

MODEL : CLG-60-12

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1 : 2 Vp-p (Max)	I/P : 230VAC O/P : 95% LOAD Ta : 25°C	V1 : 1.35 Vp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1 : 11.5V~ 13 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	10.7 V~ 13.39 V / 230 VAC 10.7 V~ 13.39 V / 115 VAC	P
3	OUTPUT CURRENT ADJUST RANGE	CH1 : 5.15A~3.75 A	I/P : 230 VAC I/P : 115 VAC Ta : 25°C	3.2 A~ 6.05 A / 230 VAC 3.15 A~ 6.12 A / 115 VAC	P
4	OUTPUT VOLTAGE TOLERANCE	V1 : 10 %~ -10 % (Max)	I/P : 100 VAC / 295 VAC O/P : 95% LOAD / MIN LOAD Ta : 25°C	V1 : 2 %~ 2 %	P
5	LINE REGULATION	V1 : 3 %~ -3 % (Max)	I/P : 100VAC ~ 295 VAC O/P : 95% LOAD Ta : 25°C	V1 : 0.6 %~ -0.6 %	P
6	LOAD REGULATION	V1 : 5 %~ -5 % (Max)	I/P : 230 VAC O/P : 95% LOAD ~MIN LOAD Ta : 25°C	V1 : 0.6 %~ -0.6 %	P
7	SET UP TIME	230VAC : 500 ms (Max) 115 VAC : 3000 ms (Max)	I/P : 230 VAC I/P : 115 VAC O/P : 95% LOAD Ta : 25°C	230VAC/ 460.441 ms 115VAC/ 920.882 ms	P
8	OVER/UNDERSHOOT TEST	< ±10%	I/P : 230 VAC O/P : 95% LOAD Ta : 25°C	TEST : <10 %	P
9	DYNAMIC LOAD	V1 : 2400 mVp-p	I/P : 230 VAC O/P : 95% LOAD /Min LOAD 90%DUTY/1KHZ Ta : 25°C	1276 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90VAC~295 VAC	I/P : TESTING O/P : 95% LOAD Ta : 25°C	77V~295V	P
			I/P : LOW-LINE-3V= 87V HIGH-LINE+15%=300 V O/P : 95% 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 ~ 295 VAC O/P : 95% LOAD ~MIN LOAD Ta : 25°C	TEST : OK	P
3	POWER FACTOR	0.90 / 230 VAC(TYP) 0.94 / 115 VAC(TYP) 0.90 / 277 VAC(TYP)	I/P : 230 VAC I/P : 115 VAC I/P : 277 VAC O/P : 95% LOAD Ta : 25°C	PF= 0.907 / 230 VAC PF= 0.99 / 115 VAC PF= 0.91 / 277 VAC	P
4	EFFICIENCY	81.5% (TYP)	I/P : 230 VAC O/P : 95% LOAD Ta : 25°C	83.6 %	P
5	INPUT CURRENT	230V/ 0.4 A (TYP) 115V/ 0.8 A (TYP)	I/P : 230 VAC I/P : 115 VAC O/P : 95% LOAD Ta : 25°C	I = 0.32 A/ 230 VAC I = 0.6 A/ 115 VAC	P
6	INRUSH CURRENT	230V/ 35 A (TYP) COLD START	I/P : 230 VAC O/P : 95% LOAD Ta : 25°C	I = 29 A/ 230 VAC	P
7	LEAKAGE CURRENT	< 0.75 mA / 240 VAC	I/P : 264 VAC O/P : Min LOAD Ta : 25°C	L-FG : 0.26 mA N-FG : 0.26 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	104%/ 230 VAC 101%/ 115 VAC Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1 : 13.8 V~ 16 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	15.4V/ 230 VAC 15.4V/ 115 VAC Shunt down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	SPEC : TSW1 : 90 ± 10°C O.T.P. NO DAMAGE	I/P : 230 VAC O/P : 95% LOAD	O.T.P. Active Shunt down Re-power ON	P
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P : 295 VAC O/P : 95% LOAD Ta : 25°C	NO DAMAGE Hiccup Mode	p

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : CLG-60-12 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : 95% LOAD Ta= 32.1 °C 2. HIGH AMBIENT BURN-IN : 3 HRS I/P : 230VAC O/P : 95% LOAD Ta=50.5 °C			P
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 97 % LOAD Ta : 25°C	TEST : OK	P
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 230 VAC O/P : 95 % LOAD Ta= -30 °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 : 295 VAC O/P : 95% 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 : 95% LOAD	± 0.01 %(0-50°C)	P
6	VIBRATION TEST	1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10~500Hz (3) Time : 72min (4) Acceleration : 5G (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 : 3.75 KVAC/min I/P-FG : 2KVAC/min O/P-FG : 0.5KVAC/min	I/P-O/P : 4.2KVAC/min I/P-FG : 2.4KVAC/min O/P-FG : 0.6KVAC/min Ta : 25°C	I/P-O/P : 0.348 mA I/P-FG : 4.16 mA O/P-FG : 2.088 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 Ta : 25°C	I/P-O/P : 30 GΩ I/P-FG : 30 GΩ O/P-FG : 30 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta : 25°C	17 mΩ	P
4	APPROVAL	TUV : Certificate NO : R50102381 UL : File NO : E307078			P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS C	I/P : 230 VAC/50HZ O/P : 95% LOAD/70% LOAD Ta : 25°C	PASS	P
2	CONDUCTION	EN55022 CLASS B	I/P : 230 VAC (50HZ) O/P : 95% LOAD /50% LOAD Ta : 25°C	PASS Test by certified Lab	P
3	RADIATION	EN55022 CLASS B	I/P : 230 VAC (50HZ) O/P : 95% 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 : 95% 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 : 95% LOAD Ta : 25°C	CRITERIA A	P
6	SURGE	IEC61000-4-5 LIGHT INDUSTRY L-N : 2KV L,N-PE : 4KV	I/P : 230 VAC/50HZ O/P : 95% 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	CLG-60-12 : SUPPOSE C105 IS THE MOST CRITICAL COMPONENT I/P : 230VAC O/P : 95% LOAD Ta= 25 °C LIFE TIME= 327442 HRS I/P : 230VAC O/P : 95% LOAD Ta= 50 °C LIFE TIME= 81294 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE : 495.7K HRS			P
3	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure(Expected Life) : 30,000 hours @ Tcase 75°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 : 600V 10A	I/P : High-Line +3V = 298 V O/P : (1) 95% LOAD Turn on (2) Output Short Ta : 25°C	(1) 592 V (2) 532 V	P
2	Diode Peak Voltage	D100 Rated FME220A : 100V 20A	I/P : High-Line +3V = 298 V O/P : (1) 95% LOAD Turn on (2) Output Short Ta : 25°C	(1) 72 V (2) 66 V	P
3	Clamp Diode Peak Voltage	D2 Rated IN5406 : 600V 3A	I/P : High-Line +3V = 298 V O/P : (1) Dynamic Load 90%Duty/1KHz Ta : 25°C	(1) 522 V	P
4	Control IC Voltage Test	U1 Rated TDA4863G : 22V	I/P : High-Line +3V = 298 V O/P : (1) 95% LOAD Turn on /Off (2) Min load Turn on /Off (3) 95% /Min load Change Ta : 25°C	(1) 15.93 V (2) 11.55 V (3) 15.93 V	p

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2006/10/5	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2007/1/9	PRODUCT SAMPLE W0611B31	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023