

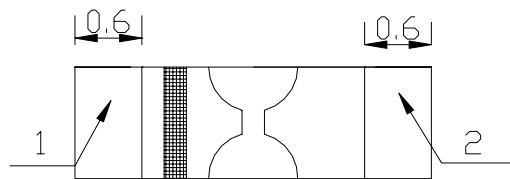
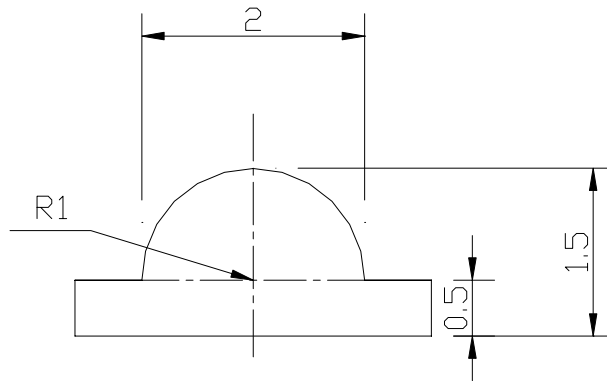
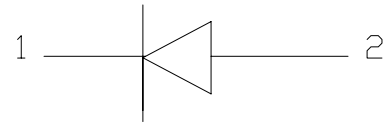
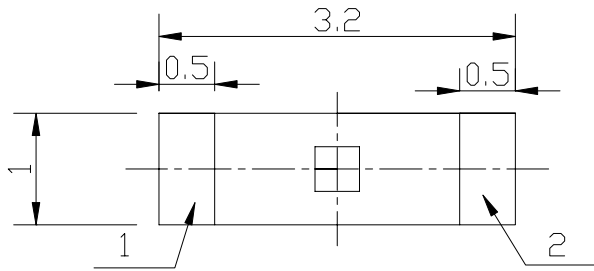
PRODUCT SPECIFICATION

DATE: 08/12/2004

| | | | |
|---|-------------------------------|--------------|-----------|
| cosmo ELECTRONICS CORPORATION | SMD LED : KL-110CBX | NO. 61L10003 | REV. 1 |
| | | SHEET 1 OF 9 | |

UNIT:MM

TOLERANCE: ± 0.15



| Part No. | Emitting Color | Material | Lens Type | I _v (I _f =20mA) | | Viewing Angle 2θ 1/2 |
|-----------|-----------------|----------|-------------|--|--------------|----------------------------|
| | | | | MIN (mcd) | TYP (mcd) | |
| KL-110CBX | Brightness blue | GaN | Water Clear | 30 | 50 | 130° |

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| | | | |
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| cosmo ELECTRONICS CORPORATION | SMD LED : | NO. 61L10003 | REV. 1 |
| | KL-110CBX | SHEET 2 OF 9 | |

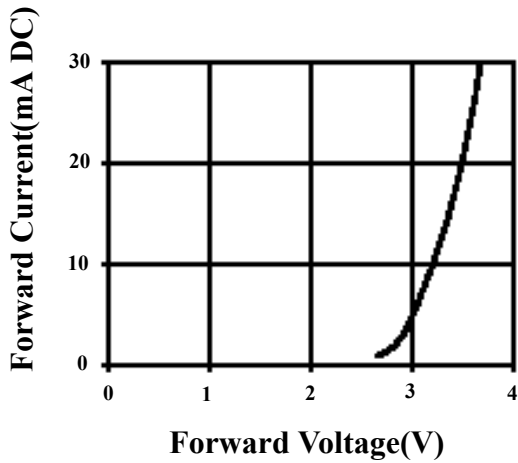
| Absolute maximum ratings (TA=25°C) | | QB (GaN) | Blue | Unit |
|---|------------------|-------------|------|------|
| Reverse voltage | V _R | 5 | | V |
| Forward current | I _F | 30 | | mA |
| Forward current(Peak) <small>1/10 Duty Cycle,0.1ms Pulse Width</small> | I _{FP} | 100 | | mA |
| Power dissipation | P _d | 90 | | mW |
| LED LAMPS: | | | | |
| Operating temperature | T _{OP} | -40~+85 | | °C |
| Storage temperature | T _{ST} | -40~+85 | | °C |
| LED DISPLAYS: | | | | |
| Operating temperature | T _A | -40~+85 | | °C |
| Storage temperature | T _{STG} | -40~+85 | | °C |

| Operating characteristics (TA=25°C) | | QB (GaN) | Blue | Unit |
|--|----------------|-------------|------|------|
| Forward voltage(typ.) I _F =20mA | V _F | 3.7 | | V |
| Forward voltage(max.) I _F =20mA | V _F | 4.0 | | V |
| Reverse current(max.) V _R =5V | I _R | 10 | | uA |
| Wavelength at dominant emission(typ.) I _F =20mA | λ _D | 470 | | nm |
| Wavelength at peak emission(typ.) I _F =20mA | λ _P | - | | nm |
| Spectral line half-width I _F =20mA | Δλ | 65 | | nm |
| Capacitance V _F =0V,f=1MHz | C | 100 | | pF |

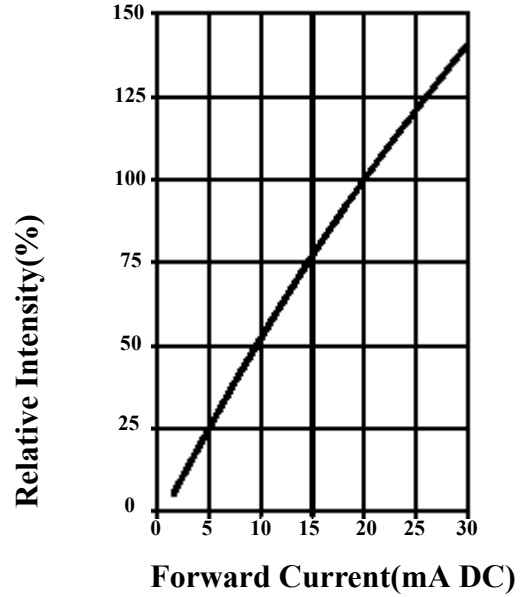
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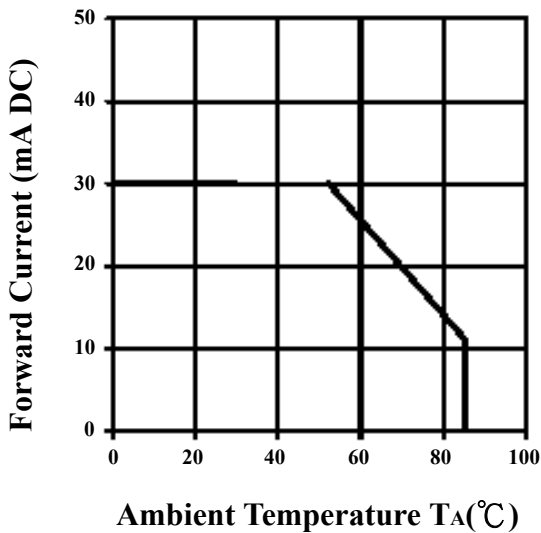
| | | | |
|---|------------------|--------------|-----------|
| cosmo ELECTRONICS CORPORATION | SMD LED : | NO. 61L10003 | REV. 1 |
| | KL-110CBX | SHEET 3 OF 9 | |



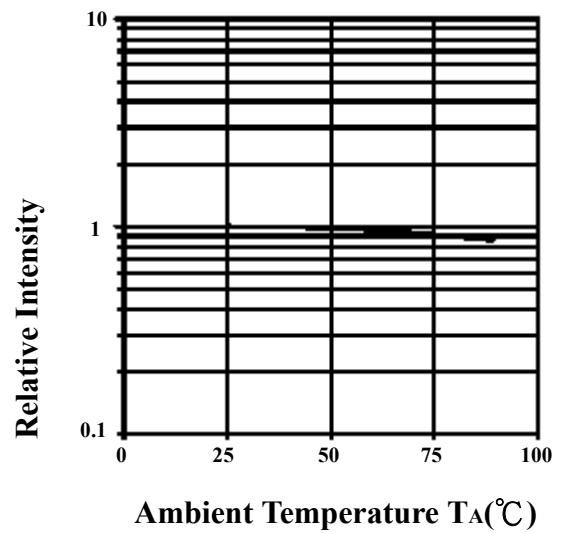
**Forward Current Vs.
Forward Voltage**



**Relative Intensity Vs.
Forward Current**



**Forward Current
Derating Curve**

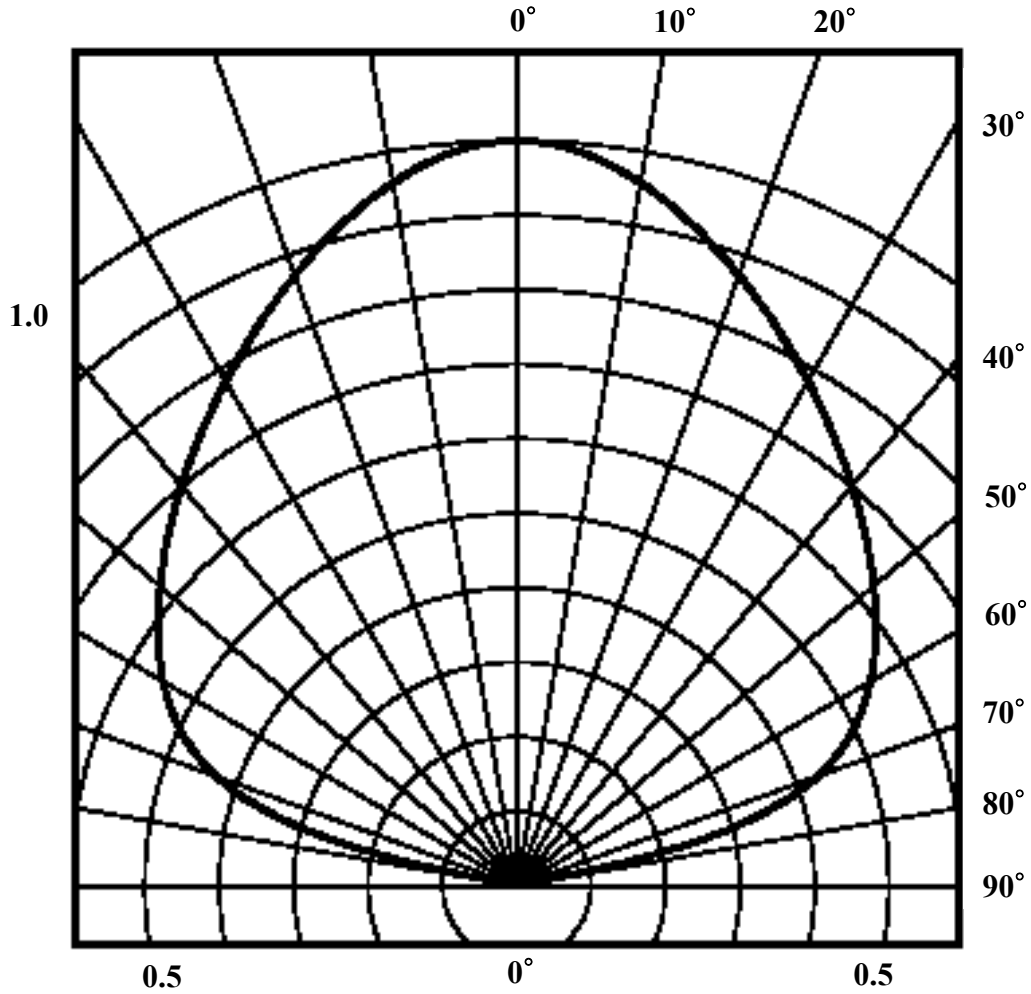


**Luminous Intensity Vs.
Ambient Temperature**

PRODUCT SPECIFICATION

DATE: 08/12/2004

| | | | |
|---|------------------|--------------|------|
| cosmo ELECTRONICS CORPORATION | SMD LED : | NO. 61L10003 | REV. |
| | KL-110CBX | SHEET 4 OF 9 | 1 |



View Angle $2\theta_{1/2}=130^\circ$

PRODUCT SPECIFICATION

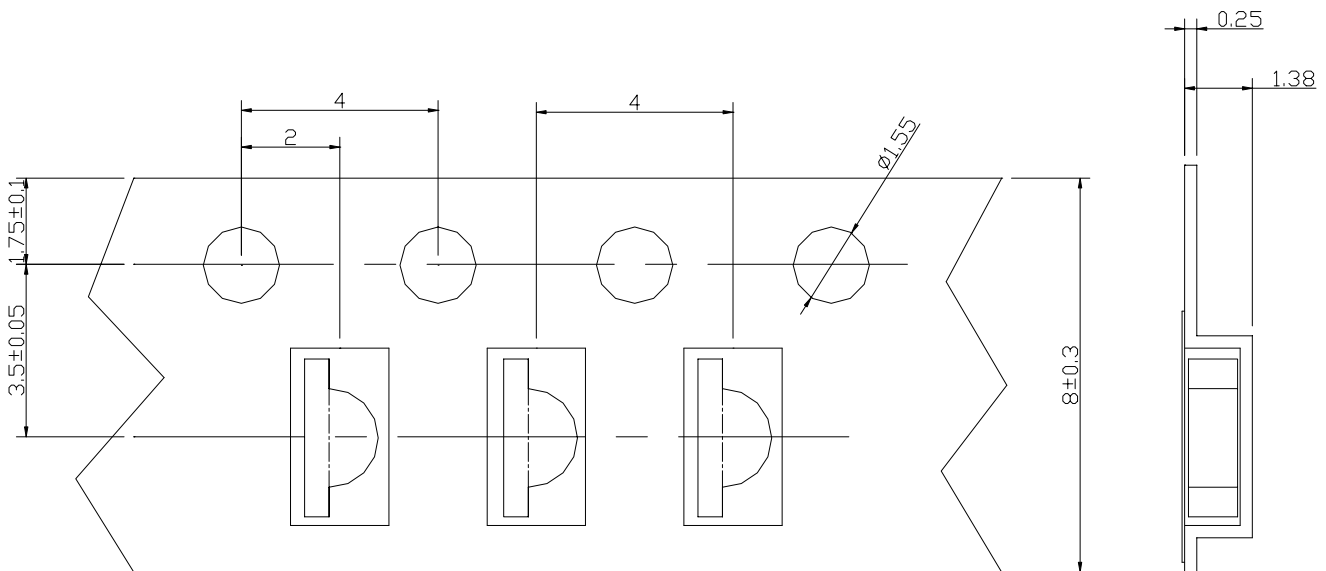
DATE: 08/12/2004

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| cosmo ELECTRONICS CORPORATION | SMD LED : KL-110CBX | NO. 61L10003 | REV. 1 |
| | | SHEET 5 OF 9 | |

UNIT:MM

TOLERANCE: ± 0.25

TYPE \longrightarrow PACKAGE:2000 OR 1000PCS/REEL
REEL "T":14mm TYP



PRODUCT SPECIFICATION

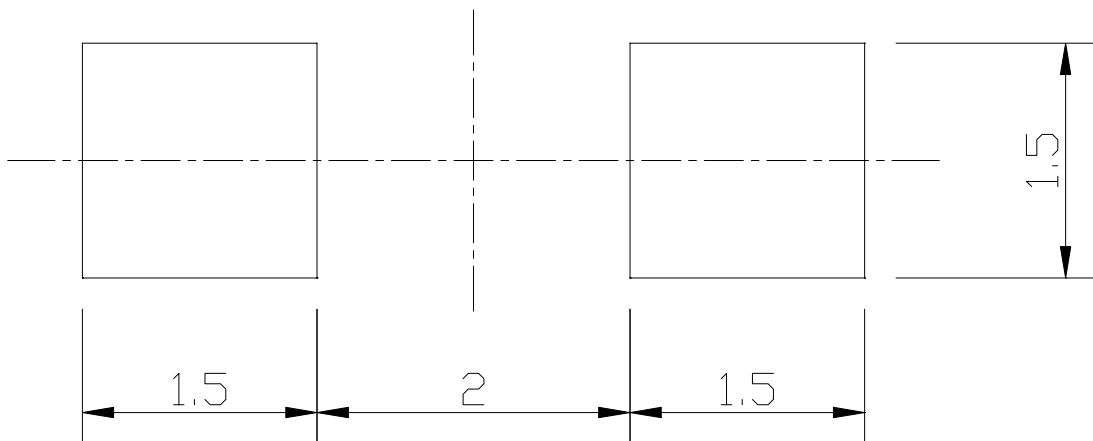
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| cosmo ELECTRONICS CORPORATION | SMD LED : KL-110CBX | NO. 61L10003 | REV. 1 |
| | | SHEET 6 OF 9 | |

UNIT:MM

The following soldering patterns are recommended for reflow-soldering:

For reflow soldering



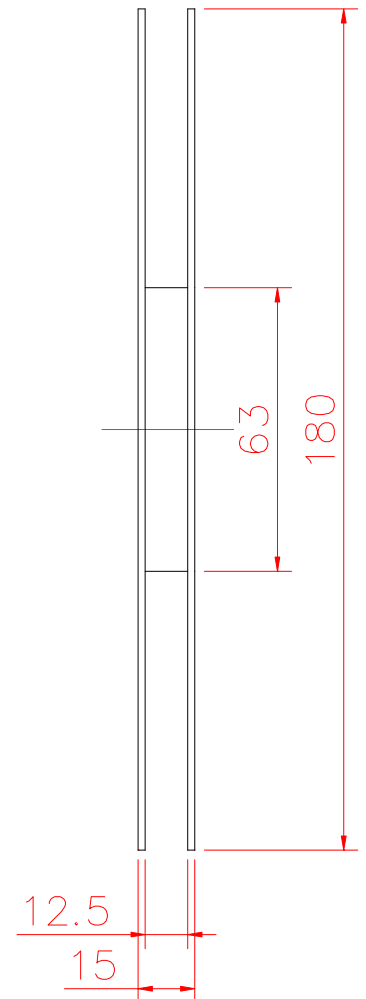
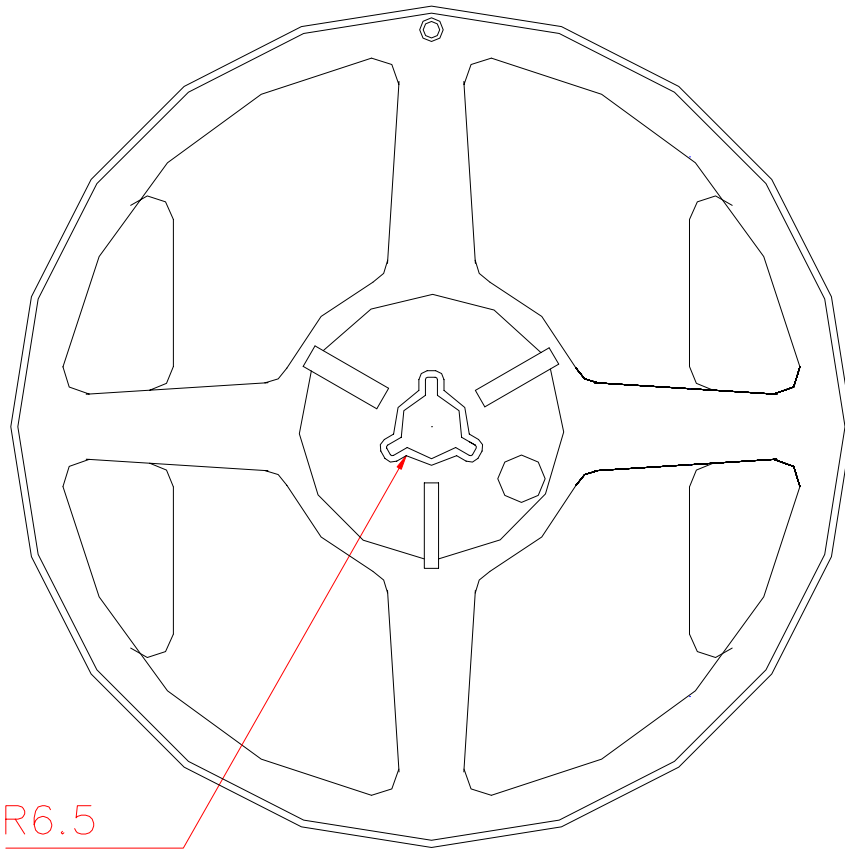
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| cosmo ELECTRONICS CORPORATION | SMD LED : KL-110CBX | NO. 61L10003 | REV. 1 |
| | | SHEET 7 OF 9 | |

UNIT:MM

TOLERANCE: ± 0.25



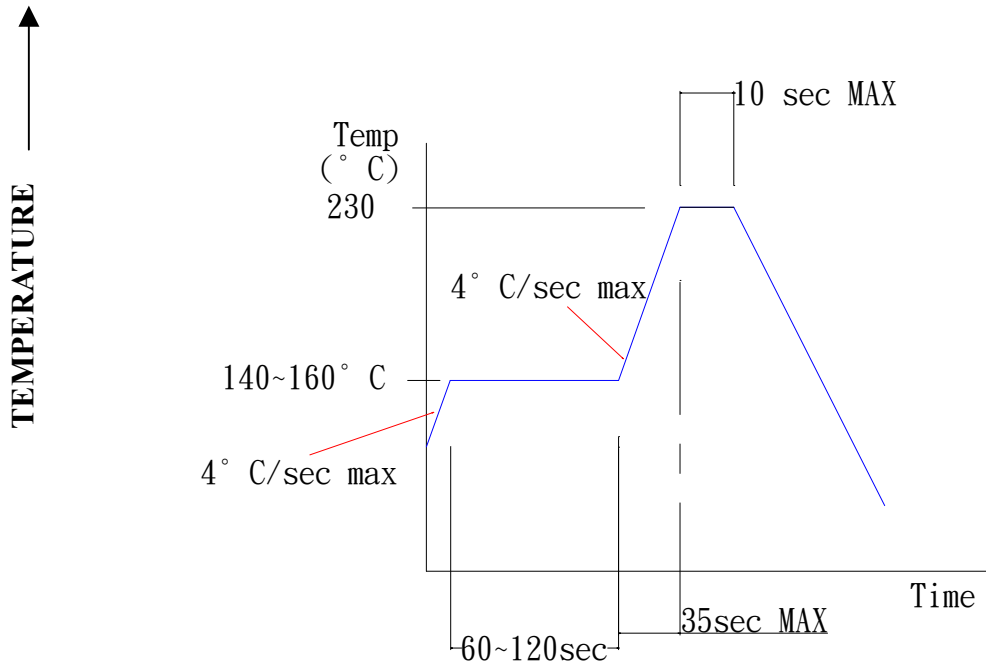
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| | | SHEET 8 OF 9 | |

SOLDERING

SMT REFLOW SOLDERING INSTRUCTIONS



SOLDERING INSTRUCTIONS

| TYPES | DIP AND WAVE SOLDERING | | | IRON SOLDERING(WITH 1.5mm IRON TIP) | | |
|----------|-----------------------------------|------------------------|------------------------------------|-------------------------------------|------------------------|------------------------------------|
| | TEMPERATURE OF THE SOLDERING BATH | MAXIMUM SOLDERING TIME | DISTANCE FROM SOLDER JOINT TO CASE | TEMPERATURE OF SOLDERING IRON | MAXIMUM SOLDERING TIME | DISTANCE FROM SOLDER JOINT TO CASE |
| LEDS | ≤ 260°C | 3S | > 2mm | ≤ 260°C | 3S | > 2mm |
| | ≤ 260°C | 5S | > 4mm | ≤ 260°C | 5S | > 4mm |
| DISPLAYS | ≤ 260°C | 3S | > 2mm | ≤ 260°C | 3S | > 2mm |

PRODUCT SPECIFICATION

DATE: 08/12/2004

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|---|-------------------------------|--------------|------|
| cosmo ELECTRONICS CORPORATION | SMD LED : KL-110CBX | NO. 61L10003 | REV. |
| | | SHEET 9 OF 9 | 1 |

SMD HANDLING AND APPLICATION PRECAUTIONS

STORAGE

(1.1) It is recommended to store the devices in accordance with the following conditions:

Humidity: 60%RH Max.

Temperature: 5°C~30°C (41°F~86°F)

(1.2) Shelf life in sealed bag: 12 month at <5°C~30°C and <30%RH.

After the package is opened, the products should be used within 72hrs.

Or they should be kept at $\leq 20\%$ RH in zip -locked sealed bags.

DRY PACK AND BAKING

SMD LEDs are MOISTURE SENSITIVE devices. Avoid absorbing moisture at any time during transportation and/or storage. It is recommended to bake before soldering when the pack is unsealed after 72 hrs, or any suspicious moisture being found. Bake devices in accordance with the following conditions:

(a) 60±3°C x (12~24hrs) and <5%RH, taped reel type

(b) 100±3°C x (45min~1hr), loose packing type, or

(c) 130±3°C x (15~30min), loose packing type

ELECTRIC STATIC DISCHARGE(ESD) PROTECTION

Materials with GaN, InGaN, AlInGaP are STATIC SENSITIVE devices. They will be packed in anti-static bags. ESD protection must be deliberately observed from the initial design stage. The static -electric discharge may result in severe malfunction of the devices. In the events of manual working in process, make sure the devices are well protected from ESD at any time. Surge before and during handling products.