



THE DATASHEET OF SL-PGQ2W53LBWW



LED Module Modular Platform Engine Series

T-Type Gen2

SL-PGQ2W53LBWW
SL-PGQ2W53MBWW



Samsung outdoor modules enable flexible modular design, providing better solution for outdoor application

Features & Benefits

- High lumen density of 2800 lm
- Seamless combination by modular design
- Lens-type module, that makes fixtures easily designed
- IP66 for durability and robustness



Applications

Outdoor Lighting:

- Roadway
- Street Light
- Parking Lot
- Tunnel Light

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1. Product Code Information

| Light Distribution (Optical Lens Type) | Nominal CCT (K) | Product Code | Remark |
|--|-----------------|----------------|--|
| IESNA Type I Short | 5700 | SL-PGQ2W53LBWW | Suitable for Korean Expressway Roadway Lightings |
| IESNA Type II Short(II) | 5700 | SL-PGQ2W53MBWW | Suitable for Korean Expressway Tunnel Lightings |

2. Characteristics

a) Maximum Rating

| Item | Rating | Unit | Remark |
|---------------------------------|--------------------------------|------|--------------------------------|
| Rated Lifetime | >50,000 | hour | L80B50 @ $t_p, 50 = 105$ °C |
| Ingress Protection (IP) | IP66 | - | For Damp Location (UL marking) |
| Operating Temperature (T_o) | 10 ~ 92 | °C | |
| Storage Temperature (T_a) | -30 ~ +70 | °C | |
| ESD | ±8 kV (contact) / ±15 kV (air) | kV | |
| Working Voltage for Insulation | 50 | V | |

※ T_a : Ambient Temperature

b) Electro-optical Characteristics ($I_F = 700$ mA, $t_p = 58$ °C)

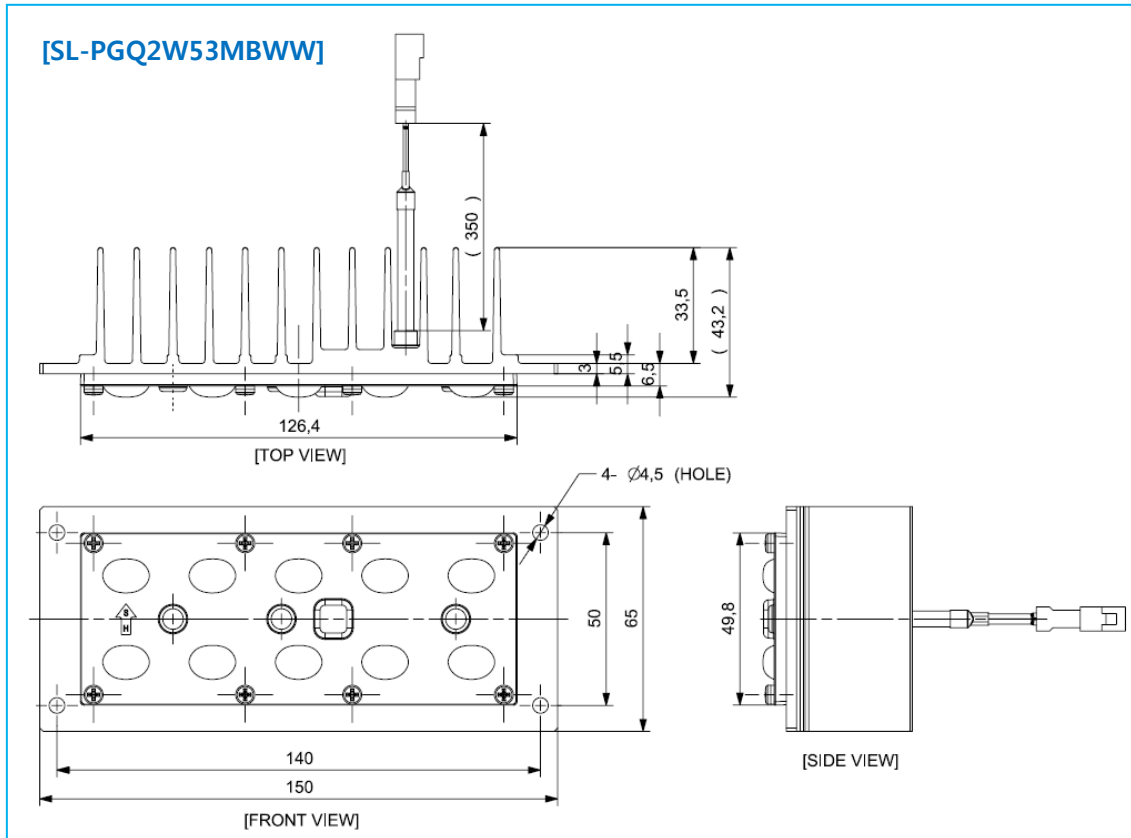
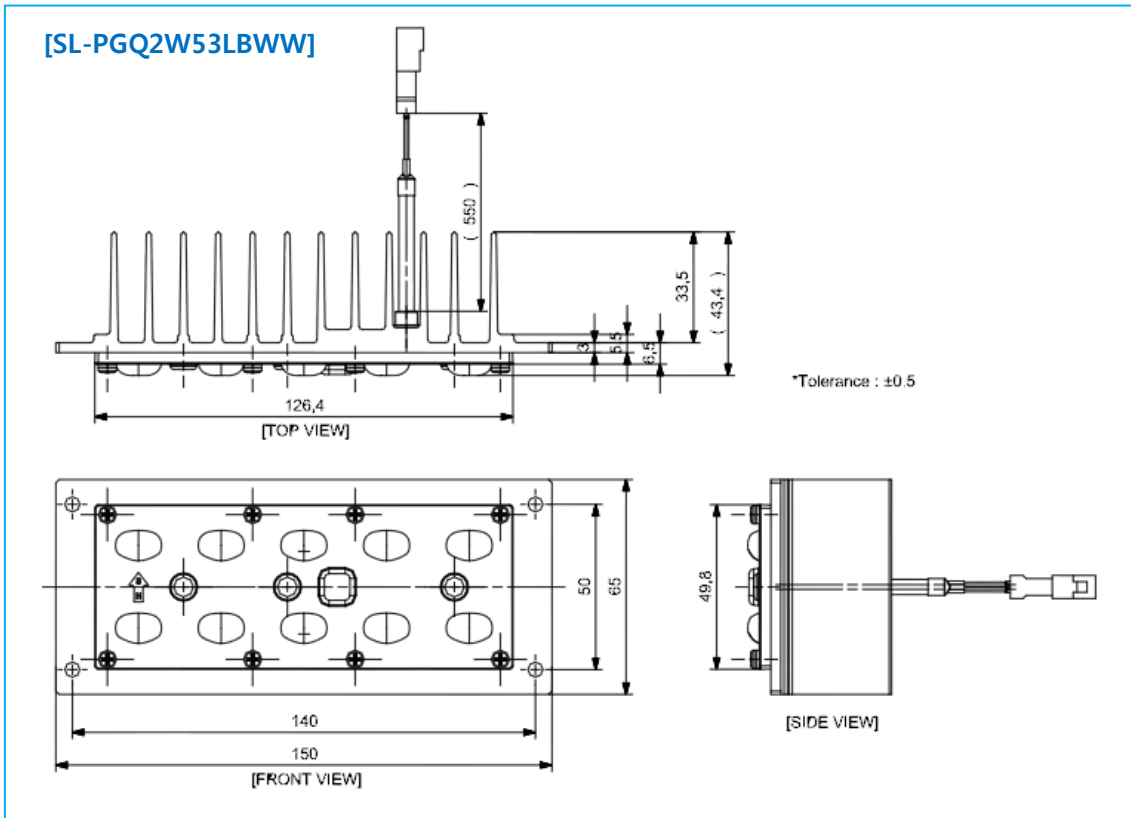
| Item | Unit | Nom. CCT (K) | Min. | Typ. | Max. | Remark |
|-----------------------------|------|--------------|------|------|------|---------------------------|
| Luminous Flux (Φ_v) | lm | 5700 | 2750 | 2850 | - | |
| Luminous Efficacy | lm/W | 5700 | - | 135 | - | |
| CCT | K | 5700 | 5310 | 5665 | 6020 | |
| Color Rendering Index (Ra) | | - | 75 | | | |
| Operating Current (I_F) | mA | | - | 700 | 1000 | |
| Operating Voltage (V_F) | Vdc | | 26 | 30.0 | 33.0 | per module |
| Power Consumption (P) | W | | - | 21 | 25 | @ 30 V, 700mA in a module |

Notes:

- 1) T_c : Case temperature, measured at “**Tc point**” and at the rated typical DC current
- 2) Samsung maintains measurement tolerance of
: luminous flux = $\pm 7\%$, CRI = ± 1 , voltage = $\pm 5\%$, CCT = $\pm 5\%$, Current = $\pm 5\%$
- 3) The maximum operating current means the highest limit in any operating condition
- 4) Voltage difference between modules is tightly controlled to be less than 1.0 V so that the maximum current of any module can be limited close to the value stated on above table (voltage bin of the module is printed at the labels on each module and on outer box)
- 5) The power consumption for a specific module is dependent on the operating voltage distribution across the modules in parallel connection

3. Structure & Assembly

a) Appearance



Note:

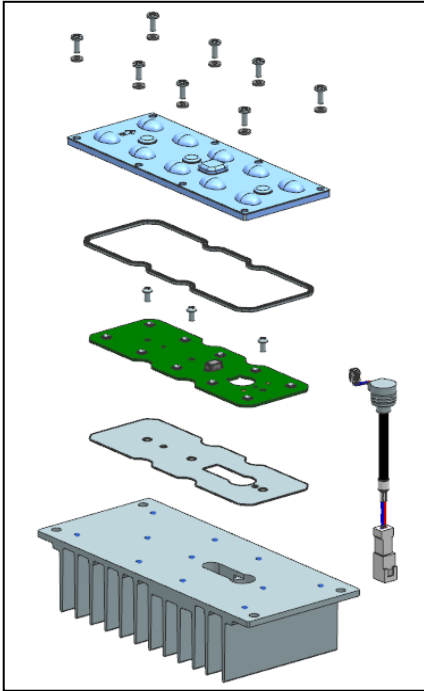
The appearance will be different for various optical solutions depending on the combination of the available core lenses. Critical dimensions are the same for all optical solutions, except for thickness difference at the core lens cross-section.

b) Dimension

| Model | Dimension | Specification | Tolerance | Unit | Remark |
|----------------|---------------|---------------|-----------|------|--|
| SL-PGQ2W53LBWW | Module Length | 150 | ±0.5 | mm | IESNA Type I Short / Suitable for Korean Expressway Roadway Lightings |
| | Module Width | 60 | ±0.5 | mm | |
| | Module Height | 43.4 | ±0.5 | mm | |
| | PCB Thickness | 1.2 | ±0.12 | mm | |
| | Module Weight | 295 | ±20 | g | |
| SL-PGQ2W53MBWW | Module Length | 150 | ±0.5 | mm | IESNA Type II Short(II) / Suitable for Korean Expressway Tunnel Lightings |
| | Module Width | 60 | ±0.5 | mm | |
| | Module Height | 43.2 | ±0.5 | mm | |
| | PCB Thickness | 1.2 | ±0.12 | mm | |
| | Module Weight | 295 | ±20 | g | |

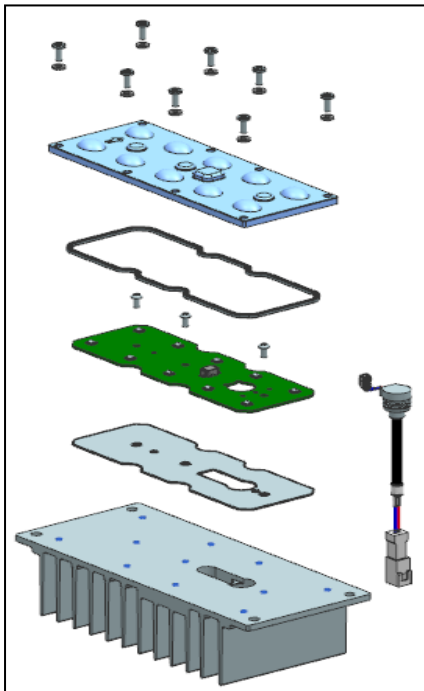
c) Structure

[SL-PGQ2W53LBWW]



| No. | Parts | Specifications |
|-----|------------------------------|--|
| 1. | Lens cover screws (8 pcs) | Material: Stainless steel with teflon washer Location: Between array lens cover and base plate heat sink |
| . | Array lens cover | Lens type: IESNA Type I Short / Korean Expressway Roadway Lightings Material: Polycarbonate Thickness: 2.0 mm UL-94 Flammability: V-2 |
| 3. | Rubber seal | Material: Molded silicone |
| 4. | LED board | LED: LH351B Ceramic high flux rank (10 pcs) Material: MC-PCB, aluminum Thickness: 1.2 mm Screws: Stainless steel (3 pcs) |
| 5. | Side inlet harness | Material: Molded PVC coated with silicone sealant, 105 °C rating Wires: 24 AWG, 105 °C rating, with end connector Length (wires): 550 mm |
| 6. | Thermal pad | Between PCB and base plate heat sink |
| 7. | Base plate heat sink | Material: Extrusion aluminum |

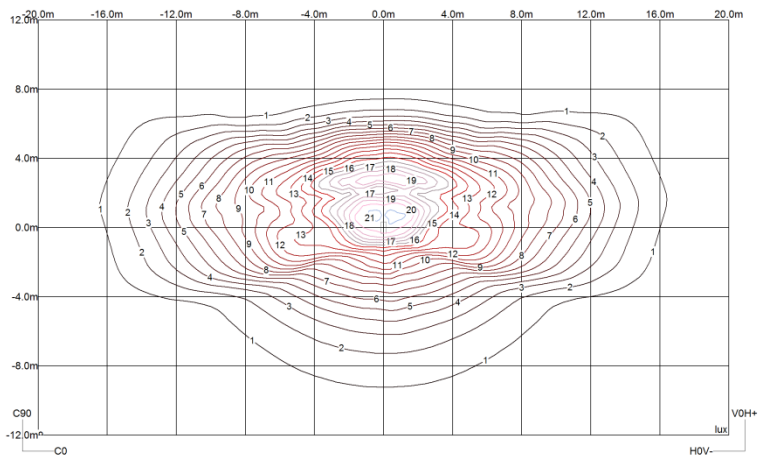
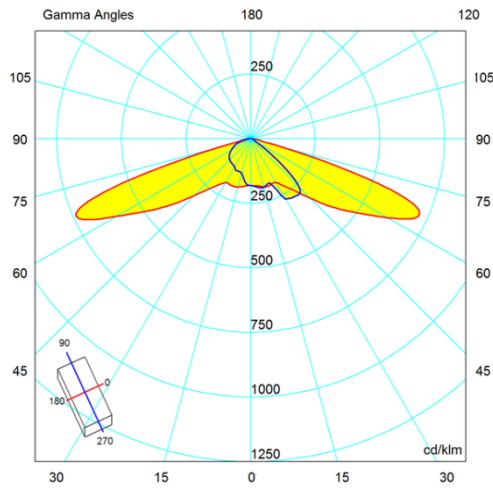
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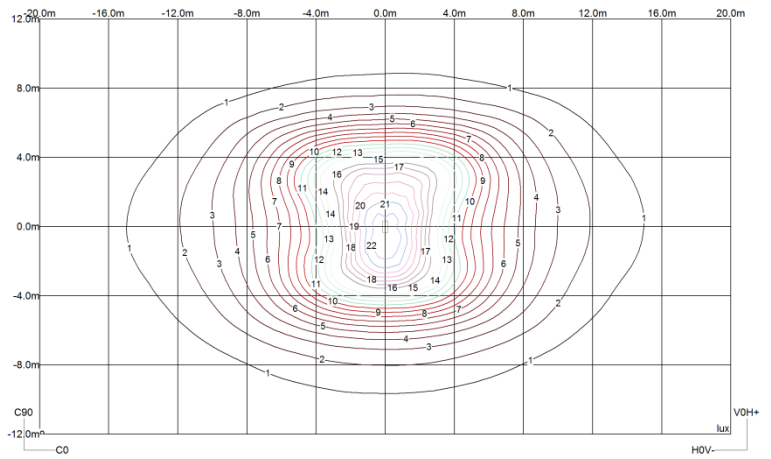
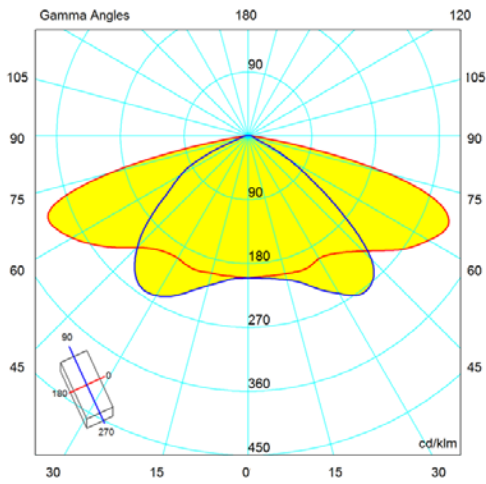
| No. | Parts | Specifications |
|-----|------------------------------|---|
| 1. | Lens cover screws (8 pcs) | Material: Stainless steel with teflon washer Location: Between array lens cover and base plate heat sink |
| . | Array lens cover | Lens type : IESNA Type II Short(II)/Korean Expressway Tunnel Lightings Material: Polycarbonate Thickness: 2.0 mm UL-94 Flammability: V-2 |
| 3. | Rubber seal | Material: Molded silicone |
| 4. | LED board | LED: LH351B Ceramic high flux rank (10 pcs) Material: MC-PCB, aluminum Thickness: 1.2 mm Screws: Stainless steel (3 pcs) |
| 5. | Side inlet harness | Material: Molded PVC coated with silicone sealant, 105 °C rating Wires: 24 AWG, 105 °C rating, with end connector Length (wires): 350 mm |
| 6. | Thermal pad | Between PCB and base plate heat sink |
| 7. | Base plate heat sink | Material: Extrusion aluminum |

d) Light Distribution

IESNA Type I Short Lens Type

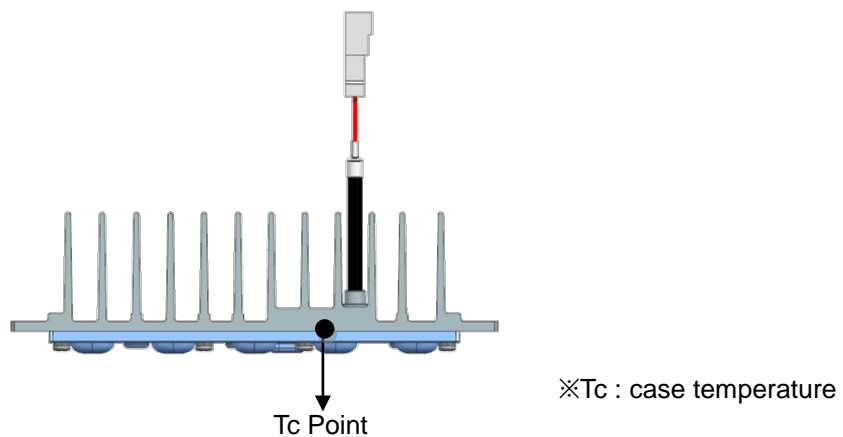


IESNA Type II Short (II) Lens Type

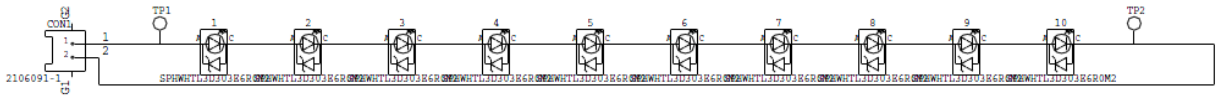


e) Thermal Management

Performance temperatures are measured on "Tc point" as indicated below (located at long side-center of the Module):



f) Schematic Circuit

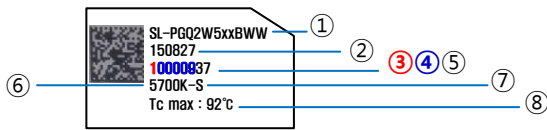


4. Certification & Declaration

| Item | Compliant to | Remark |
|-------------|--------------|--------------------------------|
| Declaration | RoHS | Hazardous Substance & Material |

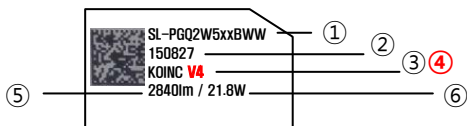
5. Label Structure

a) LED Board Label



| Number | Item | Description |
|--------|-----------------------------|-----------------|
| ① | Model Number (Product Code) | Refer to page 3 |
| ② | SMT Date Code | - |
| ③ | SMT Line | - |
| ④ | Serial Number | 00001 ~ 99999 |
| ⑤ | LED Binning Code | - |
| ⑥ | CCT | 5700 K |
| ⑦ | LED Maker | S : Samsung |
| ⑧ | Tc max | 92°C |

b) Module Label



| Number | Item | Description |
|--------|-----------------------------|--------------------------------------|
| ① | Model Number (Product Code) | Refer to page 3 |
| ② | Production Date Code | - |
| ③ | Manufacturing Location | KO (Country / Korea) + INC (Factory) |
| ④ | Vf Binning Code | - |
| ⑤ | Luminous Flux | - |
| ⑥ | Operating Wattage | - |

c) Outer Box Label



| Number | Item | Description |
|--------|---------------------------------------|---|
| ① | Model Number (Product Code) | Refer to page 3 |
| ② | Lot No. | Factory Code (2) + Production Date (4) + Serial No. (4) |
| ③ | Country of Origin | KOREA |
| ④ | Packing Quantity | 12 pc |
| ⑤ | Production Date (year/week) | yyww |
| ⑥ | Label Printing Date (year/month/date) | yy/mm/dd |

6. Packing Structure

Packing Process

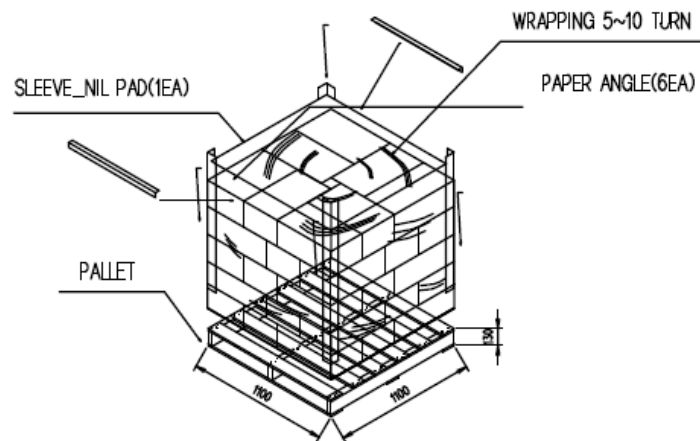
Step 1: 6 Modules of the same voltage bin are placed in one stack:



Step 2: 12 Modules on 2 stacks in one outer box:



Step 3: 40 boxes (480 modules) are placed on one pallet:



| Packing | Quantity (modules) | Dimension (mm) | | | |
|-----------|----------------------|----------------|-------|--------|-----------|
| | | Length | Width | Height | Tolerance |
| Cross Pad | 6 | 414 | 235 | 78 | ±3 |
| Outer Box | 12 (2 stacks) | 419 | 240 | 171 | ±5 |
| Pallet | 480 (40 outer boxes) | 1100 | 1100 | 1050 | ±30 |

7. Precautions in Handling & Use

7.1. The LED Lighting Modules for white light are devices which are materialized by combining white LEDs. The color of white light can differ a little unusually to diffuser plate (sign-board panel). Also when the LEDs are illuminating, operating current should be decided after considering the ambient maximum temperature.

7.2. Handling

To prevent the LED Lighting Modules from making any defectives, please handle the LED Lighting modules with care as follows.

- (1) Don't drop the unit and don't give the unit any shocks.
- (2) Don't bend the PCB and don't touch the LED Resin.
- (3) Don't storage the Module in a dusty place or room.
- (4) Don't take the product apart.
- (5) Don't touch the LED and also PCB and other circuit parts of Module with your naked fingers or sharpness things.
- (6) Take care so that do not pull wire with hand in case of carries or moves LED Lighting Modules.
- (7) *VOCs can be generated from adhesives, flux, hardener or organic additives used in luminaires. This phenomenon can cause a significant loss of light emitted from the luminaires. In order to prevent these problems, we recommend users to know the physical properties of the materials used in luminaires, and they must be selected carefully.
(*VOCs: Volatile Organic Compounds)

7.3. Cleaning

The LED Lighting Modules should not be used in any type of fluid such as water, oil, organic solvent, etc.

It is recommended that IPA (Isopropyl Alcohol) be used as a solvent for cleaning the LED Lighting Modules.

When using other solvents, it should be confirmed beforehand whether the solvents will dissolve the package and the resin or not.

Freon solvents should not be used to clean the LEDs because of worldwide regulations. Do not clean the LED Lighting Modules by the ultrasonic. Before cleaning, a pre-test should be done to confirm whether any damage to the LED Lighting modules will occur.

7.4. Static Electricity

Static electricity or surge voltage damages the LED Lighting Modules. Please keep the working process anti-static electricity condition to prevent the Lighting from destroying, as following.

- (1) Anyone who handles the unit should be well grounded.(earth ring or anti-static glove)
- (2) Anyone who handles the unit should wear anti-electrostatic working clothes.
- (3) All kinds of device and instruments, such as working table, measuring instruments and assembly jigs in your production lines should be well grounded.

7.5. Storage

The LED Lighting Modules must be stored to insert a package of a moisture absorbent material(silica gel) in a box.

7.6. Others

If over voltage which exceeds the absolute maximum rating is applied to LED Lighting Modules.

It will cause damage Circuits(that LED is included) and result in destruction.

Do not directly look into lighted LED with naked eyes.

Please use this product within 5 months, which is kept in its original packaging unopened when stocked.

Legal and additional information.

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