

TOL-503RPG1C

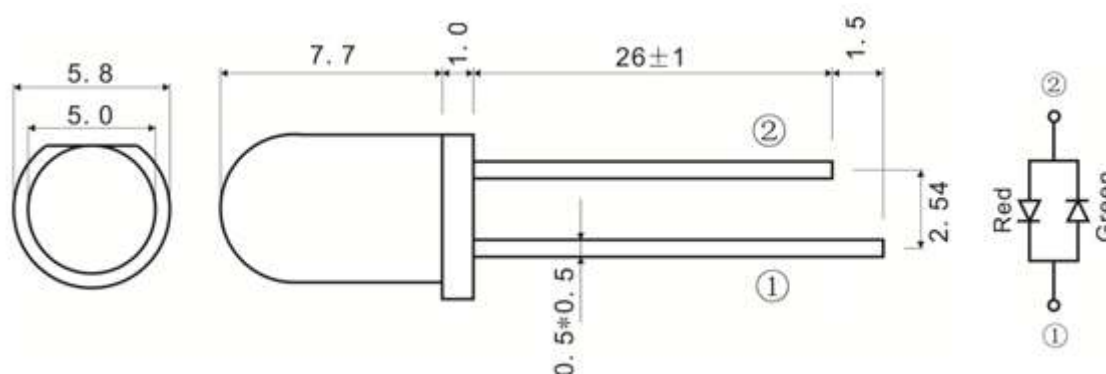
Lamp LED

| Part Number | Chip | | Lens Color |
|--------------|----------|--------------|-------------|
| | Material | Source Color | |
| TOL-503RPG1C | AlGaInP | Ultra Red | Water Clear |
| | InGaN | Pure Green | |

Features

- I.C. compatible.
- Low power consumption.
- Compatible with wave soldering process.
- 5mm diameter package.
- Long life, stable and reliable.
- RoHS compliant.

Dimensions



Notes:

1. All dimensions are in millimeter.
2. Tolerance is ± 0.25 mm unless otherwise notes.

Absolute Maximum Rating @ Ta=25°C

| Parameter | Maximum Rating | | Unit |
|--|------------------|-----|------|
| | R | PG | |
| Power Dissipation | 75 | 100 | mW |
| Continuous Forward Current | 30 | | mA |
| Reverse Voltage | 5 | | V |
| Operating Temperature Range | -30°C to +85°C | | |
| Storage Temperature Range | -40°C to +100°C | | |
| Wave Soldering Profile For Lead-free Soldering | 260°C, 5 Seconds | | |

Electrical / Optical Characteristic @ Ta=25°C

| Parameter | Symbol | R | | | PG | | | Unit | Test Condition |
|--------------------------|-------------------|------|------|------|------|------|-------|------|----------------------|
| | | Min. | Typ. | Max. | Min. | Typ. | Max. | | |
| Luminous Intensity | I _v | 600 | - | 1400 | 6000 | - | 14000 | mcd | I _F =20mA |
| Viewing Angle | 2θ _{1/2} | - | 30 | - | - | 30 | - | deg | I _F =20mA |
| Dominant Wavelength | λ _d | 620 | - | 630 | 515 | - | 525 | nm | I _F =20mA |
| Spectral Line Half-Width | Δλ | - | 18 | - | - | 35 | - | nm | I _F =20mA |
| Forward Voltage | V _F | 1.8 | - | 2.4 | 2.8 | - | 3.4 | V | I _F =20mA |
| Reverse Current | I _R | - | - | 10 | - | - | 10 | μA | V _R =5V |

Remark : Only reference for above data when testing.

1. The tolerance of intensity : ±15%.
2. The tolerance of wave length : ±1nm.
3. The tolerance of forwards voltage : ±0.1V

Reliability Test Project

| Description | Item | Test criterion | Test condition | Test time | Qty | Fail Qty |
|---------------|------------------------------------|---|--|-----------|-----|----------|
| Life test | Life test (Room temperature) | JIS7021:B4 | Ta=25°C±5°C, IF=20mA | 1000 Hrs | 20 | 0 |
| Ambience test | High temperature store | JIS7021:B10 MIL-STD-202:210A MIL-STD-750:2031 | Ta=85°C±5°C | 1000 Hrs | 20 | 0 |
| | Low temperature store | JIS7021:B12 | Ta= -35°C±5°C | 1000 Hrs | 20 | 0 |
| | High temperature/ humidity test | JIS7021:B11 MIL-STD-202:103D | Ta=85°C±5°C RH=85% | 1000 Hrs | 20 | 0 |
| | Cold / Heat strike test | JIS7021::B4 MIL-STD-202:107D MIL-STD-750:1026 | 30min -30°C±5°C ↔ 85°C±5°C 5min | 50 Cycles | 20 | 0 |
| | Cold and heat cycle test | JIS7021:A3 MIL-STD-202:107D MIL-STD-705:105E | 5min 5min 5min -35°C ~ 25°C ~ 85°C ~ -35°C 30min 5min 30min 5min | 50 Cycles | 20 | 0 |

Judging criterion

| Item | Symbol | Experiment condition | Criteria | |
|--------------------|--------|----------------------|------------------|------------------|
| | | | Min. | Max. |
| Forward Voltage | VF | IF=20mA | - | Initial Datex1.1 |
| Reverse Current | IR | VR=5V | - | 30μA |
| Luminous Intensity | IV | IF=20mA | Initial Datex0.7 | - |

Package Description



FIG.1

Oasistek®

LED LAMP

PN TOL- XXXX XXXX


Qty XXXXPCS 

NW XXX KGS

GW XXX KGS

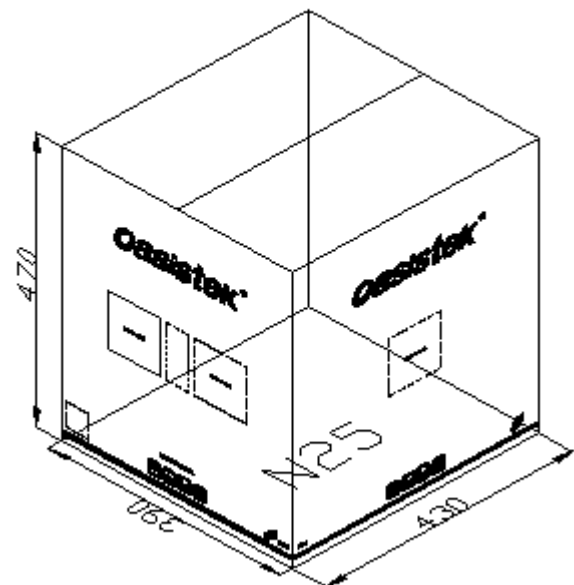
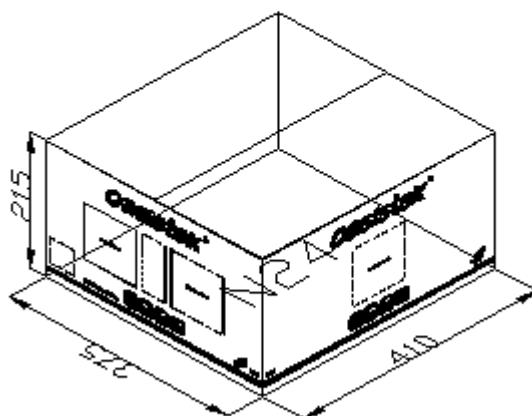
Date YYYY/MM/DD

Notes





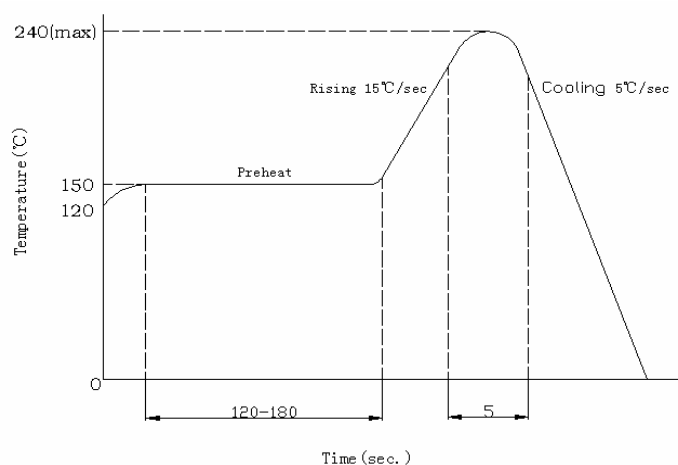
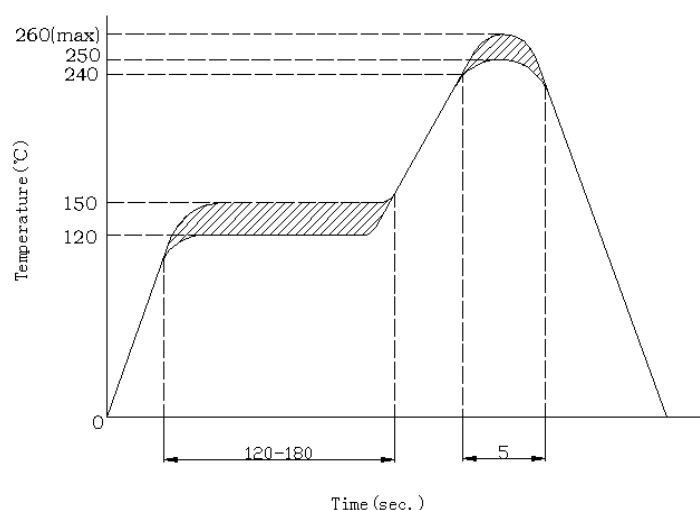
FIG.2



Cautions

- LED bracket forming method :
 1. The pin of led can be bent where is at least 3mm out of led colloid.
 2. Must use fixture to deform the led bracket.
 3. Finishing the forming of led bracket must be before soldering.
 4. Guarantee the gap between two pin of led tallys with LED pads in PCB when forming.
- Manual soldering :

The tip temperature of soldering iron don't exceed 260°C ; soldering time don't exceed 3s and soldering position must be 3mm out of led colloid.
- Soldering temperature curve chart (figure A、figure B) :



- ESD countermeasure

Static electricity and high volt can damage led. The production whose Die material is InGaN must strictly required to prevent ESD, must put on static glove and static fillet. Soldering tool and the cover of device must connect the ground, soldering condition follows the related stating of production specification manual.

- Protecting countermeasure when over current

Need add the protecting resistor in circuit in order to avoid damaging led due to big current and voltage fluctuation.

- LED installation method

1. Pay attention to the led polarity and avoid installation wrong. LED can't be close to eutermic component, work condition should tally with it's specification.
2. Don't install the LED under the condition of the led pin deformation.
3. The led bracket don't load any pressure when installing the led into PCB or fitting hole.
4. Must avoid any strike and force on led before the soldering temperature return to room temperature.

- Storage time

1. LED can be stored for a year under the condition:
the temperature of $5^{\circ}\text{C} \sim 35^{\circ}\text{C}$ and humidity of RH60%, These production must be re-inspected and tested before use if their storage time exceed a year.
2. If LED is exposed in air for a week under the condition:
the temperature of $5^{\circ}\text{C} \sim 35^{\circ}\text{C}$, humidity of RH60%, must place the led in the ambience of $65^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 24 hours and use it in 15 days for best.

- Cleaning

Be careful of some chemical results in the led colloid fades and damage when using chemical clean the LED such as chloroethylene, acetone etc. can use ethanol to wash or soak LED but the time don't exceed 3 minutes.

- Kinked

The kinked tooling scrape easily the pin of LED, where the led bracket is rusting easily, especial expose it in moist air. To decrease the led bracket rust, suggest using plated tin led bracket.