



### ■ Features :

- Universal AC input / Full range (up to 295VAC)
- Built-in active PFC function
- High efficiency up to 89%
- 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 (Note.2)
- Compliance to worldwide safety regulations for lighting
- Suitable for dry / damp / wet locations
- 3 years warranty

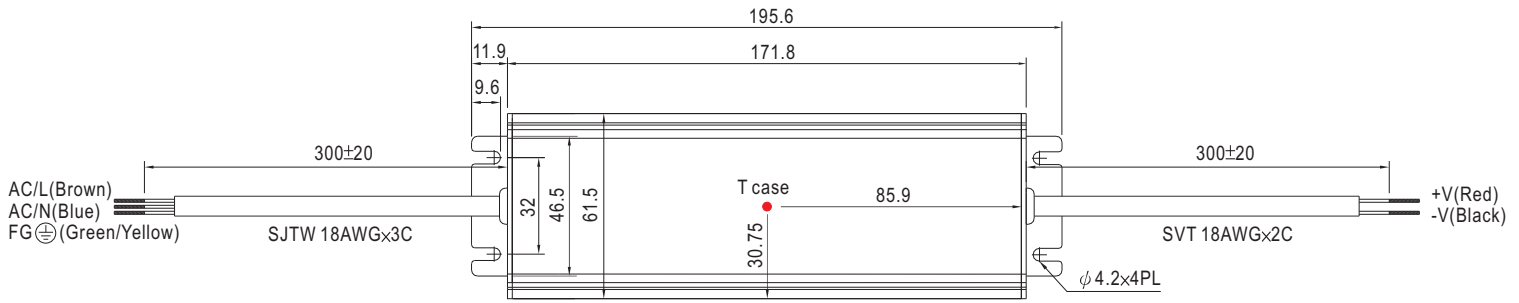


### SPECIFICATION

| MODEL            | CLG-60-12   | CLG-60-15  | CLG-60-20    | CLG-60-24    | CLG-60-27  | CLG-60-36   | CLG-60-48  |              |
|------------------|---|--|--------------|--------------|------------|-------------|------------|--------------|
| OUTPUT           | DC VOLTAGE  | 12V  | 15V          | 20V          | 24V        | 27V         | 36V        | 48V          |
|                  | CONSTANT CURRENT REGION Note.5  | 8.4 ~ 12V  | 10.5 ~ 15V   | 14 ~ 20V     | 16.8 ~ 24V | 18.9 ~ 27V  | 25.2 ~ 36V | 33.6 ~ 48V   |
|                  | RATED CURRENT   | 5A   | 4A           | 3A           | 2.5A       | 2.3A        | 1.7A       | 1.3A         |
|                  | CURRENT RANGE   | 0 ~ 5A   | 0 ~ 4A       | 0 ~ 3A       | 0 ~ 2.5A   | 0 ~ 2.3A    | 0 ~ 1.7A   | 0 ~ 1.3A     |
|                  | RATED POWER   | 60W  | 60W          | 60W          | 60W        | 62.1W       | 61.2W      | 62.4W        |
|                  | RIPPLE & NOISE (max.) Note.2  | 2Vp-p  | 2.4Vp-p      | 1.8Vp-p      | 2.7Vp-p    | 2.7Vp-p     | 3.6Vp-p    | 4.6Vp-p      |
|                  | VOLTAGE ADJ. RANGE  | 11.5 ~ 13V   | 14.5 ~ 16.2V | 19.5 ~ 22V   | 24 ~ 26V   | 25 ~ 30V    | 32.5 ~ 39V | 43.6 ~ 51.8V |
|                  |   | Fixed can be modified between the range above  |              |              |            |             |            |              |
|                  | CURRENT ADJ. RANGE  | Fixed. Can be modified between 3% ~ -25% rated output current  |              |              |            |             |            |              |
|                  | VOLTAGE TOLERANCE Note.3  | ±10%   |              |              |            |             |            |              |
| LINE REGULATION  | ±3.0%   |  |              |              |            |             |            |              |
| LOAD REGULATION  | ±5.0%   |  |              |              |            |             |            |              |
| SETUP TIME       | 3000ms / 230VAC 5000ms / 115VAC at full load  |  |              |              |            |             |            |              |
| INPUT            | VOLTAGE RANGE Note.4  | 90 ~ 295VAC  |              | 127 ~ 417VDC |            |             |            |              |
|                  | FREQUENCY RANGE   | 47 ~ 63Hz  |              |              |            |             |            |              |
|                  | POWER FACTOR (Typ.)   | PF>0.94/115VAC, PF>0.9/230VAC, PF>0.9/277VAC at full load (Please refer to "Power Factor Characteristic" curve)  |              |              |            |             |            |              |
|                  | EFFICIENCY (Typ.)   | 85%  | 86%          | 87.5%        | 87%        | 88%         | 89%        | 89%          |
|                  | AC CURRENT (Typ.)   | 0.8A/115VAC  |              | 0.4A/230VAC  |            | 0.3A/277VAC |            |              |
|                  | INRUSH CURRENT(max.)  | COLD START 35A(twidth=45µs measured at 50% Ipeak) at 230VAC  |              |              |            |             |            |              |
|                  | LEAKAGE CURRENT   | <0.75mA / 240VAC   |              |              |            |             |            |              |
| PROTECTION       | OVER CURRENT  | 95 ~ 110%  |              |              |            |             |            |              |
|                  |   | 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  | 13.8 ~ 16V   | 17.5 ~ 21V   | 23 ~ 28V     | 28 ~ 32V   | 31 ~ 35V    | 41 ~ 46V   | 54 ~ 60V     |
|                  | Protection type : Shut down o/p voltage, re-power on to recover   |  |              |              |            |             |            |              |
| OVER TEMPERATURE | 12V: 90°C ±10°C (TSW1) detect on heatsink of power transistor<br>15V ~ 48V: 85°C ±10°C (TSW1) detect on heatsink of power transistor  |  |              |              |            |             |            |              |
|                  | Protection type : Shut down o/p voltage, recovers automatically after temperature goes down   |  |              |              |            |             |            |              |
| ENVIRONMENT      | WORKING TEMP.   | -30 ~ +70°C (Refer to "Derating Curve")  |              |              |            |             |            |              |
|                  | WORKING HUMIDITY  | 20 ~ 95% RH non-condensing   |              |              |            |             |            |              |
|                  | STORAGE TEMP., HUMIDITY   | -40 ~ +80°C, 10 ~ 95% RH   |              |              |            |             |            |              |
|                  | TEMP. COEFFICIENT   | ±0.03%/°C (0 ~ 50°C)   |              |              |            |             |            |              |
|                  | VIBRATION   | 10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes  |              |              |            |             |            |              |
| SAFETY & EMC     | SAFETY STANDARDS  | 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), 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°C / 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, EN55024, EN61547, light industry level (surge 4KV), criteria A   |              |              |            |             |            |              |
| OTHERS           | MTBF  | 495.7K hrs min. MIL-HDBK-217F (25°C)   |              |              |            |             |            |              |
|                  | DIMENSION   | 195.6*61.5*38.8mm (L*W*H)  |              |              |            |             |            |              |
|                  | PACKING   | 0.86Kg; 16pcs/14.8Kg/0.54CUFT  |              |              |            |             |            |              |
| NOTE             | <ol style="list-style-type: none"> <li>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</li> <li>3. Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>4. Derating may be needed under low input voltage. Please check the static characteristics for more details.</li> <li>5. Constant current operation region is within 70% ~100% rated output voltage. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements for some specific system design.</li> <li>6. The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.</li> <li>7. Direct connecting to LEDs is suggested, but is not suitable for using additional drivers.</li> </ol> |  |              |              |            |             |            |              |

**Mechanical Specification**

Case No. 957A Unit:mm

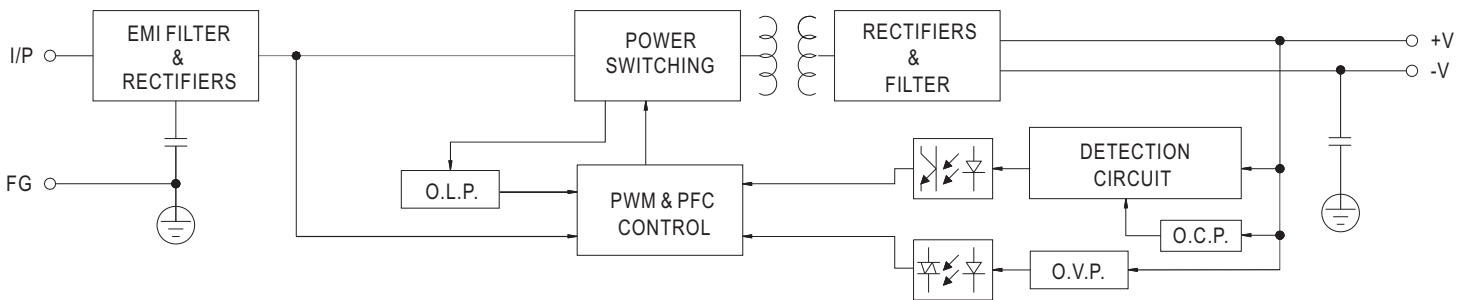


※ T case: Max. Case Temperature.

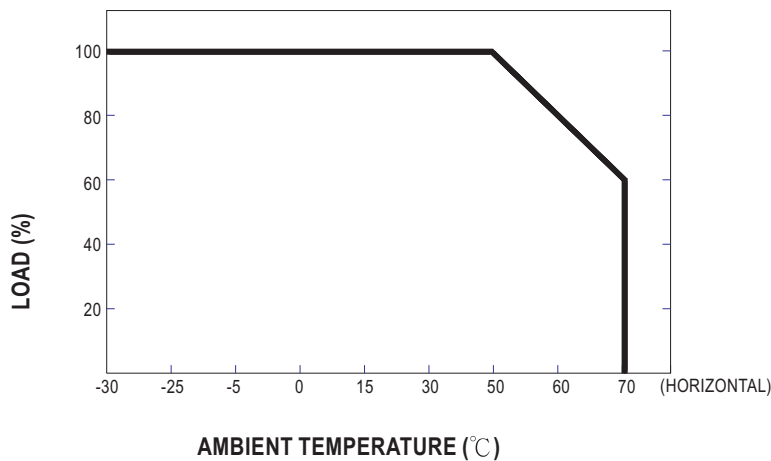


**Block Diagram**

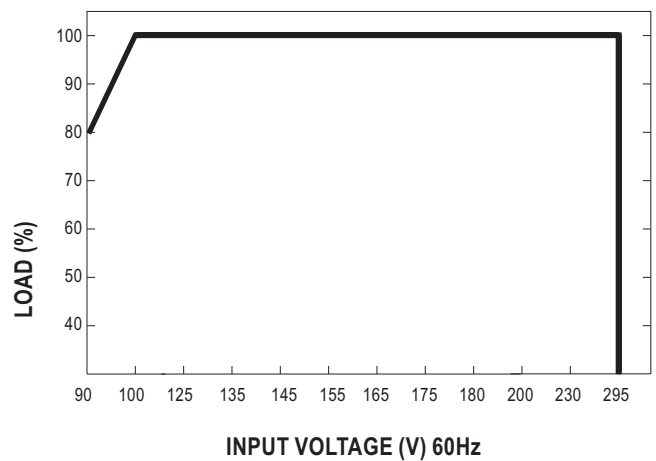
fosc : 90KHz(115VAC)  
120KHz(230VAC)



**Derating Curve**

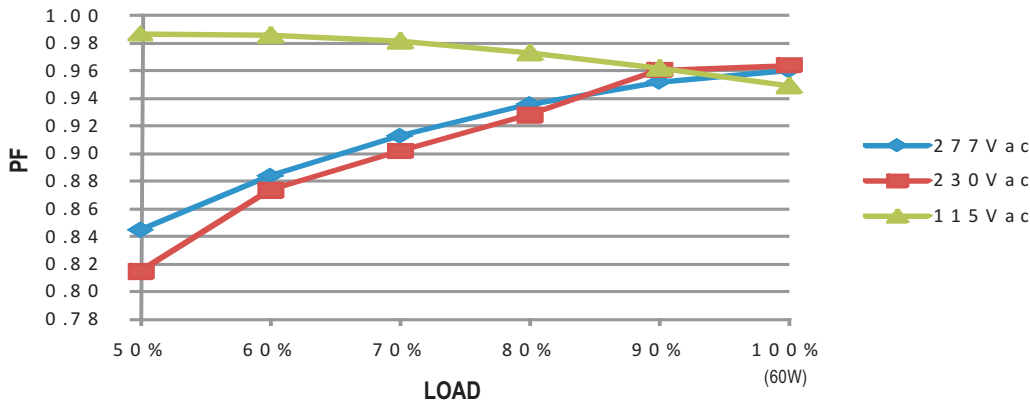


**Static Characteristics**



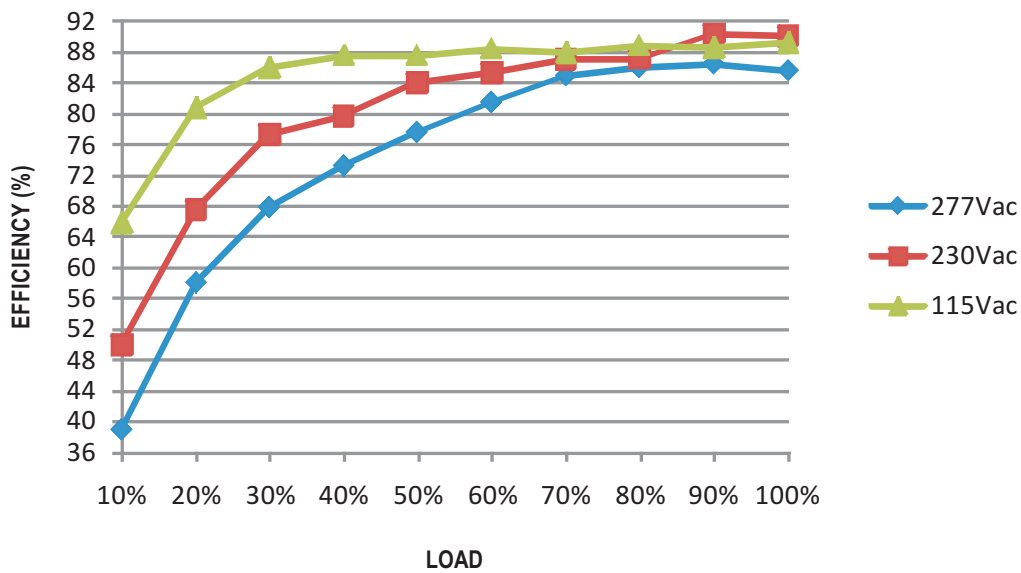
**Power Factor Characteristic**

**Constant Current Mode**



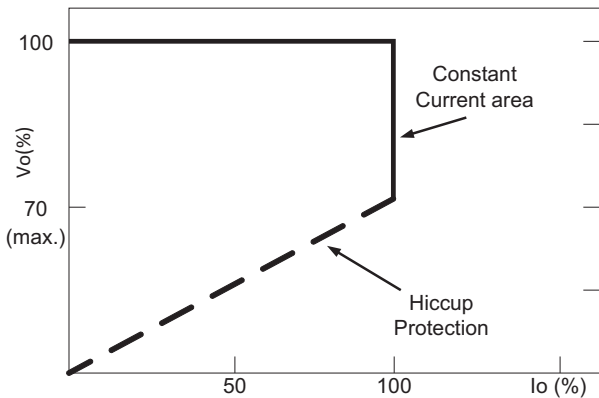
**EFFICIENCY vs LOAD (48V Model)**

CLG-60 series possess superior working efficiency that up to 89% can be reached in field applications.



**DRIVING METHODS OF LED MODULE**

This LED power supply is suggested to work in constant current mode area (CC) to drive the LEDs.



Typical LED power supply I-V curve