



### ■ Features

- Constant Current mode output with multiple levels selectable by dip switch
- Plastic housing with class II design
- Built-in active PFC function
- Functions: 3 in 1 dimming (dim-to-off); Auxiliary DC output; synchronization up to 10 units
- 3 years warranty

### ■ Applications

- LED indoor lighting
- LED office lighting
- LED architectural lighting
- LED panel lighting

### ■ GTIN CODE

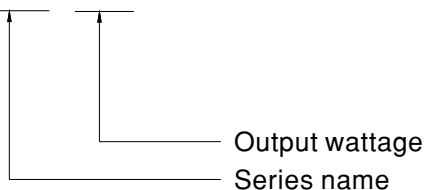
MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

### ■ Description

LCM-60U series is a 50W LED AC/DC constant current mode output LED driver featuring the multiple levels selectable by dip switch. LCM-60U operates from 90~132VAC and offers different current levels ranging between 500mA and 1400mA. Thanks to the efficiency up to 89%, with the fanless design, the entire series is able to operate for -30°C~+90°C case temperature under free air convection. LCM-60U is equipped with various functions, such as the dimming function and synchronization, so as to provide the optimal design flexibility for LED lighting system.

### ■ Model Encoding

LCM - 60U





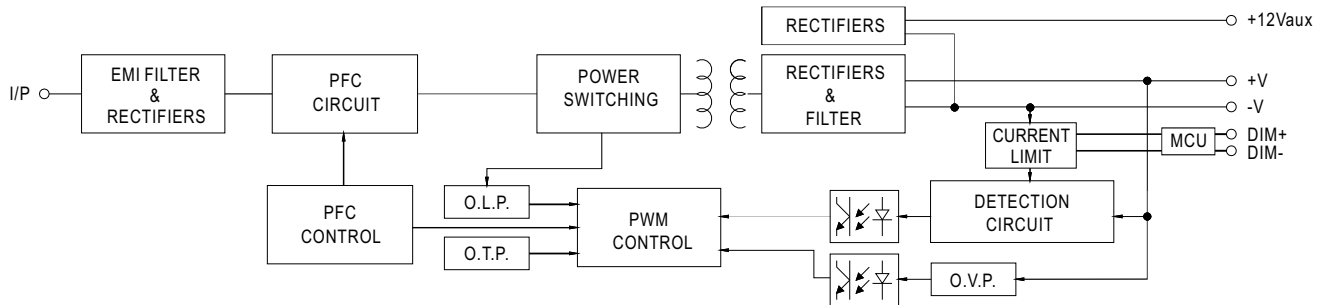
# 50W Multiple-Stage Constant Current Mode LED Driver **LCM-60U** series

## SPECIFICATION

|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                             |         |                |         |         |         |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------|----------------|---------|---------|---------|
| <b>MODEL</b>                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>LCM-60U</b>                                                                              |         |                |         |         |         |
| <b>OUTPUT</b>                           | <b>CURRENT LEVEL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Current level selectable via DIP switch, please refer to "DIP SWITCH TABLE" section         |         |                |         |         |         |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 500mA                                                                                       | 600mA   | 700mA(default) | 900mA   | 1050mA  | 1400mA  |
|                                         | <b>RATED POWER</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 50.4W                                                                                       |         |                |         |         |         |
|                                         | <b>DC VOLTAGE RANGE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2 ~ 90V                                                                                     | 2 ~ 84V | 2 ~ 72V        | 2 ~ 56V | 2 ~ 48V | 2 ~ 36V |
|                                         | <b>OPEN CIRCUIT VOLTAGE (max.)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 102V                                                                                        |         |                | 76V     |         |         |
|                                         | <b>CURRENT RIPPLE</b> <small>Note.6</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 5.0% max. @rated current                                                                    |         |                |         |         |         |
|                                         | <b>CURRENT TOLERANCE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ±5%                                                                                         |         |                |         |         |         |
|                                         | <b>AUXILIARY DC OUTPUT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Nominal 12V(deviation 11.4~12.6V)@50mA                                                      |         |                |         |         |         |
| <b>SETUP TIME</b> <small>Note.3</small> | 1000ms / 115VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                             |         |                |         |         |         |
| <b>INPUT</b>                            | <b>VOLTAGE RANGE</b> <small>Note.2</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 90 ~ 132VAC    127 ~ 186VDC<br>(Please refer to "STATIC CHARACTERISTIC" section)            |         |                |         |         |         |
|                                         | <b>FREQUENCY RANGE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 47 ~ 63Hz                                                                                   |         |                |         |         |         |
|                                         | <b>POWER FACTOR (Typ.)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | PF ≥ 0.98/115VAC @full load<br>(Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section) |         |                |         |         |         |
|                                         | <b>TOTAL HARMONIC DISTORTION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | THD < 20% (@load ≥ 60%)<br>(Please refer to "TOTAL HARMONIC DISTORTION(THD)" section)       |         |                |         |         |         |
|                                         | <b>EFFICIENCY (Typ.)</b> <small>Note.4</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 89%                                                                                         |         |                |         |         |         |
|                                         | <b>AC CURRENT (Typ.)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.65A/115VAC                                                                                |         |                |         |         |         |
|                                         | <b>INRUSH CURRENT (Typ.)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | COLD START 15A(twidth=270µs measured at 50% Ipeak) at 115VAC; Per NEMA 410                  |         |                |         |         |         |
|                                         | <b>MAX. No. of PSUs on 16A CIRCUIT BREAKER</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 15 units (circuit breaker of type B) / 25 units (circuit breaker of type C) at 115VAC       |         |                |         |         |         |
| <b>LEAKAGE CURRENT</b>                  | <0.5mA / 120VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                             |         |                |         |         |         |
| <b>PROTECTION</b>                       | <b>SHORT CIRCUIT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Constant current limiting, recovers automatically after fault condition is removed          |         |                |         |         |         |
|                                         | <b>OVER VOLTAGE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 105 ~ 125V                                                                                  |         |                |         |         |         |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Shutdown o/p voltage, re-power on to recover                                                |         |                |         |         |         |
| <b>OVER TEMPERATURE</b>                 | Shutdown o/p voltage, re-power on to recover                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                             |         |                |         |         |         |
| <b>FUNCTION</b>                         | <b>DIMMING</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Please refer to "DIMMING OPERATION" section                                                 |         |                |         |         |         |
|                                         | <b>SYNCHRONIZATION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Please refer to "SYNCHRONIZATION OPERATION" section                                         |         |                |         |         |         |
|                                         | <b>TEMP. COMPENSATION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | By external NTC, please refer to "TEMPERATURE COMPENSATION OPERATION" section               |         |                |         |         |         |
| <b>ENVIRONMENT</b>                      | <b>WORKING TEMP.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Tcase = -30 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)                  |         |                |         |         |         |
|                                         | <b>MAX. CASE TEMP.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Tcase = +90°C                                                                               |         |                |         |         |         |
|                                         | <b>WORKING HUMIDITY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 20 ~ 90% RH non-condensing                                                                  |         |                |         |         |         |
|                                         | <b>STORAGE TEMP., HUMIDITY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -40 ~ +80°C, 10 ~ 95% RH                                                                    |         |                |         |         |         |
|                                         | <b>TEMP. COEFFICIENT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ±0.03%/°C (0 ~ 40°C)                                                                        |         |                |         |         |         |
|                                         | <b>VIBRATION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes                     |         |                |         |         |         |
| <b>SAFETY &amp; EMC</b>                 | <b>SAFETY STANDARDS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | UL8750 approved                                                                             |         |                |         |         |         |
|                                         | <b>DALI STANDARDS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Comply with IEC62386-101, 102, 207                                                          |         |                |         |         |         |
|                                         | <b>WITHSTAND VOLTAGE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | I/P-O/P: 3.75KVAC                                                                           |         |                |         |         |         |
|                                         | <b>ISOLATION RESISTANCE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | I/P-O/P: >100M Ohms / 500VDC / 25°C / 70% RH                                                |         |                |         |         |         |
|                                         | <b>EMC EMISSION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Compliance to FCC part 15 Subpart B                                                         |         |                |         |         |         |
| <b>OTHERS</b>                           | <b>MTBF</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2648.2K hrs min. Telcordia SR-332 (Bellcore) ; 222.5K hrs min. MIL-HDBK-217F (25°C)         |         |                |         |         |         |
|                                         | <b>DIMENSION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 123.5*81.5*23mm (L*W*H)                                                                     |         |                |         |         |         |
|                                         | <b>PACKING</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.28Kg ; 54pcs/16Kg/1.12CUFT                                                                |         |                |         |         |         |
| <b>NOTE</b>                             | <p>1. All parameters NOT specially mentioned are measured at 115VAC input, rated current and 25°C of ambient temperature.</p> <p>2. De-rating may be needed under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details.</p> <p>3. Length of set up time is measured at first cold start. Turning ON/OFF the driver may lead to increase of the set up time.</p> <p>4. Efficiency is measured at 700mA/72V output set by DIP switch.</p> <p>5. The driver 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. (as available on <a href="https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf">https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf</a>)</p> <p>6. It is measured 60%~100% of maximum voltage under rated power delivery.</p> <p>7. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).</p> <p>※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a></p> |                                                                                             |         |                |         |         |         |

## ■ BLOCK DIAGRAM

PFC fosc : 60KHz  
PWM fosc : 80KHz

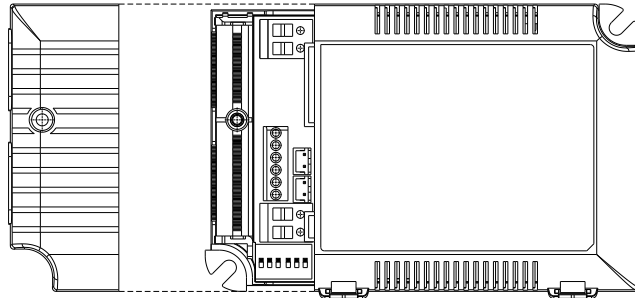


## ■ DIP SWITCH TABLE

LCM-60U is a multiple-stage constant current driver, selection of output current through DIP switch is exhibited below.

| Io \ DIP S.W.          | 1    | 2    | 3    | 4    | 5    | 6    |
|------------------------|------|------|------|------|------|------|
| 500mA                  | ---- | ---- | ---- | ---- | ---- | ---- |
| 600mA                  | ON   | ---- | ---- | ---- | ---- | ---- |
| 700mA(factory default) | ON   | ON   | ---- | ---- | ---- | ---- |
| 900mA                  | ON   | ON   | ON   | ---- | ---- | ON   |
| 1050mA                 | ON   | ON   | ON   | ON   | ---- | ON   |
| 1400mA                 | ON   | ON   | ON   | ON   | ON   | ON   |

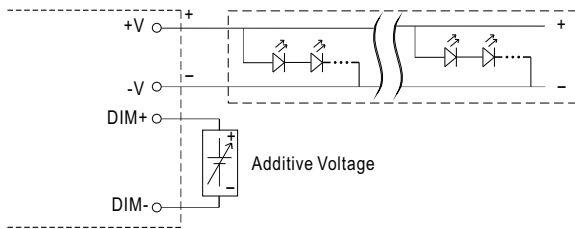
## ■ DIMMING OPERATION



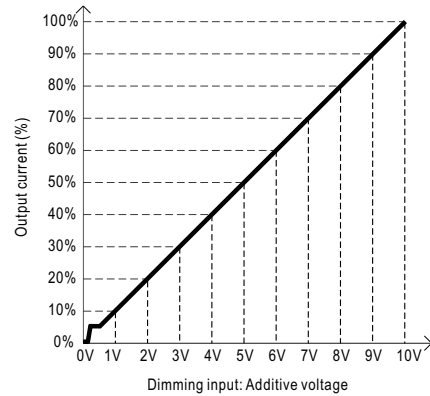
### ※ 3 in 1 dimming function

- Output constant current level can be adjusted by applying one of the three methodologies between DIM+ and DIM-: 0 ~ 10VDC, or 10V PWM signal or resistance.
- Direct connecting to LEDs is suggested. It is not suitable to be used with additional drivers.
- Dimming source current from power supply: 100 $\mu$ A (typ.)

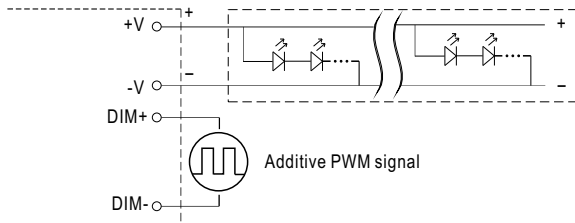
#### ◎ Applying additive 0 ~ 10VDC



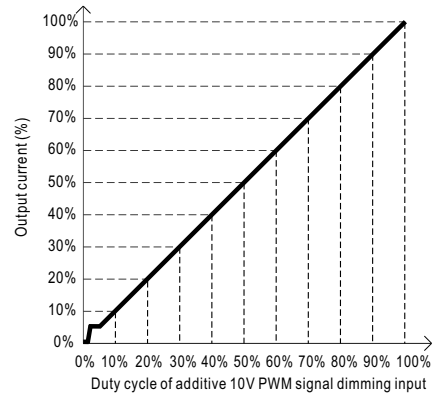
"DO NOT connect "DIM- to -V"



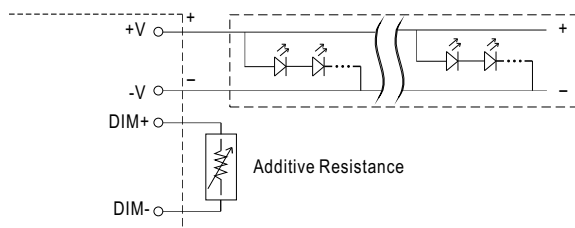
#### ◎ Applying additive 10V PWM signal (frequency range 100Hz ~ 3KHz):



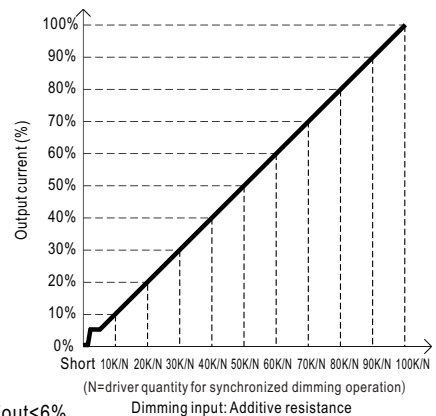
"DO NOT connect "DIM- to -V"



#### ◎ Applying additive resistance:



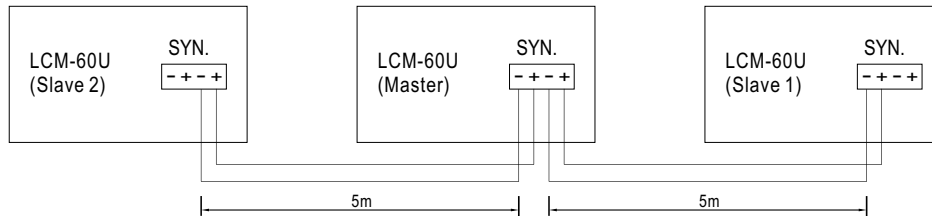
"DO NOT connect "DIM- to -V"



- Note : 1. Min. dimming level is about 6% and the output current is not defined when  $0\% < I_{out} < 6\%$ .  
 2. The output current could drop down to 0% when dimming input is about 0k $\Omega$  or 0Vdc, or 10V PWM signal with 0% duty cycle.  
 3. Please do not activate "temperature compensation" when performing dimming operation.

## ■ SYNCHRONIZATION OPERATION

- Synchronization up to 10 drivers (1 master + 9 slaves)
- Dimming operating range : 10%~100%
- Sync cable length : < 5m
- Sync cable type : Flat cable
- Sync cable cross section area : 22 – 24 AWG (0.2~0.3mm<sup>2</sup>)

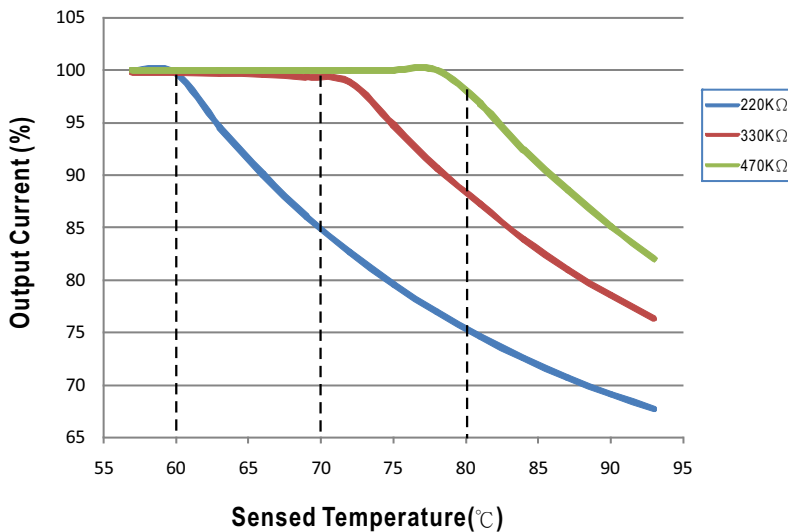


- NOTE: 1. Please make sure all units are set to 100% dimming setting (factory default) before synchronizing.  
 2. Min. Dimming operating range depends on dimmer setting.

## ■ TEMPERATURE COMPENSATION OPERATION

LCM-60U have the built-in temperature compensation function ; by connecting a temperature sensor (NTC resistor) between the +NTC / -NTC terminal of LCM-60U and the detecting point on the lighting system or the surrounding environment, output current of LCM-60U could be correspondingly changed, based on the sensed temperature, to ensure the long life of LED.

**NTC derating curve**



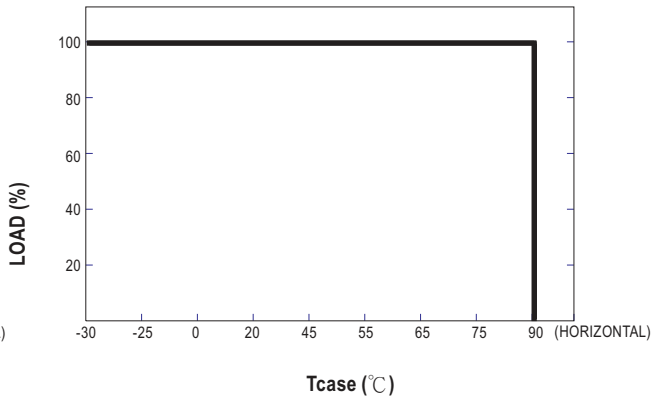
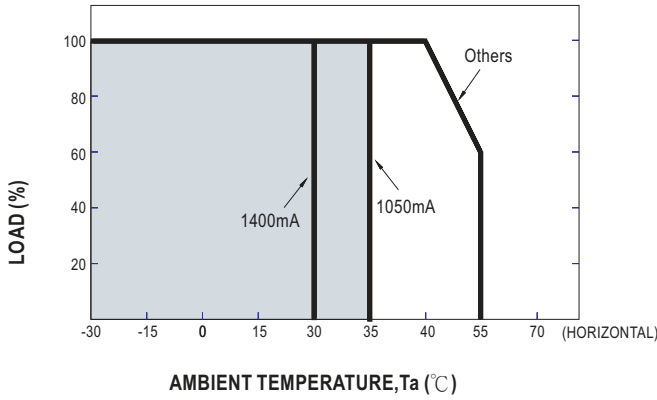
- ⊙ LCM-60U can still be operated normally when the NTC resistor is not connected and the value of output current will be the current level selected through the DIP switch.
- ⊙ NTC reference:

| NTC resistance | Output Current                                                                                                                                                  |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 220K           | < 60°C, 100% of the rated current (corresponds to the setting current level)<br>> 60°C, output current begins to reduce, please refer to the curve for details. |
| 330K           | < 70°C, 100% of the rated current (corresponds to the setting current level)<br>> 70°C, output current begins to reduce, please refer to the curve for details. |
| 470K           | < 80°C, 100% of the rated current (corresponds to the setting current level)<br>> 80°C, output current begins to reduce, please refer to the curve for details. |

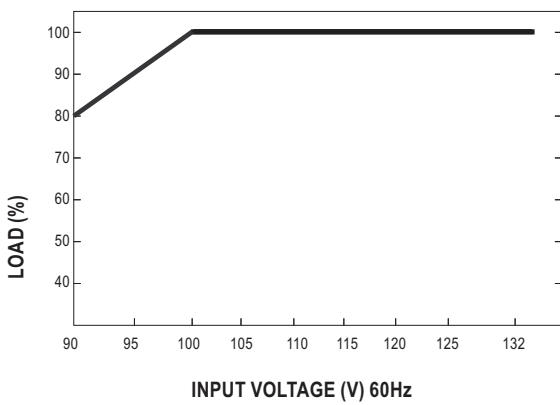
- Notes: 1. MEAN WELL does not offer the NTC resistor and all the data above are measured by using THINKING TTC03 series.  
 2. If other brands of NTC resistor is applied, please check the temperature curve first.

- ⊙ Dimming and synchronization function of the driver will be invalid when the "temperature compensation" function is in use.

**OUTPUT LOAD vs TEMPERATURE**



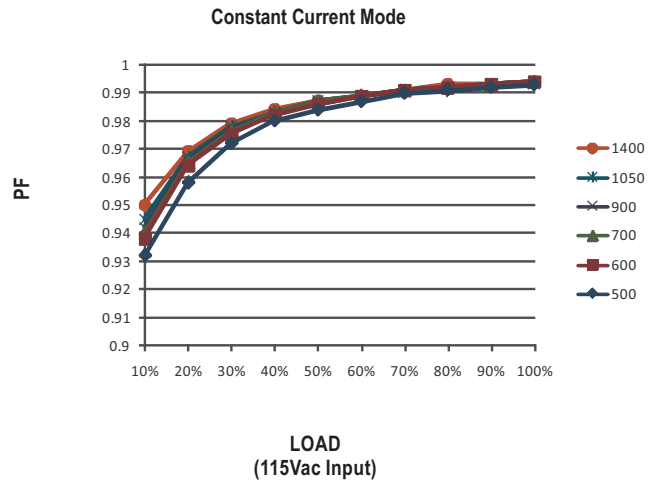
**STATIC CHARACTERISTIC**



※ De-rating is needed under low input voltage.

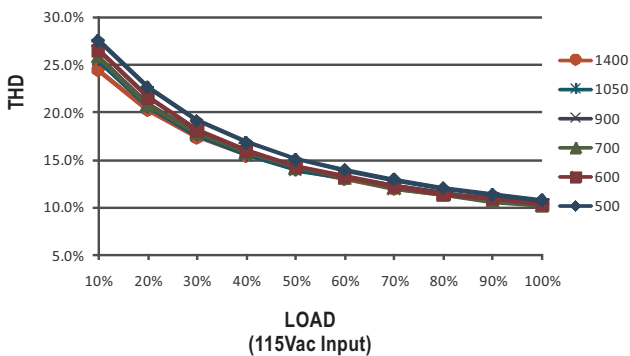
**POWER FACTOR (PF) CHARACTERISTIC**

※  $T_{case}$  at 80°C



**TOTAL HARMONIC DISTORTION (THD)**

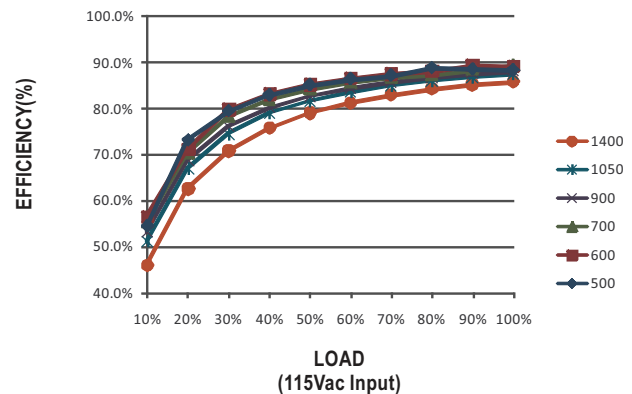
※  $T_{case}$  at 80°C



**EFFICIENCY vs LOAD**

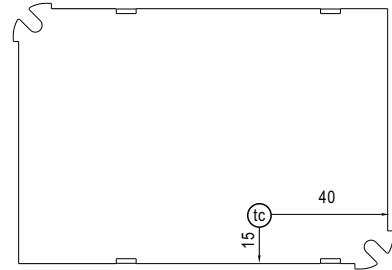
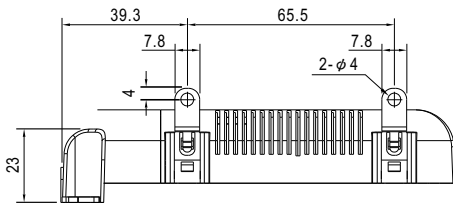
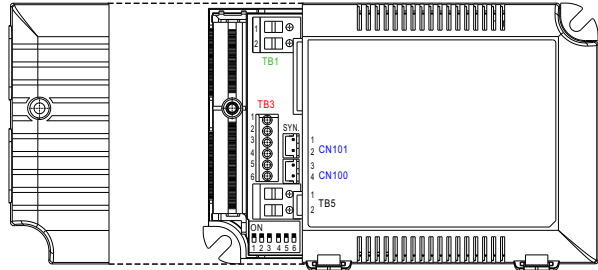
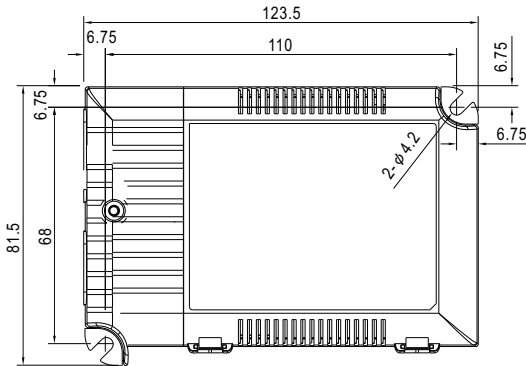
LCM-60U series possess superior working efficiency that up to 89% can be reached in field applications.

※  $T_{case}$  at 80°C



**MECHANICAL SPECIFICATION**

Case No.LCM-60A Unit:mm



Bottom View

• (tc) : Max. Case Temperature

※ Terminal Pin No. Assignment(TB1)

| Pin No. | Assignment |
|---------|------------|
| 1       | AC/L       |
| 2       | AC/N       |

※ Terminal Pin No. Assignment(TB3)

| Pin No. | Assignment | Pin No. | Assignment | Pin No. | Assignment |
|---------|------------|---------|------------|---------|------------|
| 1       | +FAN       | 3       | +NTC       | 5       | DIM+       |
| 2       | -FAN       | 4       | -NTC       | 6       | DIM-       |

◎ Pin1(+FAN) / Pin2(-FAN) is the Auxiliary DC output;it can be used to drive fan.

※ Terminal Pin No. Assignment(TB5)

| Pin No. | Assignment |
|---------|------------|
| 1       | +V         |
| 2       | -V         |

※ SYN. Connector(CN101/CN100):JST B2B-XH or equivalent

| Pin No. | Assignment | Mating Housing           | Terminal                           |
|---------|------------|--------------------------|------------------------------------|
| 1,3     | +          | JST XHP<br>or equivalent | JST SXH-001T-P0.6<br>or equivalent |
| 2,4     | -          |                          |                                    |