13.77 V/ 230 VAC 10.27V~ 13.77 V/ 115 VAC	P
3	OUTPUT CURRENT ADJUST RANGE	CH1:3.75 A-5.15 A	I/P: 230 VAC I/P: 115 VAC Ta:25°C	0.9 A~ 5.72 A/ 230 VAC 0.9 A~ 5.72 A/ 115 VAC	P
4	OUTPUT VOLTAGE TOLERANCE	V1: 5 %~ -5 % (Max)	I/P: 100 VAC / 264 VAC O/P: 100% LOAD / MIN LOAD Ta:25°C	V1: 0.7 %~ -0.7 %	P
5	LINE REGULATION	V1: 1 %~ -1 % (Max)	I/P: 100VAC ~ 264 VAC O/P: 100% LOAD Ta:25°C	V1: 0.05 %~ -0.05 %	P
6	LOAD REGULATION	V1: 2%~ -2 % (Max)	I/P: 230 VAC O/P: 100% LOAD -MIN LOAD Ta:25°C	V1: 0.7 %~ -0.7 %	P
7	SET UP TIME	230VAC: 500 ms (Max) 115 VAC: 1500 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P: 100% LOAD Ta:25°C	230VAC/ 304 ms 115VAC/ 912 ms	P
8	RISE TIME	230VAC: 30 ms (Max) 115VAC: 30 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P: 100% LOAD Ta:25°C	230VAC/ 12 ms 115VAC/ 11 ms	P
9	HOLD UP TIME	230VAC: 50 ms (TYP) 115VAC 16 ms (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 85 Ms 115VAC/ 17.7 ms	P
10	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P: 100% LOAD Ta:25°C	TEST: <5 %	P
11	DYNAMIC LOAD	V1: 1200 mVp-p	I/P: 230 VAC O/P: 100% LOAD /Min LOAD 90%DUTY/1KHZ Ta:25°C	303 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: 100% LOAD Ta: 25°C	64V~264V	P
			I/P: LOW-LINE-3V= 87V HIGH-LINE+15%=300 V O/P: 100% LOAD /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: 90 VAC ~ 264 VAC O/P: 100% LOAD ~MIN LOAD Ta: 25°C	TEST: OK	P
3	EFFICIENCY	85 % (TYP)	I/P: 230 VAC O/P: 100% LOAD Ta: 25°C	85.6 %	P
4	INPUT CURRENT	230V/ 0.7 A (TYP) 115V/ 1.2 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P: 100% LOAD Ta: 25°C	I = 0.58 A/ 230 VAC I = 0.96 A/ 115 VAC	P
5	INRUSH CURRENT	230V/ 60 A (TYP) COLD START	I/P: 230 VAC O/P: 100% LOAD Ta: 25°C	I = 58.6 A/ 230 VAC	P
6	LEAKAGE CURRENT	< 0.25 mA / 240 VAC	I/P: 264 VAC O/P: Min LOAD Ta: 25°C	L-FG: 0.01 mA N-FG: 0.01 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	95 %-110 %	I/P: 230 VAC I/P: 115 VAC O/P: TESTING Ta: 25°C	100 %/ 230 VAC 100 %/ 115 VAC Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1: 13.8V- 16V	I/P: 230 VAC I/P: 115 VAC O/P: MIN LOAD Ta: 25°C	15.1 V/ 230 VAC 15.1 V/ 115 VAC Shunt down Re- power ON	P
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264 VAC O/P: 100% LOAD Ta: 25°C	NO DAMAGE Constant Current Limiting	P

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : ELN-60-12 1. ROOM AMBIENT BURN-IN : 112 HRS I/P: 230VAC O/P: 100% LOAD Ta= 33.8 °C 2. HIGH AMBIENT BURN-IN : 2HRS I/P: 230VAC O/P: 100% LOAD Ta= 41 °C			P
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 230 VAC O/P: 105 % 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 40°C NO DAMAGE	I/P: 272 VAC O/P: 100% 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:100% LOAD	± 0 %(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: 3.6KVAC/min Ta:25°C	I/P-O/P: 3.06 mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ	I/P-O/P: 500 VDC Ta:25°C	I/P-O/P: 8 GΩ NO DAMAGE	P
3	APPROVAL	TUV: Certificate NO : UL: File NO :			N/A

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS D	I/P: 230 VAC/50HZ O/P: 100% LOAD Ta:25°C	PASS	P
2	CONDUCTION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P: 100% LOAD /50% LOAD Ta:25°C	PASS Test by certified Lab	P
3	RADIATION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P: 100% 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: 100% 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: 100% 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: 100% 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	ELN-60-9 : SUPPOSE C105 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P: 100% LOAD Ta= 25 °C LIFE TIME= 19411 HRS I/P: 230VAC O/P: 100% LOAD Ta= 40 °C LIFE TIME= 9756 HRS I/P: 230VAC O/P: 75% LOAD Ta= 40 °C LIFE TIME= 20927 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 603K HRS			P
3	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure(Expected Life) : 20,000 hours @ Tcase 80°C; 50,000 hours @ Tcase 65°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	Q1 Rated 2SK2843 10A/600V	I/P:High-Line +3V = 267 V O/P: (1) 100% LOAD Turn on (2) Output Short Ta:25°C	(1) 578 V (2) 546 V	P
2	Diode Peak Voltage	D100 Rated FME-220A 20A/100V	I/P:High-Line +3V = 267 V O/P: (1) 100% LOAD Turn on (2)Output Short Ta:25°C	(1) 92 V (2) 81 V	P
3	Clamp Diode Peak Voltage	D1 Rated EGP20J 2A/600V	I/P:High-Line +3V = 267 V O/P: (1) Dynamic Load 90%Duty/1KHz Ta:25°C	(1) 520 V	P
4	Input Capacitor Voltage	C5 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) 374 V (3) 376 V	P
5	Control IC Voltage Test	U1 Rated 1200D60R2G: 16V	I/P:High-Line +3V = 267 V O/P: (1) 100% LOAD Turn on /Off (2) Min load Turn on /Off (3) 100% /Min load Change Ta:25°C	(1) 14.4 V (2) 11.3 V (3) 14.4 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2007/5/21	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2007/6/21	PRODUCT SAMPLE W0706A01	PASS	VINCENT TSENG	MAX LIN
2007/8/15	PRODUCT SAMPLE W0708A07	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023