



Features :

- Universal AC input / Full range (up to 295VAC)
- Built-in active PFC function
- High efficiency up to 88.5%
- Protections: Short circuit / Over current / Over voltage / Over temperature
- Cooling by free air convection
- IP67 design for indoor or outdoor installations
- Class 2 power unit
- Pass LPS
- 100% full load burn-in test
- High reliability
- Suitable for LED lighting and moving sign applications
- Compliance to worldwide safety regulations for lighting
- Suitable for dry / damp / wet locations
- 3 years warranty (Note.6)

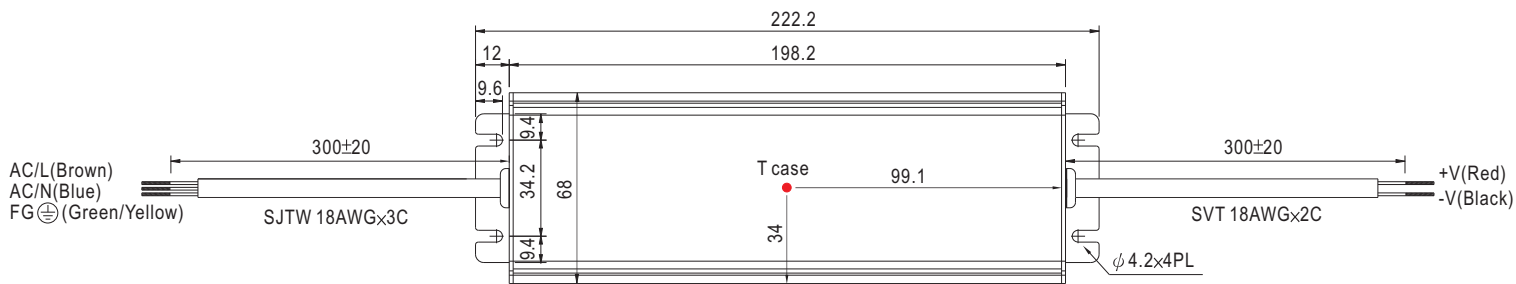


SPECIFICATION

MODEL		CLG-100-12	CLG-100-15	CLG-100-20	CLG-100-24	CLG-100-27	CLG-100-36	CLG-100-48
OUTPUT	DC VOLTAGE	12V	15V	20V	24V	27V	36V	48V
	CONSTANT CURRENT REGION Note.7	9 ~ 12V	11.25 ~ 15V	15 ~ 20V	18 ~ 24V	20.25 ~ 27V	27 ~ 36V	36 ~ 48V
	RATED CURRENT Note.5	5A	5A	4.8A	4A	3.55A	2.65A	2A
	RATED POWER Note.5	60W	75W	96W	96W	95.85W	95.4W	96W
	RIPPLE & NOISE (max.) Note.2	150mVp-p	150mVp-p	150mVp-p	150mVp-p	150mVp-p	150mVp-p	200mVp-p
	VOLTAGE ADJ. RANGE	Fixed. Can be modified between 0% ~ -15% rated output voltage						
	CURRENT ADJ. RANGE	Fixed. Can be modified between 3% ~ -25% rated output current						
	VOLTAGE TOLERANCE Note.3	±3.0%	±3.0%	±3.0%	±3.0%	±3.0%	±2.0%	±2.0%
	LINE REGULATION	±1.0%						
	LOAD REGULATION	±2.0%						
	SETUP, RISE TIME	1200ms, 80ms / 230VAC 1200ms, 80ms / 115VAC at full load						
HOLD UP TIME (Typ.)	60ms / 230VAC 30ms / 115VAC at full load							
INPUT	VOLTAGE RANGE Note.4	90 ~ 295VAC 127 ~ 417VDC						
	FREQUENCY RANGE	47 ~ 63Hz						
	POWER FACTOR (Typ.)	PF>0.95/115VAC, PF>0.95/230VAC, PF>0.92/277VAC at full load (Please refer to "Power Factor Characteristic" curve)						
	EFFICIENCY (Typ.)	83%	85%	88.5%	88.5%	88%	88%	88.5%
	AC CURRENT (Typ.)	12V:0.8A/115VAC 0.4A/230VAC 0.3A/277VAC 15V:0.9A/115VAC 0.45A/230VAC 0.35A/277VAC 20V ~ 48V:1.1A/115VAC 0.55A/230VAC 0.45A/277VAC						
	INRUSH CURRENT(max.)	COLD START 40A(twidth=1030μs measured at 50% Ipeak) at 230VAC						
	LEAKAGE CURRENT	<0.75mA / 240VAC						
PROTECTION	OVER CURRENT (Typ.)	95 ~ 102% Protection type : Constant current limiting, recovers automatically after fault condition is removed						
	SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed						
	OVER VOLTAGE	13 ~ 16V	16.5 ~ 20V	22 ~ 27V	27 ~ 34V	30 ~ 36V	39 ~ 48V	52 ~ 64V
	OVER TEMPERATURE	90℃ ±10℃ (RTH2)						
		Protection type : Shut down o/p voltage, re-power on to recover						
ENVIRONMENT	WORKING TEMP.	-30 ~ +70℃ (Refer to "Derating Curve")						
	WORKING HUMIDITY	20 ~ 95% RH non-condensing						
	STORAGE TEMP., HUMIDITY	-40 ~ +80℃, 10 ~ 95% RH						
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)						
	VIBRATION	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes						
SAFETY & EMC	SAFETY STANDARDS Note.8	UL879, UL8750, UL1310, TUV EN61347-1, EN61347-2-13 independent, CAN/CSA C22.2 No. 223-M91(except for 48V), CSA C22.2 No. 250.0-08(except for 48V), CSA C22.2 No. 207-M89(except for 48V), TUV EN60950-1, IP67, J61347-1, J61347-2-13(option) approved						
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC						
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25℃ / 70% RH						
	EMC EMISSION	Compliance to EN55015, EN55022 (CISPR22) Class B, EN61000-3-2 Class C (≥ 75% load) ; EN61000-3-3						
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN61547, EN55024, light industry level (surge 4KV), criteria A						
OTHERS	MTBF	301K hrs min. MIL-HDBK-217F (25℃)						
	DIMENSION	222.2*68*38.8mm (L*W*H)						
	PACKING	1.0Kg: 12pcs/13Kg/0.58CUFT						

■ Mechanical Specification

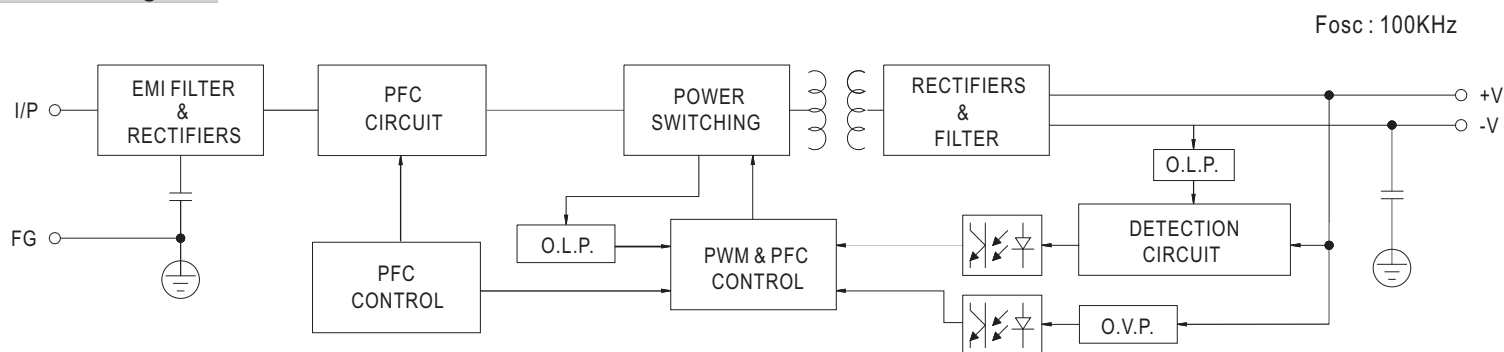
Case No. 954A Unit:mm



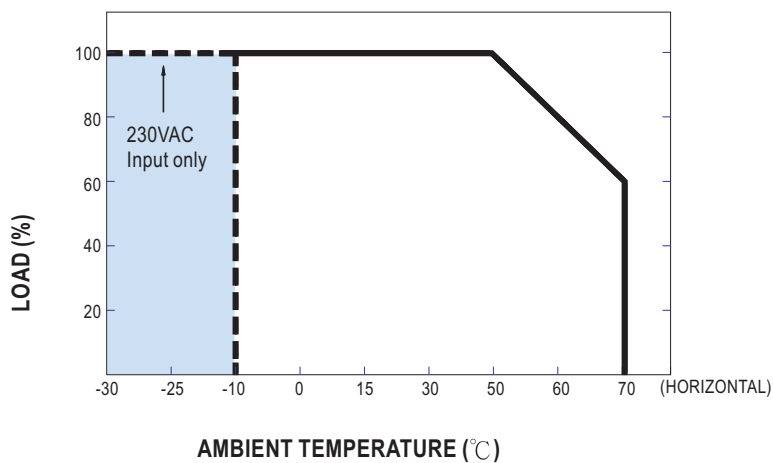
※ T case: Max. Case Temperature.



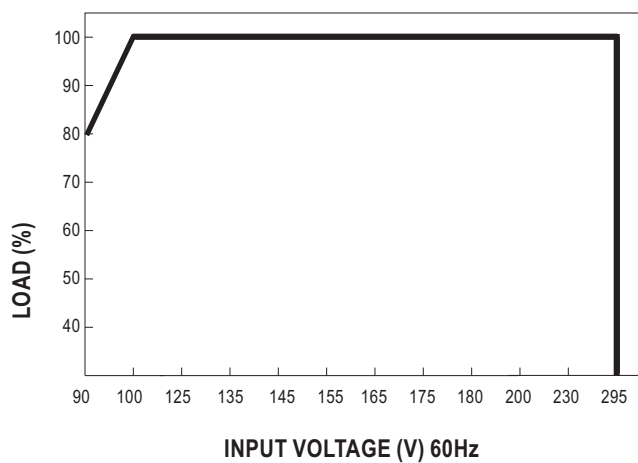
■ Block Diagram



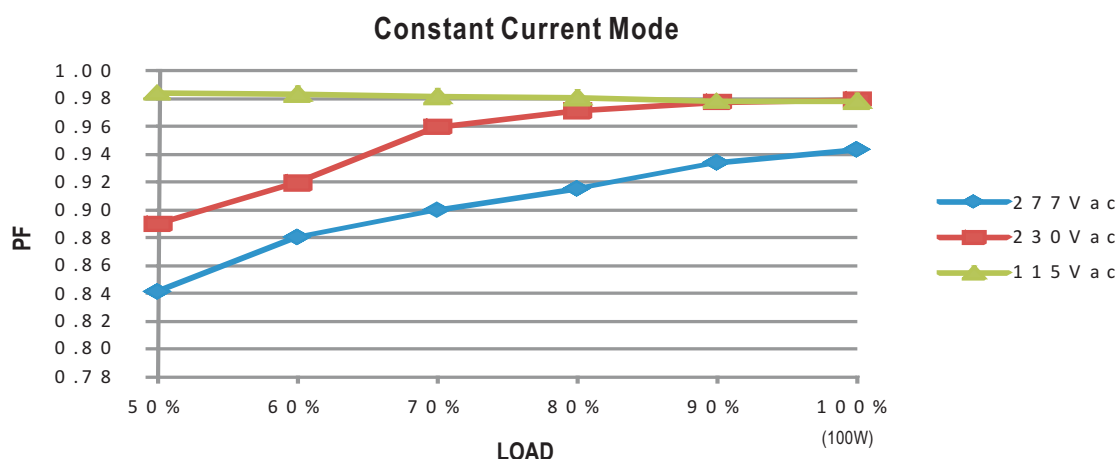
Derating Curve



■ Static Characteristics

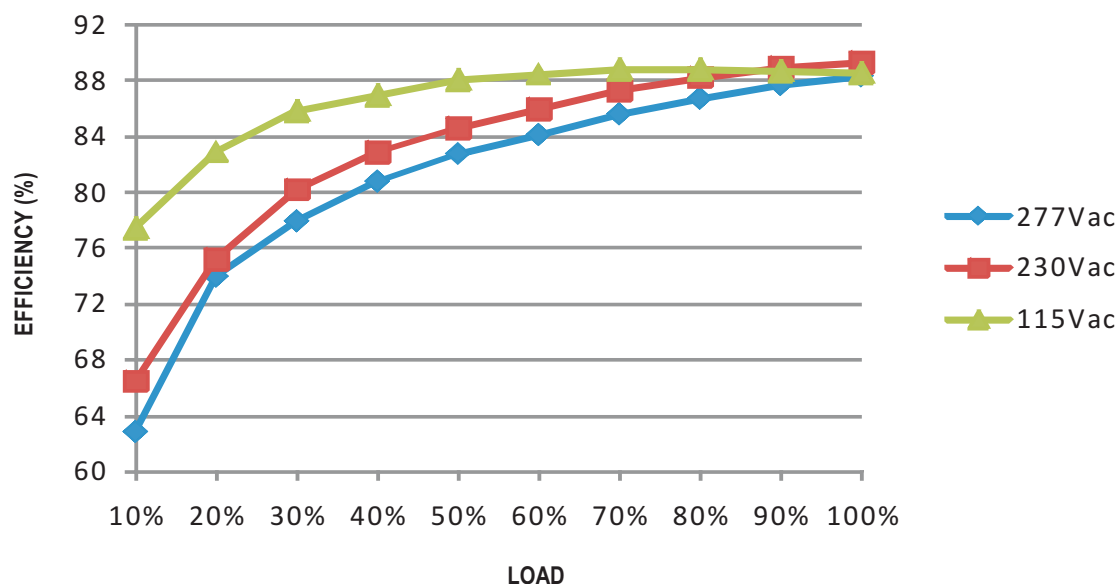


Power Factor Characteristic



EFFICIENCY vs LOAD (48V Model)

CLG-100 series possess superior working efficiency that up to 89% can be reached in field applications.

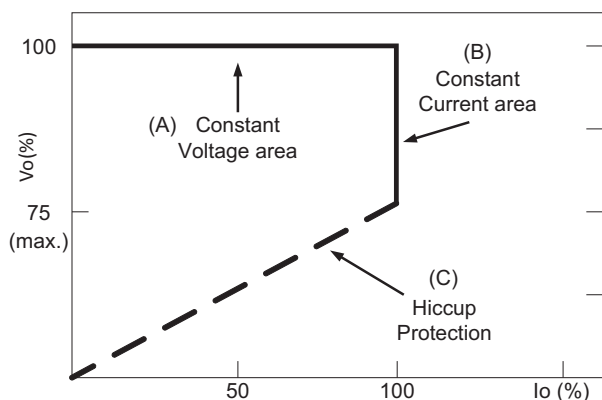


DRIVING METHODS OF LED MODULE

There are two major kinds of LED drive method "direct drive" and "with LED driver".

A typical LED power supply may either work in "constant voltage mode (CV) or constant current mode (CC)" to drive the LEDs.

Mean Well's LED power supply with CV+ CC characteristic can be operated at both CV mode [with LED driver, at area (A)] and CC mode [direct drive, at area (B)].



Typical LED power supply I-V curve

MODEL : CLG-100-15

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1 : 150 mVp-p (Max)	I/P : 230VAC O/P : 95% LOAD Ta : 25°C	V1 : 27 mVp-p (Max)	P
2	OUTPUT CURRENT ADJUST RANGE	CH1 : 5.15A~3.75A	I/P : 230 VAC I/P : 115 VAC Ta : 25°C	3.63 A~ 6.15 A/ 230 VAC 3.63 A~ 6.13 A/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1 : 5 %~ -5 % (Max)	I/P : 100 VAC / 295 VAC O/P : 95% LOAD / MIN LOAD Ta : 25°C	V1 : 0.35 %~ -0.35 %	P
4	LINE REGULATION	V1 : 1 %~ -1 % (Max)	I/P : 100VAC ~ 295 VAC O/P : 95% LOAD Ta : 25°C	V1 : 0.08 %~ -0.08 %	P
5	LOAD REGULATION	V1 : 2 %~ -2 % (Max)	I/P : 230 VAC O/P : 95% LOAD ~MIN LOAD Ta : 25°C	V1 : 0.35 %~ -0.35 %	P
6	SET UP TIME	230VAC : 1200 ms (Max) 115 VAC : 1200 ms (Max)	I/P : 230 VAC I/P : 115 VAC O/P : 95% LOAD Ta : 25°C	230VAC/ 771 ms 115VAC/ 771 ms	P
7	RISE TIME	230VAC : 80 ms (Max) 115VAC : 80 ms (Max)	I/P : 230 VAC I/P : 115 VAC O/P : 95% LOAD Ta : 25°C	230VAC/ 9 ms 115VAC/ 9 ms	P
8	HOLD UP TIME	230VAC : 60 ms (TYP) 115VAC : 16 ms (TYP)	I/P : 230 VAC I/P : 115 VAC O/P : 95% LOAD Ta : 25°C	230VAC/ 145 ms 115VAC/ 43 ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P : 230 VAC O/P : 95% LOAD Ta : 25°C	TEST : <5 %	P
10	DYNAMIC LOAD	V1 : 1500 mVp-p	I/P : 230 VAC O/P : 95% LOAD /Min LOAD 90%DUTY/1KHZ Ta : 25°C	518 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	48 V~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	0.95 / 230 VAC(TYP) 0.98 / 115 VAC(TYP) 0.92 / 277 VAC(TYP)	I/P : 230 VAC I/P : 115 VAC I/P : 277 VAC O/P : 95% LOAD Ta : 25°C	PF= 0.957 / 230 VAC PF= 0.991 / 115 VAC PF= 0.93 / 277 VAC	P
4	EFFICIENCY	86.5% (TYP)	I/P : 230 VAC O/P : 95% LOAD Ta : 25°C	87.2 %	P
5	INPUT CURRENT	230V/ 0.45 A (TYP) 115V/ 0.9 A (TYP)	I/P : 230 VAC I/P : 115 VAC O/P : 95% LOAD Ta : 25°C	I = 0.4 A/ 230 VAC I = 0.73 A/ 115 VAC	P
6	INRUSH CURRENT	230V/ 40 A (TYP) COLD START	I/P : 230 VAC O/P : 95% LOAD Ta : 25°C	I = 37 A/ 230 VAC	P
7	LEAKAGE CURRENT	< 0.75 mA / 240 VAC	I/P : 254 VAC O/P : Min LOAD Ta : 25°C	L-FG : 0.22 mA N-FG : 0.22 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	95 %~ 102 %	I/P : 230 VAC I/P : 115 VAC O/P : TESTING Ta : 25°C	98 %/ 230 VAC 98.2 %/ 115 VAC Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1 : 16.5V~ 20 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	17.6 V/ 230 VAC 17.6 V/ 115 VAC Shunt down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	SPEC : RTH2 : 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 : 264 VAC O/P : 95% LOAD Ta : 25°C	NO DAMAGE Hiccup Mode or Constant Current Limiting	P

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																																															
1	TEMPERATURE RISE TEST	MODEL : CLG-100-12 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : 95% LOAD Ta= 29.3 °C 2. HIGH AMBIENT BURN-IN : 3.5 HRS I/P : 230VAC O/P : 95% LOAD Ta= 49.5 °C <table><tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta= 29.3 °C</th><th>HIGH AMBIENT Ta= 49.5 °C</th></tr><tr><td>1</td><td>LF3</td><td>TR-689</td><td>50.7°C</td><td>68.0°C</td></tr><tr><td>2</td><td>BD1</td><td>US4KB80 4A/800V SHI</td><td>53.0°C</td><td>69.8°C</td></tr><tr><td>3</td><td>L2 COIL</td><td>TF-1356 LS</td><td>46.3°C</td><td>59.3°C</td></tr><tr><td>4</td><td>C11</td><td>104/400V/105°C</td><td>52.1°C</td><td>69.1°C</td></tr><tr><td>5</td><td>L1 COIL</td><td>TR-623</td><td>51.8°C</td><td>68.8°C</td></tr><tr><td>6</td><td>D1</td><td>MUR460 4A/600V VIS</td><td>55.1°C</td><td>72.2°C</td></tr><tr><td>7</td><td>Q2</td><td>2SK3683 19A/500V FUJI</td><td>56.0°C</td><td>73.4°C</td></tr><tr><td>8</td><td>C5</td><td>150U/400V NCC 105°C</td><td>54.1°C</td><td>71.1°C</td></tr><tr><td>9</td><td>Q1</td><td>SPA11N65C3 11A/820V INF</td><td>64.2°C</td><td>79.8°C</td></tr><tr><td>10</td><td>D2</td><td>IN4007 1A/1KV LT</td><td>64.2°C</td><td>80.8°C</td></tr><tr><td>11</td><td>T1 COIL</td><td>TF-1489 LS</td><td>60.5°C</td><td>77.1°C</td></tr><tr><td>12</td><td>C105</td><td>2200U/16V RUB 105°C ZLH</td><td>56.1°C</td><td>72.9°C</td></tr><tr><td>13</td><td>Q100</td><td>IRF2807 75V/82A IR</td><td>52.4°C</td><td>69.5°C</td></tr><tr><td>14</td><td>C42</td><td>47U/63V RUB 105°C YXF</td><td>51.6°C</td><td>68.5°C</td></tr><tr><td>15</td><td>U1</td><td>TDA4863 INF</td><td>53.7°C</td><td>70.8°C</td></tr><tr><td>16</td><td>U2</td><td>TEA1552/N1 PH</td><td>54.4°C</td><td>71.0°C</td></tr><tr><td>17</td><td>RTH2</td><td>220KΩ ±1%</td><td>53.7°C</td><td>70.6°C</td></tr><tr><td>18</td><td>CASE</td><td>UP CASE</td><td>44.3°C</td><td>61.7°C</td></tr></table>			NO	Position	P/N	ROOM AMBIENT Ta= 29.3 °C	HIGH AMBIENT Ta= 49.5 °C	1	LF3	TR-689	50.7°C	68.0°C	2	BD1	US4KB80 4A/800V SHI	53.0°C	69.8°C	3	L2 COIL	TF-1356 LS	46.3°C	59.3°C	4	C11	104/400V/105°C	52.1°C	69.1°C	5	L1 COIL	TR-623	51.8°C	68.8°C	6	D1	MUR460 4A/600V VIS	55.1°C	72.2°C	7	Q2	2SK3683 19A/500V FUJI	56.0°C	73.4°C	8	C5	150U/400V NCC 105°C	54.1°C	71.1°C	9	Q1	SPA11N65C3 11A/820V INF	64.2°C	79.8°C	10	D2	IN4007 1A/1KV LT	64.2°C	80.8°C	11	T1 COIL	TF-1489 LS	60.5°C	77.1°C	12	C105	2200U/16V RUB 105°C ZLH	56.1°C	72.9°C	13	Q100	IRF2807 75V/82A IR	52.4°C	69.5°C	14	C42	47U/63V RUB 105°C YXF	51.6°C	68.5°C	15	U1	TDA4863 INF	53.7°C	70.8°C	16	U2	TEA1552/N1 PH	54.4°C	71.0°C	17	RTH2	220KΩ ±1%	53.7°C	70.6°C	18	CASE	UP CASE	44.3°C	61.7°C	P
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 100 % 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 : 0.5 KVAC/min	I/P-O/P : 4.2 KVAC/min I/P-FG : 4KVAC/min O/P-FG : 0.6 KVAC/min Ta : 25°C	I/P-O/P : 5.84 mA I/P-FG : 4.89 mA O/P-FG : 2.566 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	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta : 25°C	20 mΩ	P
4	APPROVAL	TUV : Certificate NO : R50091288 / R50113492 UL : File NO : E307078			P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A CLASS C	I/P : 230 VAC/50HZ O/P : 95% LOAD Ta : 25°C	PASS	P
2	CONDUCTION	EN55022 EN55015 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 EN55015 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-100-12:SUPPOSE C105 IS THE MOST CRITICAL COMPONENT I/P : 230VAC O/P : 95% LOAD Ta= 25 °C LIFE TIME= 443445 HRS I/P : 230VAC O/P : 95% LOAD Ta= 50 °C LIFE TIME= 99234 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE : 301K HRS			P
3	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure(Expected Life) : 30,000 hours @ Tcase 65°C; 50,000 hours @ Tcase 55°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 SPA11N65C3 : 650V 11A	I/P : High-Line +3V = 298 V O/P : (1) 95% LOAD Turn on (2) Output Short Ta : 25°C	(1) 582 V (2) 536 V	P
2	Diode Peak Voltage	Q100 Rated STP40NF10L : 40A 100V	I/P : High-Line +3V = 298 V O/P : (1) 95% LOAD Turn on (2) Output Short Ta : 25°C	(1) 82.4 V (2) 67.2 V	P
3	Clamp Diode Peak Voltage	D2 Rated IN4007 : 1KV 1A	I/P : High-Line +3V = 298 V O/P : (1) Dynamic Load 90%Duty/1KHz Ta : 25°C	(1) 498 V	P
4	Input Capacitor Voltage	C5 Rated : 150 u / 400V/ 105°C	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) 384 V (2) 385 V (3) 384 V	P
5	Control IC Voltage Test	U2 Rated TEA1552 : 20V	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) 17.9 V (2) 16.9 V (3) 17.9 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2006/6/6	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2006/7/26	PRODUCT SAMPLE W0606C45	PASS	VINCENT TSENG	MAX LIN
2006/8/25	PRODUCT SAMPLE W0608B30	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023