



## ■ Features

- Constant Current mode output
- Circular plastic housing with class II design
- Built-in active PFC function
- Class 2 power unit
- Typical lifetime>50000 hours
- 5 years warranty

## ■ Applications

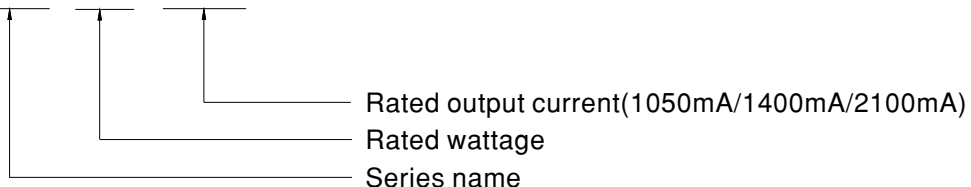
- LED bay lighting
- LED stage lighting
- LED spot lighting
- LED down lighting

## ■ Description

HBG-60 series is a 60W AC/DC LED driver featuring the circular shape design with the plastic enclosure. It operates from 90~295VAC and offers the constant current output models with different rated current between 1050mA and 2100mA. Thanks to the high efficiency up to 90%, with the fanless design, the entire series is able to operate for -40℃ ~ +85℃ case temperature under free air convection.

## ■ Model Encoding

**HBG - 60 - 1050**





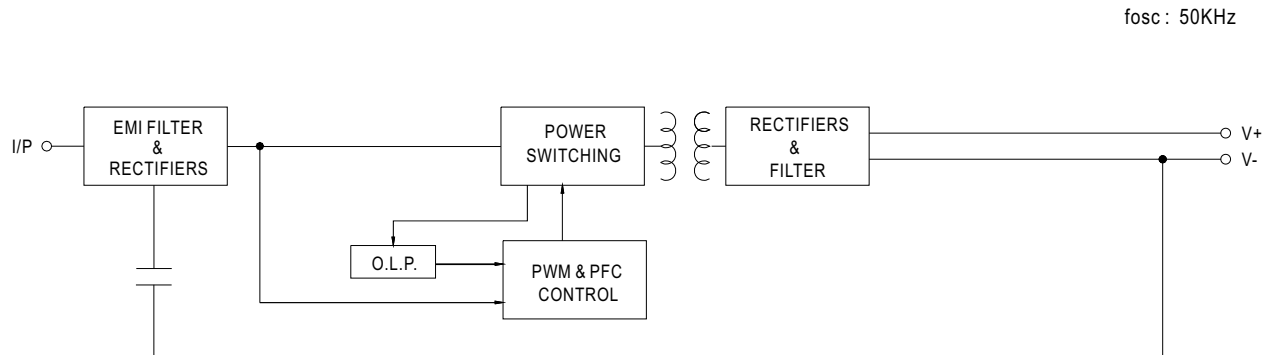
## 60W Constant Current Mode LED Driver

## HBG-60 series

### SPECIFICATION

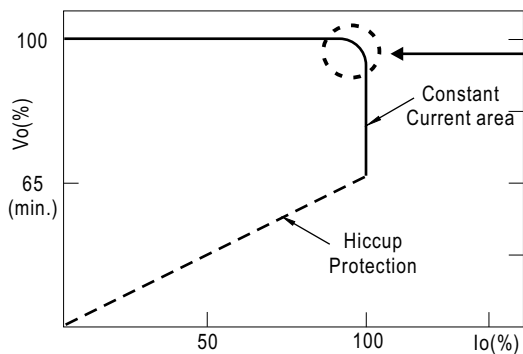
| MODEL        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | HBG-60-1050                                                                                                             | HBG-60-1400  | HBG-60-2100     |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------|-----------------|
| OUTPUT       | RATED CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1050mA                                                                                                                  | 1400mA       | 2100mA          |
|              | RATED POWER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 57.75W                                                                                                                  | 60.2W        | 60.9W           |
|              | CONSTANT CURRENT REGION <small>Note.2</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 37 ~ 55V                                                                                                                | 28 ~ 43V     | 19 ~ 29V        |
|              | OPEN CIRCUIT VOLTAGE(max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 60V                                                                                                                     | 50V          | 35V             |
|              | CURRENT ADJ. RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 680 ~ 1050mA                                                                                                            | 910 ~ 1400mA | 1360mA ~ 2100mA |
|              | CURRENT RIPPLE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 20% max. @rated current                                                                                                 |              |                 |
|              | CURRENT TOLERANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ±5.0%                                                                                                                   |              |                 |
|              | SET UP TIME <small>Note.4</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 500ms / 230VAC    1200ms / 115VAC                                                                                       |              |                 |
| INPUT        | VOLTAGE RANGE <small>Note.3</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 90 ~ 295VAC    127 ~ 417VDC<br>(Please refer to "STATIC CHARACTERISTIC" section)                                        |              |                 |
|              | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 47 ~ 63Hz                                                                                                               |              |                 |
|              | POWER FACTOR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | PF>0.97/115VAC, PF>0.95/230VAC, PF>0.9/277VAC@full load<br>(Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section) |              |                 |
|              | TOTAL HARMONIC DISTORTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | THD< 20%(@load≥65%/115VAC,230VAC; @load≥75%/277VAC)<br>(Please refer to "TOTAL HARMONIC DISTORTION(THD)" section)       |              |                 |
|              | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 90%                                                                                                                     | 89%          | 89%             |
|              | AC CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.7A/115VAC    0.4A/230VAC    0.3A/277VAC                                                                               |              |                 |
|              | INRUSH CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | COLD START 45A(twidth=100μs measured at 50% Ipeak) at 230VAC; Per NEMA 410                                              |              |                 |
|              | MAX. No. of PSUs on 16A CIRCUIT BREAKER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 28 units (circuit breaker of type B) / 32 units (circuit breaker of type C) at 230VAC                                   |              |                 |
|              | LEAKAGE CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <0.75mA / 277VAC                                                                                                        |              |                 |
| PROTECTION   | OVER CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Hiccup mode, recovers automatically after fault condition is removed                                                    |              |                 |
|              | OVER TEMPERATURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Shut down o/p voltage, re-power on to recover                                                                           |              |                 |
| ENVIRONMENT  | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Tcase=-40 ~ +85℃ (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)                                                 |              |                 |
|              | MAX. CASE TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Tcase=+85℃                                                                                                              |              |                 |
|              | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 20 ~ 95% RH non-condensing                                                                                              |              |                 |
|              | STORAGE TEMP., HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -40 ~ +80℃, 10 ~ 95% RH                                                                                                 |              |                 |
|              | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ±0.03%/℃ (0 ~ 60℃)                                                                                                      |              |                 |
|              | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes                                                 |              |                 |
| SAFETY & EMC | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | UL8750, CSA C22.2 No. 250.13-12, ENEC EN61347-1, EN61347-2-13 independent, EN62384; GB19510.14, GB19510.1 approved      |              |                 |
|              | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | I/P-O/P:3.75KVAC                                                                                                        |              |                 |
|              | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | I/P-O/P:100M Ohms / 500VDC / 25℃/ 70% RH                                                                                |              |                 |
|              | EMC EMISSION <small>Note.8</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Compliance to EN55015, GB17743, GB17625.1, EN61000-3-2 Class C (@load ≥ 65%) ; EN61000-3-3                              |              |                 |
|              | EMC IMMUNITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Compliance to EN61000-4-2,3,4,5,6,8,11; EN61547, EN55024, light industry level(surge immunity:Line-Line:2KV)            |              |                 |
| OTHERS       | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1504.1K hrs min.    Telcordia SR-332 (Bellcore) ;    452Khrs min.    MIL-HDBK-217F (25℃)                                |              |                 |
|              | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | φ 110mm * 60.5mm (D * H)                                                                                                |              |                 |
|              | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.5Kg; 20pcs/ 11Kg/ 0.94CUFT                                                                                            |              |                 |
| NOTE         | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25℃ of ambient temperature.<br>2. Please refer to "DRIVING METHODS OF LED MODULE".<br>3. De-rating may be needed under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details.<br>4. Length of set up time is measured at cold first start. Turning ON/OFF the driver may lead to increase of the set up time.<br>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.<br>6.To fulfill requirements of the latest ErP regulation for lighting fixtures, this LED driver can only be used behind a switch without permanently connected to the mains.<br>7. This series meets the typical life expectancy of >50,000 hours of operation when Tcase, particularly (Tc) point (or TMP, per DLC), is about 80℃ or less.<br>8. Please refer to the warranty statement on MEAN WELL's website at <a href="http://www.meanwell.com">http://www.meanwell.com</a> |                                                                                                                         |              |                 |

## ■ BLOCK DIAGRAM



## ■ DRIVING METHODS OF LED MODULE

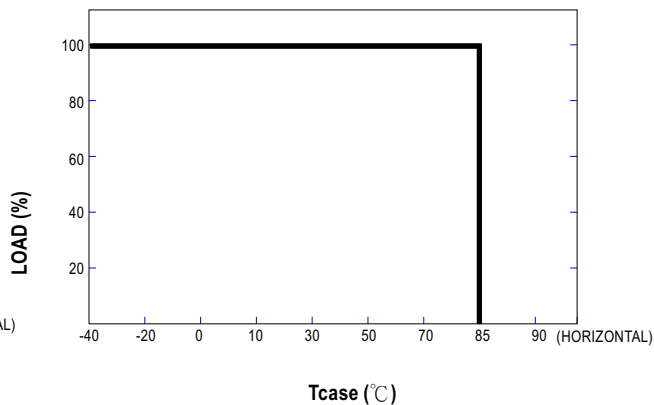
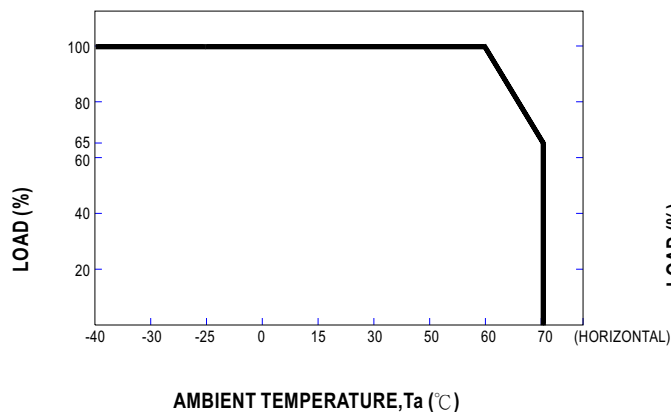
※ This series works in constant current mode to directly drive the LEDs.



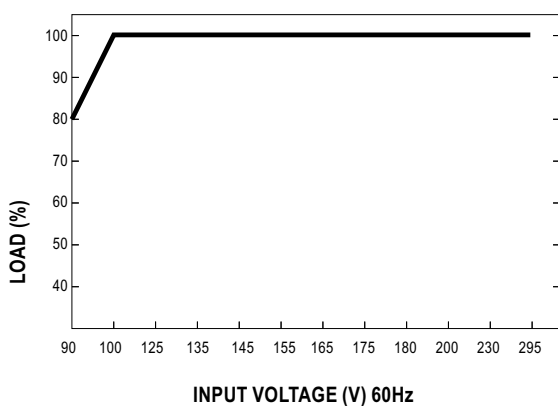
Typical output current normalized by rated current (%)

In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.  
Should there be any compatibility issues, please contact MEAN WELL.

### ■ OUTPUT LOAD vs TEMPERATURE



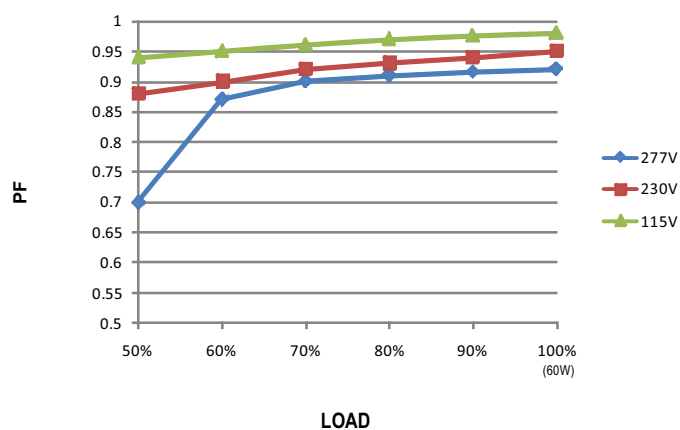
### ■ STATIC CHARACTERISTIC



※ De-rating is needed under low input voltage.

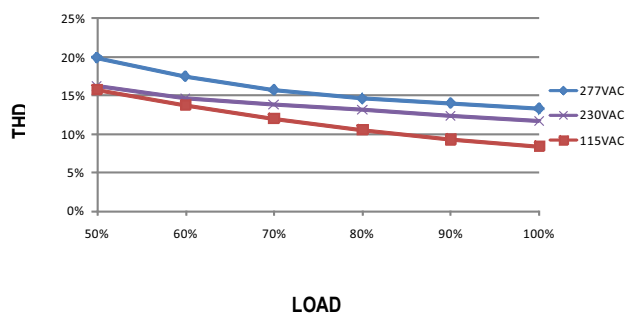
### ■ POWER FACTOR (PF) CHARACTERISTIC

※  $T_{case}$  at 75°C



### ■ TOTAL HARMONIC DISTORTION (THD)

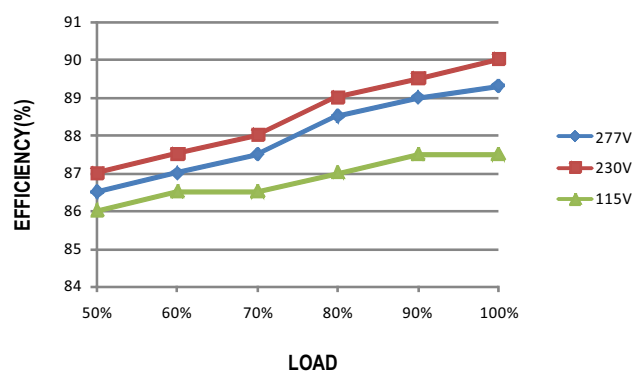
※ 1050mA Model,  $T_{case}$  at 75°C



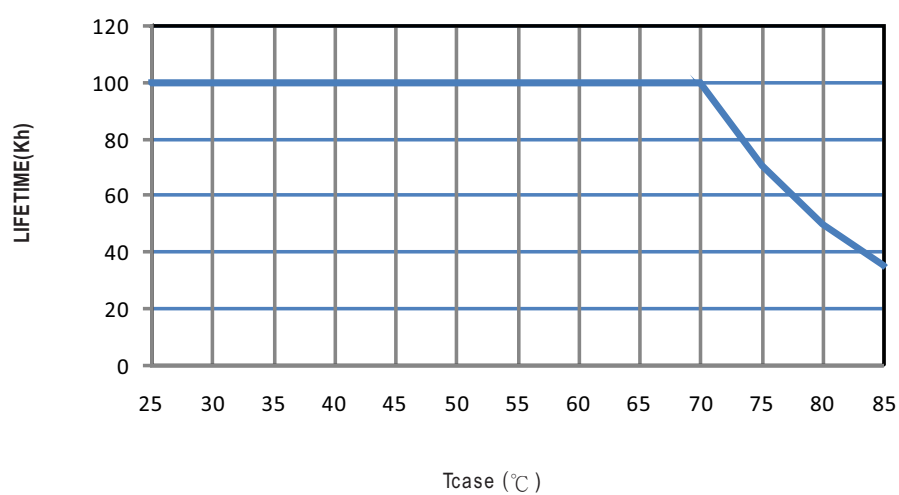
### ■ EFFICIENCY vs LOAD

HBG-60 series possess superior working efficiency that up to 90% can be reached in field applications.

※ 1050mA Model,  $T_{case}$  at 75°C

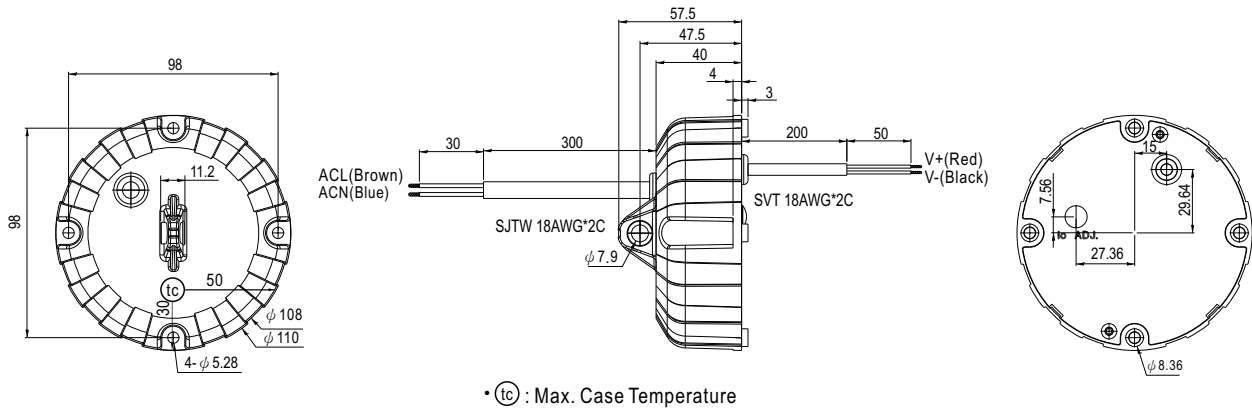


■ LIFE TIME



**MECHANICAL SPECIFICATION**

Case No. HBG-60 Unit: mm


**Caution**

- ※ Please inspect the appearance of the driver if the package is damaged. There should not be any cracks.
- ※ Please do not drop or bump the driver.
- ※ All screws including the suspension screw should be paired with a spring washer and locked tight.
- ※ The entire luminaire, including the driver, should be limited to 5Kg or less.
- ※ The luminaire should be cautiously protected from damage due to shock throughout packaging and transportation.
- ※ Please thoroughly follow the preceding cautionary notes to prevent the luminaire from falling, leading to injuries.