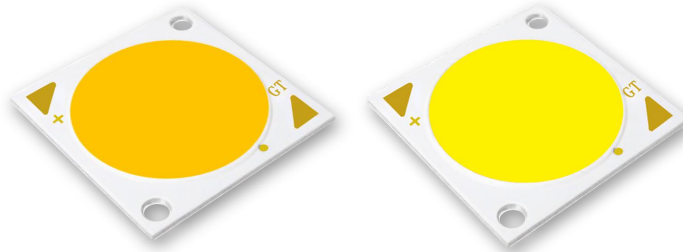


## GT-COB2828-XX



### Product Description

Getian COB series (Mirror-surface aluminum base), large luminous area with circular chip array design, is widely applied to high-end professional commercial lighting with ultimate high light efficacy, CRI and heat conduction. Its light efficacy is up to 170 lm/w. CRI can go up to 98 with smooth and cozy light quality which brings great experience of light. This series is optimized for down light, par light, spot light, track light and projector lamp etc, which effectively replaces 50-500W commercial halogen lamp and incandescent lamp, etc.

### Features

- high luminous efficacy 170lm/w
- mirror-surface aluminum base
- high intensity circular chip array
- RoHS compliant, EN62471
- > 50000 hrs
- professional super high CRI commercial lighting
- Mac Adam 3 or 5 steps available
- smooth light quality

### Application

- Indoor/outdoor commercial lighting;
- down light, flood light, high bay light, spot light, projector lamp, street light, etc.

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## Characteristics

| Characteristics                  | Unit | Min  | Typical | Max  |
|----------------------------------|------|------|---------|------|
| Dimension L*W                    | mm   |      | 28*28   |      |
| Diameter of Luminous Area $\Phi$ | mm   |      | 24.5    |      |
| Beam Angle $\theta$              | deg. |      | 120     |      |
| Color Temperature CCT            | k    | 1800 | 4000    | 6500 |
| Luminous Efficacy                | lm/w | 90   |         | 180  |
| Color Rendering Index CRI        | Ra   | 70   | 80      | 98   |
| MacAdam Ellipse SDCM             | step | 3    |         | 5    |
| Operating Temperature Top        | °C   | -40  |         | +75  |
| Storage Temperature Tst          | °C   | -40  |         | +85  |
| Testing Point Tc                 | °C   |      |         | 75   |
| Junction Temperature Tj          | °C   |      |         | 125  |
| Reverse Current (Vr=5V) Ir       | mA   |      |         | 1    |
| ESD (HBM)                        | V    |      |         | 2000 |
| Hand Soldering (Lead-Free) HST   | °C   |      |         | 350  |

## Coding Rules

| Model   | GT     | COB        | 2828 | XX  | X           | X                                   | X          | X                                | XX   |
|---------|--------|------------|------|---|-------------|-------------------------------------|------------|----------------------------------|--|
| Code    | GT     | COB        | Type | Emitting Color  | Chip Size   | Chip QTY                            | Beam Angle | Power                            | Brightness Grade   |
| Meaning | Getian | COB Series | 2828 | W3:2850-3150<br>W35:3350-3650<br>W4:3800-4200<br>W5:4800-5200 | 1<br>2<br>3 | 144:144EA<br>216:216EA<br>324:324EA | 0:120°     | 37:37.5W<br>56:56.3W<br>84:84.4W | 100:100-110<br>110:110-120<br>120:120-130<br>140:140-150<br>150:150-160<br>160:160-170 |

**Specifications (Tc = 25°C)**

Standard If: 1080mA Typical Vf: 34.8V Power: 37.5W Max Current: 2160mA Pulse Current: 2760mA Thermal Resistance: 0.52°C/W

| Color         | CCT (K) | Ra     |        | 34-41V @1080mA<br>lm/w | Part Number             | @2160mA<br>lm/w |
|---------------|---------|--------|--------|------------------------|-------------------------|-----------------|
|               |         | Min Ra | Min R9 |                        |                         |                 |
| Warm White    | 3000    | 80     | 0      | 140-150                | GT-COB2828W32144037140  | 120-130         |
|               |         | 90     | 50     | 120-130                | GT-COB2828W32144037120  | 100-110         |
|               | 3500    | 80     | 0      | 140-150                | GT-COB2828W352144037140 | 120-130         |
|               |         | 90     | 50     | 120-130                | GT-COB2828W352144037120 | 100-110         |
| Neutral White | 4000    | 80     | 0      | 150-160                | GT-COB2828W42144037150  | 130-140         |
|               |         | 90     | 50     | 120-130                | GT-COB2828W42144037120  | 100-110         |
| Pure White    | 5000    | 70     | /      | 160-170                | GT-COB2828W52144037160  | 140-150         |
|               |         | 80     | 0      | 150-160                | GT-COB2828W52144037150  | 130-140         |

Standard If: 1080mA Typical Vf: 52.2V Power: 56.3W Max Current: 2160mA Pulse Current: 2760mA Thermal Resistance: 0.39°C/W

| Color         | CCT (K) | Ra     |        | 50-61V @1080mA<br>lm/w | Part Number             | @2160mA<br>lm/w |
|---------------|---------|--------|--------|------------------------|-------------------------|-----------------|
|               |         | Min Ra | Min R9 |                        |                         |                 |
| Warm White    | 3000    | 80     | 0      | 130-140                | GT-COB2828W32216056130  | 110-120         |
|               |         | 90     | 50     | 110-120                | GT-COB2828W32216056110  | 90-100          |
|               | 3500    | 80     | 0      | 130-140                | GT-COB2828W352216056130 | 110-120         |
|               |         | 90     | 50     | 110-120                | GT-COB2828W352216056110 | 90-100          |
| Neutral White | 4000    | 80     | 0      | 140-150                | GT-COB2828W42216056140  | 120-130         |
|               |         | 90     | 50     | 120-130                | GT-COB2828W42216056120  | 100-110         |
| Pure White    | 5000    | 70     | /      | 150-160                | GT-COB2828W52216056150  | 130-140         |
|               |         | 80     | 0      | 140-150                | GT-COB2828W52216056140  | 120-130         |

**Notes:**

 Above charts include the most regular specs for COB series for reference. Please consult sales representative for specs that are not listed or please visit [www.getiangroup.com](http://www.getiangroup.com).

 Machine Tolerance  $\pm 3\%$  on luminous flux.

## Specifications (Tc = 25°C)

Standard If: 1620mA Typical Vf: 52.2V Power: 84.5W Max Current: 3240mA Pulse Current:4140mA Thermal Resistance: 0.26°C/W

| Color         | CCT (K) | Ra     |        | 50-61V @1620mA<br>lm/w | Part Number             | @3240mA<br>lm/w |
|---------------|---------|--------|--------|------------------------|-------------------------|-----------------|
|               |         | Min Ra | Min R9 |                        |                         |                 |
| Warm White    | 3000    | 80     | 0      | 130-140                | GT-COB2828W32324084130  | 110-120         |
|               |         | 90     | 50     | 110-120                | GT-COB2828W32324084110  | 90-100          |
|               | 3500    | 80     | 0      | 130-140                | GT-COB2828W352324084130 | 110-120         |
|               |         | 90     | 50     | 110-120                | GT-COB2828W352324084110 | 90-100          |
| Neutral White | 4000    | 80     | 0      | 140-150                | GT-COB2828W42324084140  | 120-130         |
|               |         | 90     | 50     | 120-130                | GT-COB2828W42324084120  | 100-110         |
| Pure White    | 5000    | 70     | /      | 150-160                | GT-COB2828W52324084150  | 130-140         |
|               |         | 80     | 0      | 140-150                | GT-COB2828W52324084140  | 120-130         |

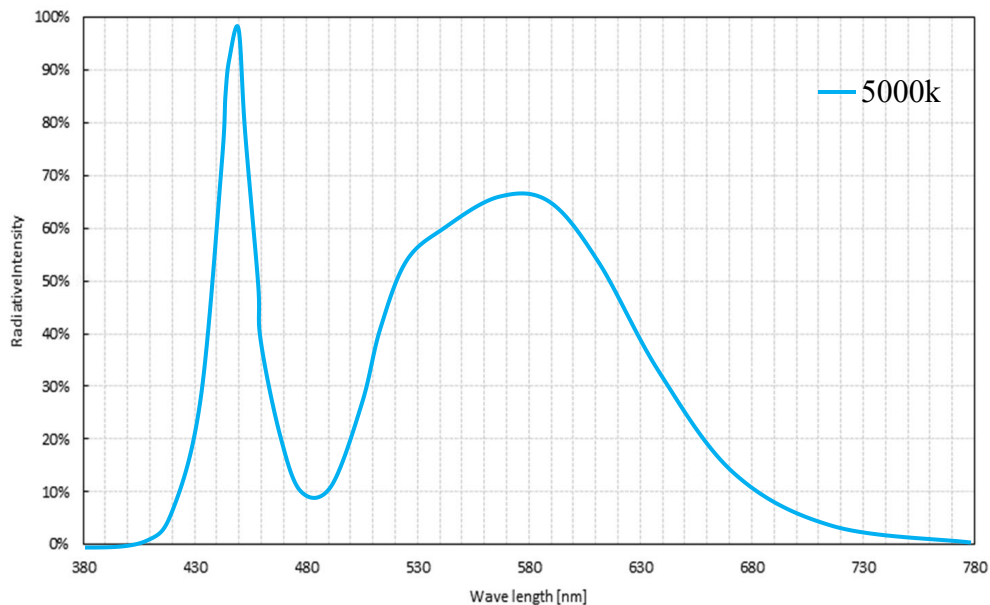
### Notes:

Above charts include the most regular specs for COB series for reference. Please consult sales representative for specs that are not listed or please visit [www.getiangroup.com](http://www.getiangroup.com).

Machine Tolerance  $\pm 3\%$  on luminous flux.

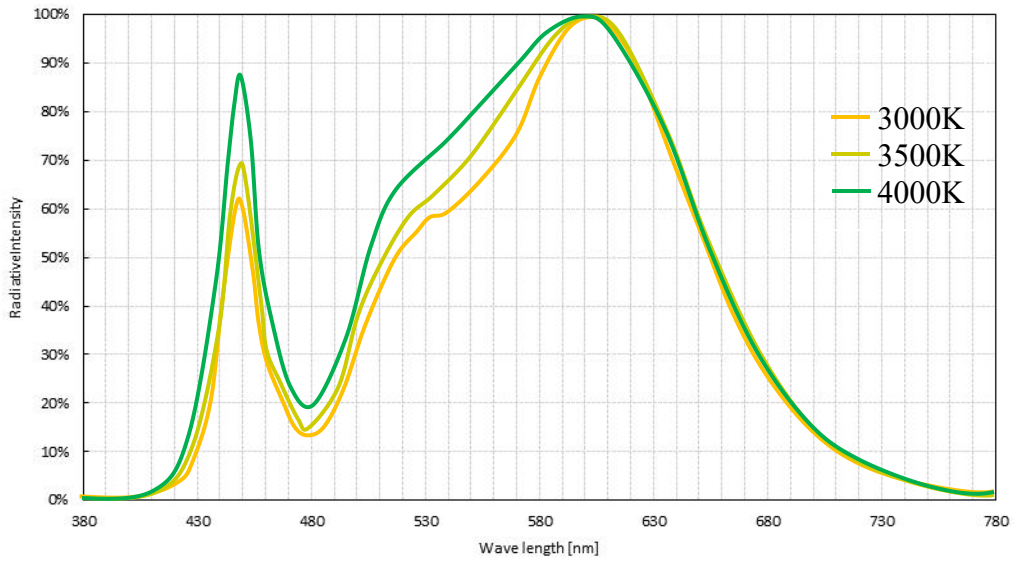
## Spectral Features (Tc = 25°C)

CRI(Ra) 70Min

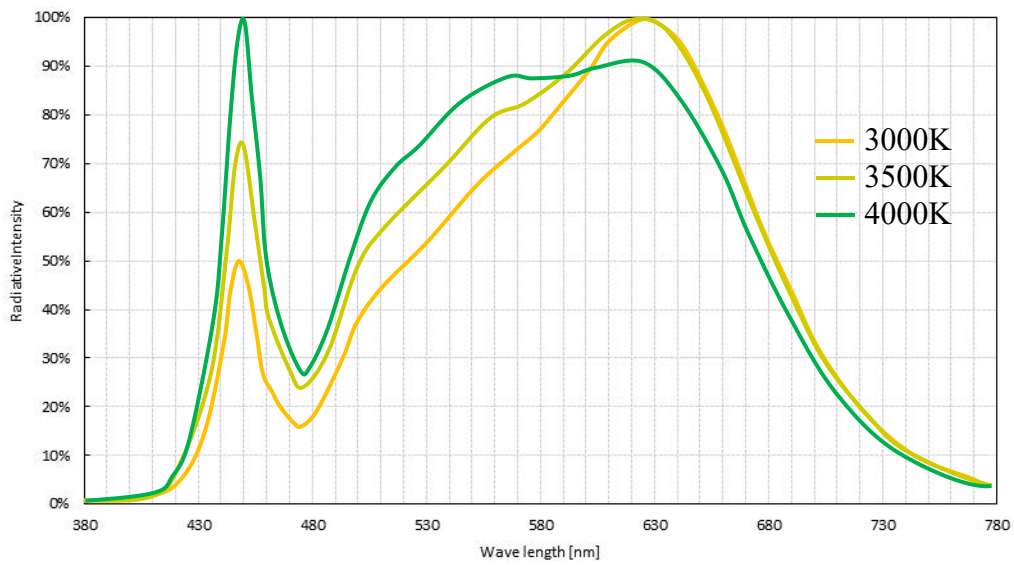


### Spectral Features (Tc = 25°C)

CRI(Ra) 80Min

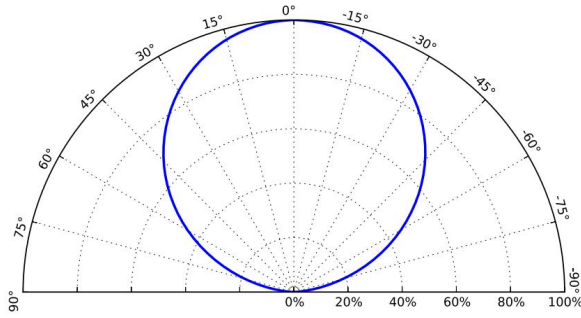


CRI(Ra) 90Min

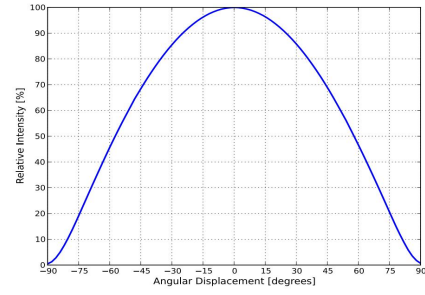


**Typical Spatial Distribution(Tc = 25°C)**

Intensity Distribution Diagram

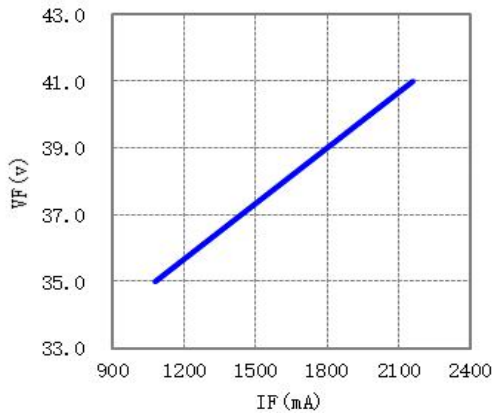


Intensity Distribution Curve

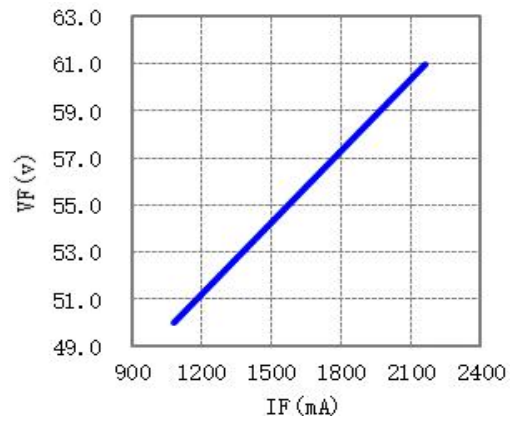


**Electrical Features (Tc = 25°C)**

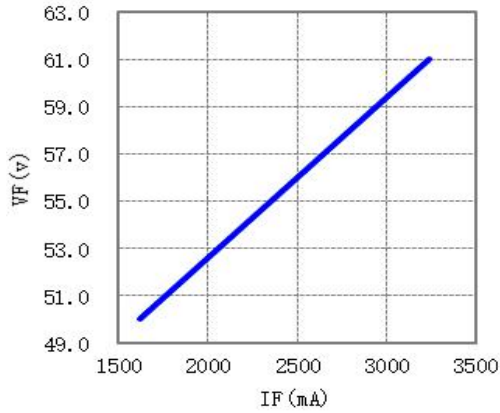
Standard Power: 37.5W



Standard Power: 56.3W

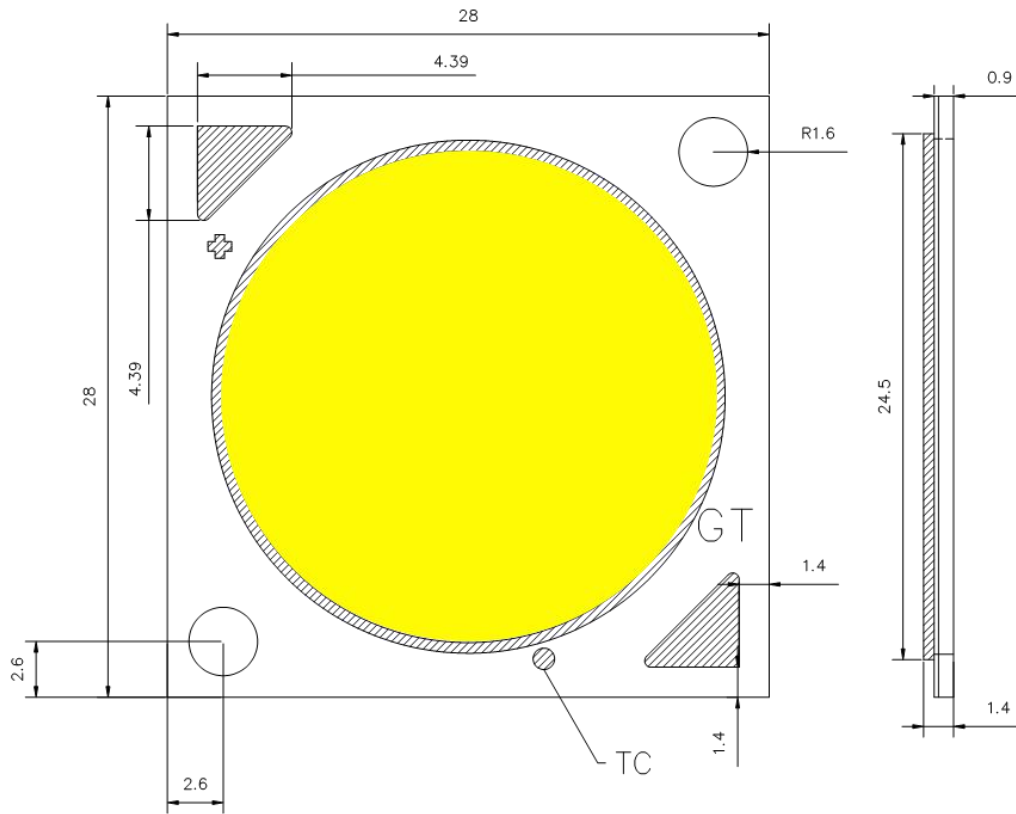
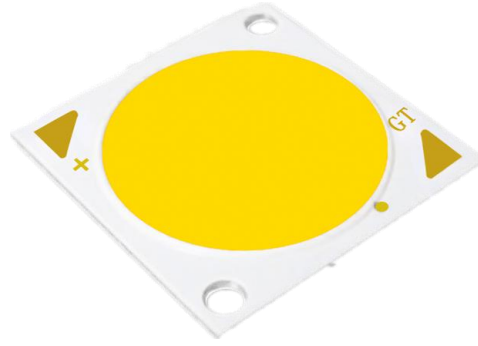


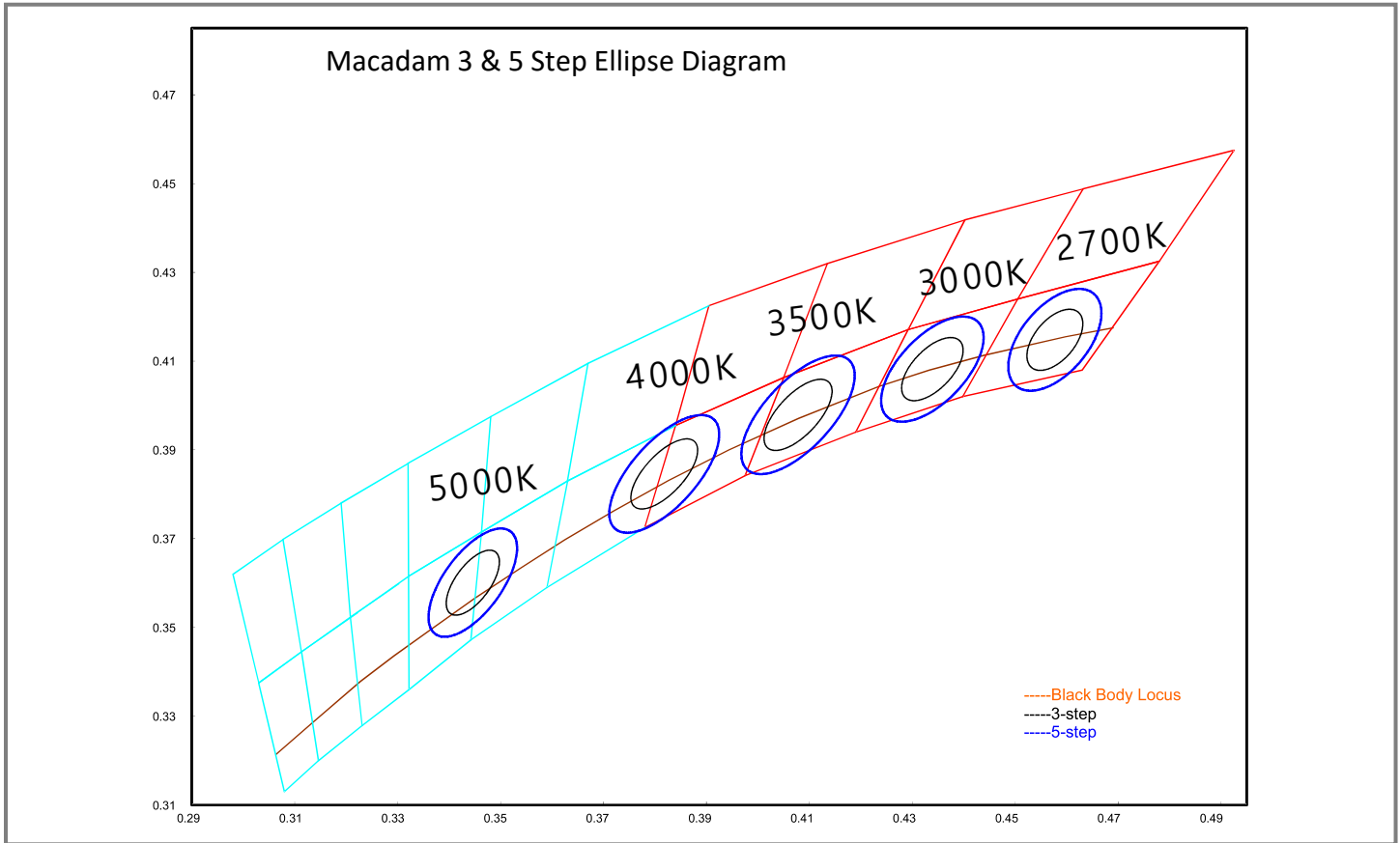
Standard Power: 84.5W



Dimension(Unit:mm)

Tolerance+/-0.3mm



**CIE Diagram (1931CIE)**


| NOMINAL CCT | COLOR SPACE                   | CENTER POINT (cx, cy) | MAJOR AXIS, a | MINOR AXIS, b | ELLIPSE ROTATION ANGLE, $\theta$ |
|-------------|-------------------------------|-----------------------|---------------|---------------|----------------------------------|
| 2700K       | Single 3-step MacAdam ellipse | (0.4578, 0.4101)      | 0.00774       | 0.00411       | 57.28°                           |
| 2700K       | Single 5-step MacAdam ellipse | (0.4578, 0.4101)      | 0.01350       | 0.00700       | 53.70°                           |
| 3000K       | Single 3-step MacAdam ellipse | (0.4338, 0.4030)      | 0.00834       | 0.00408       | 53.22°                           |
| 3000K       | Single 5-step MacAdam ellipse | (0.4338, 0.4030)      | 0.01390       | 0.06800       | 53.22°                           |
| 3500K       | Single 3-step MacAdam ellipse | (0.4073, 0.3917)      | 0.00951       | 0.00417       | 52.97°                           |
| 3500K       | Single 5-step MacAdam ellipse | (0.4073, 0.3917)      | 0.01545       | 0.0690        | 54.00°                           |
| 4000K       | Single 3-step MacAdam ellipse | (0.3818, 0.3797)      | 0.00939       | 0.00402       | 54°                              |
| 4000K       | Single 5-step MacAdam ellipse | (0.3818, 0.3797)      | 0.01565       | 0.00670       | 53.72°                           |
| 5000K       | Single 3-step MacAdam ellipse | (0.3447, 0.3558)      | 0.00822       | 0.00354       | 59.62°                           |
| 5000K       | Single 5-step MacAdam ellipse | (0.3447, 0.3558)      | 0.01370       | 0.00590       | 59.62°                           |



## Reliability Tests

| Test Items               | Test Conditions  |
|--------------------------|--|
| Aging Test               | 37.5W/IF=1080mA 56.3W/IF=1080mA 84.5W/IF=1620mA Ta=25°C×1000hrs                |
| Aging Test               | 37.5W/IF=1080mA 56.3W/IF=1080mA 84.5W/IF=1620mA Ta=85°C×1000hrs                |
| High Temperature Storage | 100°C × 1000 hours   |
| Low Temperature Storage  | -40°C × 1000 hours   |
| High Temp & Humidity     | 37.5W/IF=1080mA 56.3W/IF=1080mA 84.5W/IF=1620Ma<br>85°C, 85 %RH for 1000 hours |
| Temperature Shock        | -40°C × 30 minutes – +100°C × 30 minutes, 100 cycle                            |
| ESD (HBM)                | 2000V HBM/Time   |

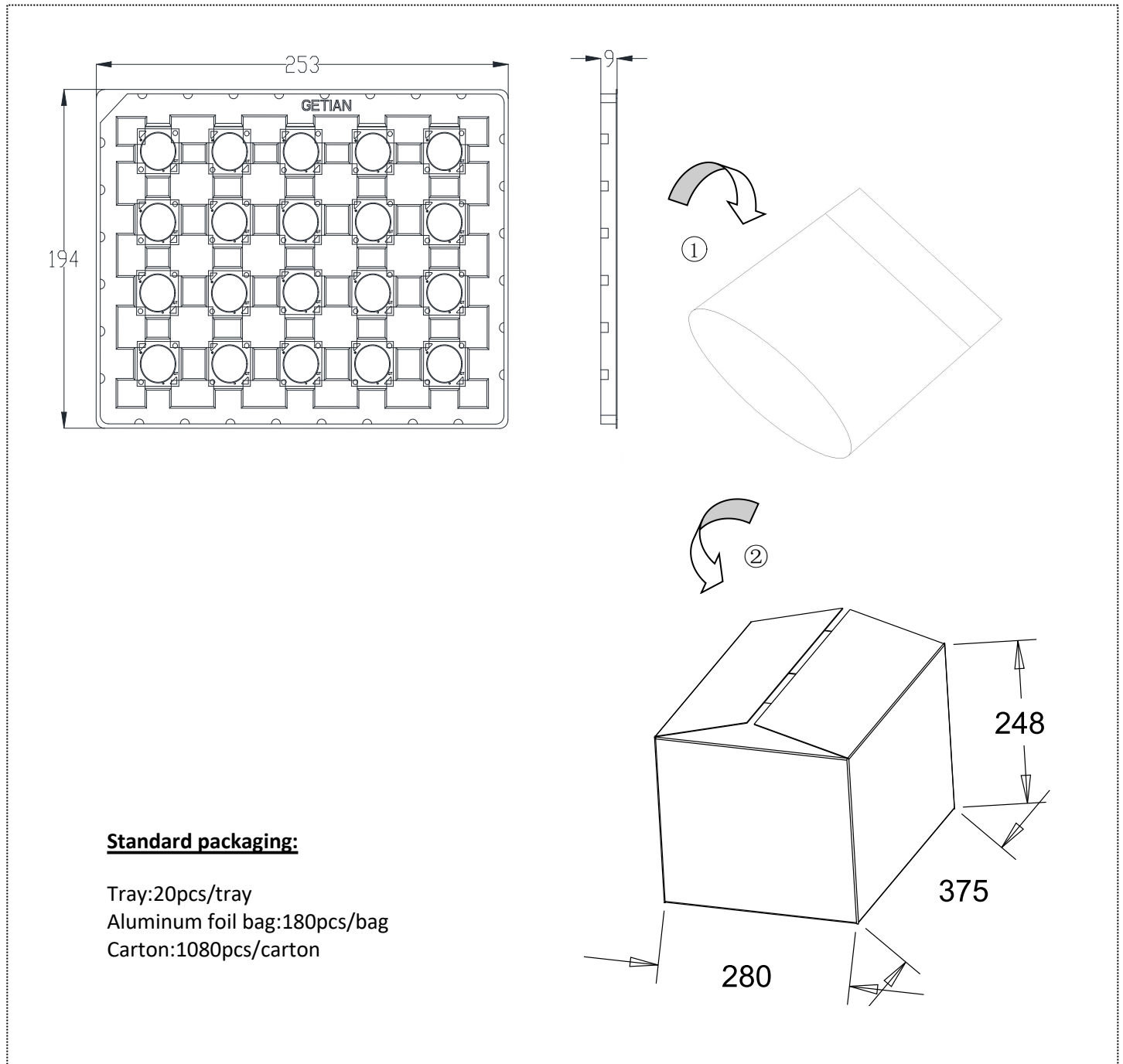
## Criteria for Judging LED Failure (Tc=25°C)

| Items           | Symbol         | Test Conditions                                    | Criteria for Judging LED Failure |
|-----------------|----------------|--|----------------------------------|
| Forward Voltage | V <sub>F</sub> | 37.5W/IF=1080mA 56.3W/IF=1080mA<br>84.5W/IF=1620mA | >U × 1.1                         |
| Luminous Flux   | φ <sub>v</sub> | 37.5W/IF=1080mA 56.3W/IF=1080mA<br>84.5W/IF=1620mA | <S × 0.7                         |

U refers to max value; S refers to initial value.

Notes: Judging criteria based on Tc=25°C.

**Packaging (Unit:mm)**



**Standard packaging:**

Tray:20pcs/tray

Aluminum foil bag:180pcs/bag

Carton:1080pcs/carton

## Notes

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### Product Specifications

This is a product family data sheet without extra emphasis on a specific model. The specifications in the document refers to its general value under certain test conditions. Please consult sales representative or technical people if encounters specs that are not listed. (Tolerance should be considered).

### Operation Tips

1. Please do not press emitting surface;
2. Please do not pour out products from trays or overlay them;
3. Keep the power supply lines 2-3mm striped and tin immersed;
4. Do not touch the emitting surface or the white dam by the soldering iron during soldering process;
5. Soldering time should be less than 5 seconds.;
6. Keep the soldering point clean and neat with no bulge, bend or cold-joint.
7. Instant test time less than 3 seconds.
8. Recommend to use thermal grease with conductivity >2.5.
9. Please keep the thermal grease inclusion-free;
10. Thermal grease spreading area should be a bit larger than the led substrate;
11. Thermal grease evenly spread with thickness about 0.1mm;
12. Place led flatly and do no push from side in case grease scraped;
13. Lens cover should be 0.2mm diameter larger than the COB emitting surface.

### Service Conditions

The products must be operated within the rated range of parameters. Constant current drivers are recommended.

### ESD Protection

Statics or surge volt would cause LED failure. When using the products, we suggest wearing anti-static wrist strap or gloves. All devices, equipment and machinery must be grounded. Precautions should be taken to protect the products from the surge voltage generated by the devices. It is recommended to inspect each LED whether it is electrostatic damaged. Inspection can be done by a indicating lamp or low forward current test (suggest 90mA). The destroyed products shows different features, for example, the forward voltage becoming lower, or no light emission under low current.

### Heat Dissipation

The thermal design of the end product is particularly important, please consider it seriously. Do avoid high temperature condensation on the product.

### Cleaning

Recommend ethanol as the only clean solvent.

### Others

The bright light emitted by LED may hurt the eyes. Do not look directly at the products when not wearing protective glasses. The strong irritant glare makes people feel uncomfortable and precautions should be taken during usage.