

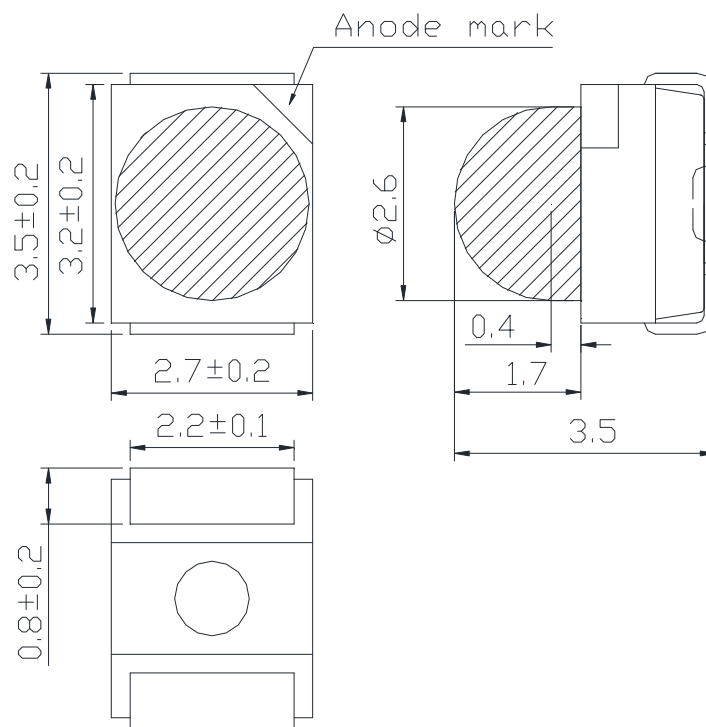
## Data Sheet

# SMT660N-23

660nm High Performance Red Color TOP LED

USHIO

### Outline and Internal Circuit



(Unit : mm)

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### Features

- Chip Material : AlGaInP
- Chip Dimension : 350um\*350um
- Number of Chips : 1pce
- Peak Wavelength : 660nm typ.
- Lead Frame Die : Silver Plated
- Package Resin : PA6T
- Lens : Silicone or Epoxy Resin

### Application

## Absolute Maximum Ratings (Tc=25°C)

| Item                  | Symbol | Ratings    | Unit |
|-----------------------|--------|------------|------|
| Power Dissipation     | PD     | 120        | mW   |
| Forward Current       | IF     | 50         | mA   |
| Pulse Forward Current | IFP    | 300        | mA   |
| Reverse Voltage       | VR     | 5          | V    |
| Thermal Resistance    | Rthja  | 80         | K/W  |
| Junction Temperature  | Tj     | 120        | °C   |
| Operating Temperature | Topr   | -40 ~ +100 | °C   |
| Storage Temperature   | Tstg   | -40 ~ +100 | °C   |
| Soldering Temperature | TSOL   | 250        | °C   |

‡Pulse Forward Current condition : Duty 1% and Pulse Width=10us.

‡Soldering condition : Soldering condition must be completed with 5 seconds at 250°C.

## Optical and Electrical Characteristics (Tc=25°C)

| Parameter            | Symbol | Min | Typ | Max | Unit  | Test Condition |
|----------------------|--------|-----|-----|-----|-------|----------------|
| Forward Voltage      | VF     |     | 1.9 | 2.3 | V     | IF=20mA        |
|                      | VFP    |     | 3.5 |     |       | IFP=300mA      |
| Total Radiated Power | PO     | 8   | 13  |     | mW    | IF=20mA        |
|                      |        |     | 170 |     |       | IFP=300mA      |
| Radiant Intensity    | IE     |     | 11  |     | mW/sr | IF=20mA        |
|                      |        |     | 140 |     |       | IFP=300mA      |
| Luminous Flux        | ΦV     |     | 870 |     | mlm   | IF=20mA        |
| Peak Wavelength      | λp     | 650 |     | 670 | nm    | IF=20mA        |
| Dominant Wavelength  | λD     |     | 640 |     | nm    | IF=20mA        |
| Half Width           | Δλ     |     | 16  |     | nm    | IF=20mA        |
| Viewing Half Angle   | θ1/2   |     | ±26 |     | deg.  | IF=20mA        |
| Rise Time            | tr     |     | 10  |     | ns    | IF=20mA        |
| Fall Time            | tf     |     | 10  |     | ns    | IF=20mA        |

‡ Radiated Power is measured by S3584-08.

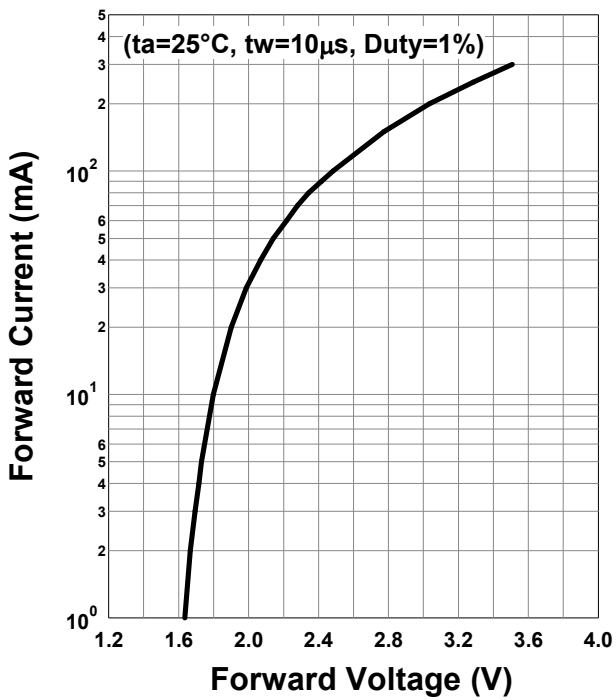
‡ Radiant Intensity is measured by CIE127-2007 Condition B.

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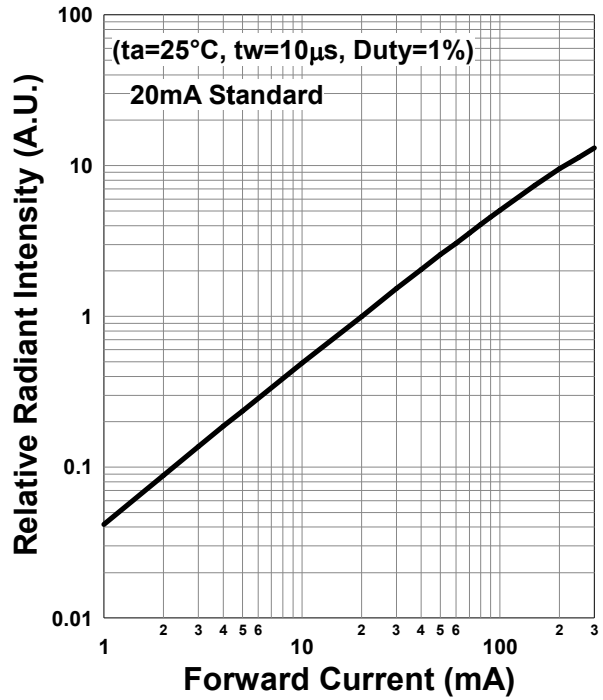
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## Typical Characteristic Curves

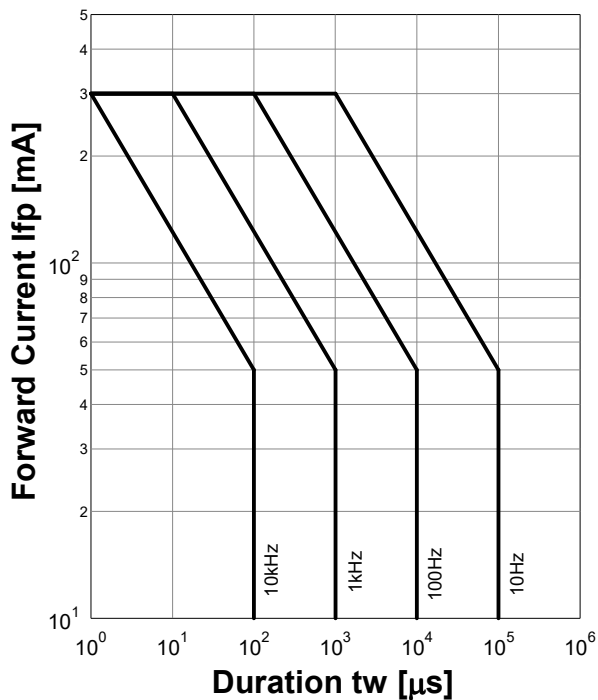
**Forward Current - Forward Voltage**



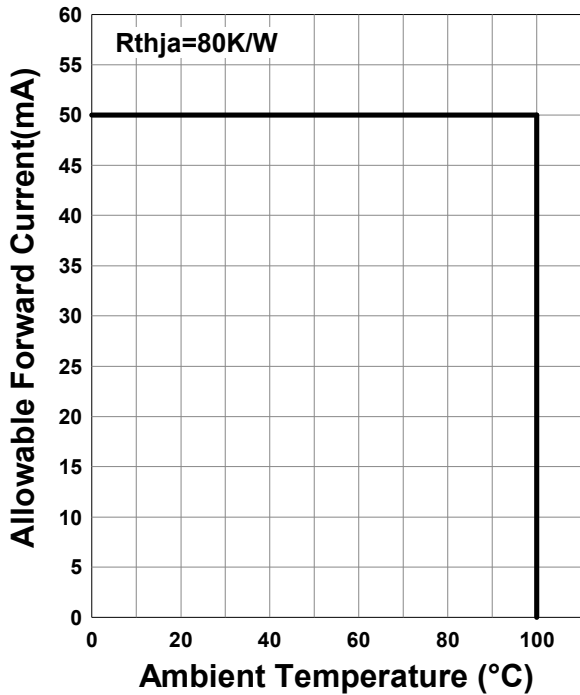
**Relative Radiant Intensity - Forward Current**



**Forward Current - Pulse Duration**

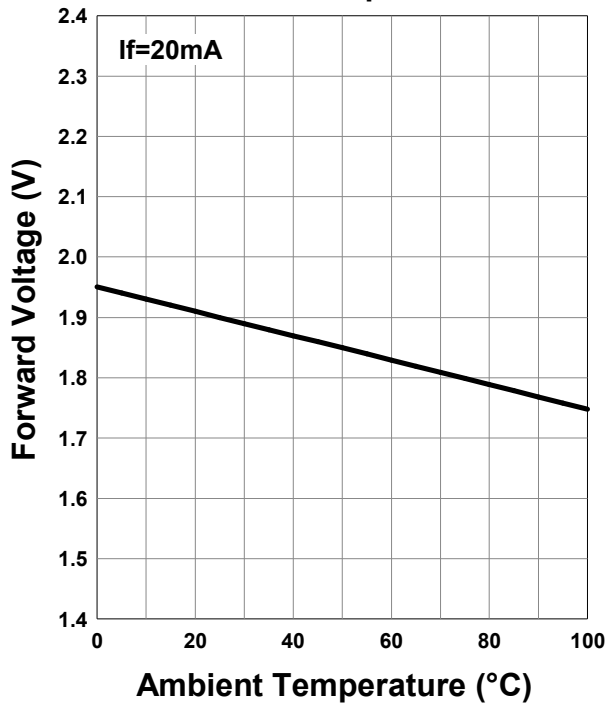


**Allowable Forward Current - Ambient Temperature**

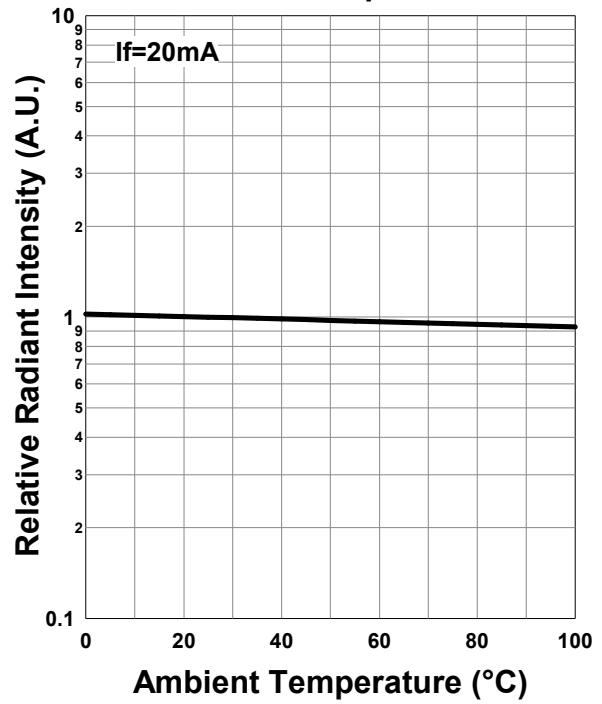


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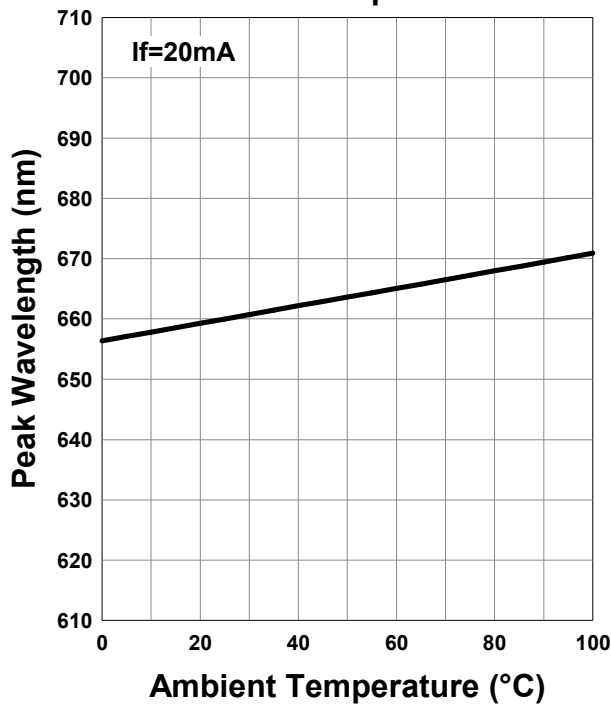
**Forward Voltage - Ambient Temperature**



**Relative Radiant Intensity - Ambient Temperature**

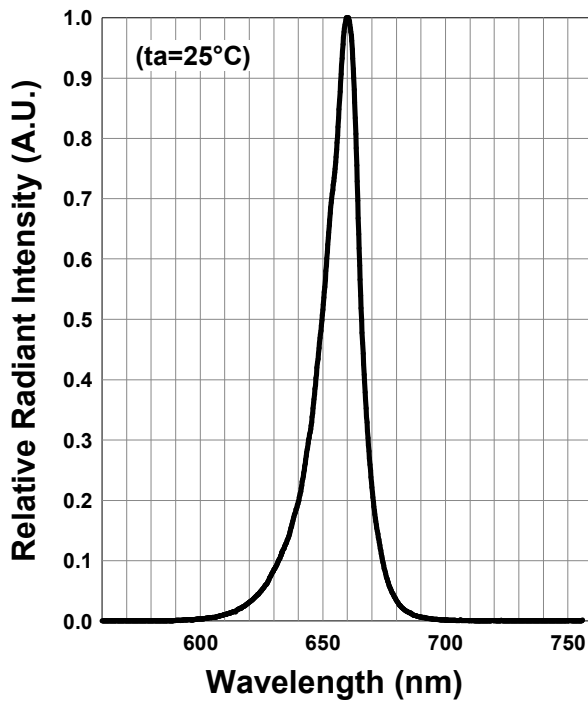


**Peak Wavelength - Ambient Temperature**

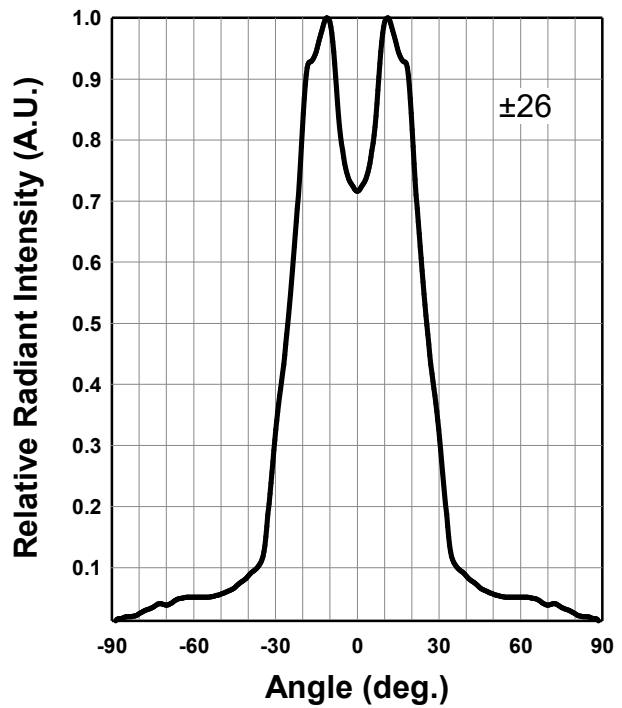


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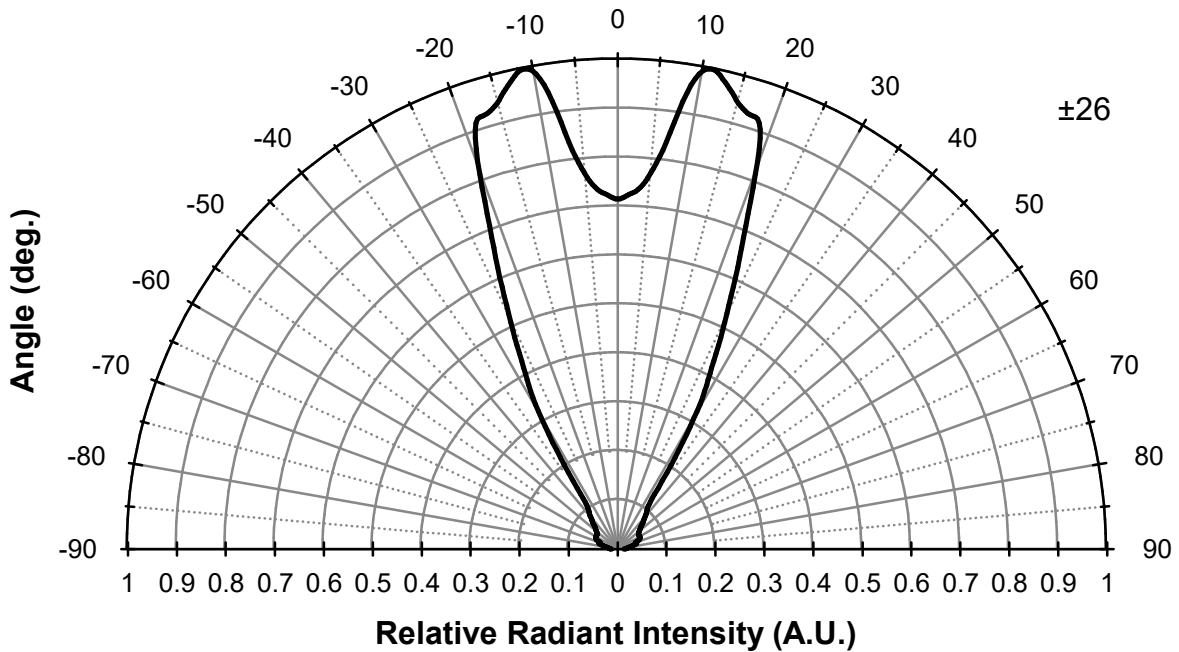
### Relative Spectral Emission



### Radiation Characteristics



### Radiation Characteristics



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## Wrapping

Moisture barrier bag aluminum laminated film with a desiccant to keep out the moisture absorption during the transportation and storage.

## SMD LED storage and handling precautions

### Storage Conditions before Opening a Moisture-Barrier Aluminum Bag

- Before opening a moisture-barrier aluminum bag, please store it at <30°C, <60%RH.
- Please note that the maximum shelf life is 12 months under these conditions.

### Storage Conditions after Opening a Moisture-Barrier Aluminum Bag

- After opening a moisture-barrier aluminum bag, store the aluminum bag and silica gel in a desiccator.
- After opening the bag, please solder the LEDs within 72 hours in a room with 5 - 30°C, <50%RH.
- Please put any unused, remaining LEDs and silica gel back in the same aluminum bag and then vacuum-seal the bag.
- It is recommended to keep the re-sealed bag in a desiccator at <30%RH.
- The 72-hour- long floor life does not include the time while LEDs are stored in the moisture-barrier aluminum bag. However, we strongly recommend to solder the LEDs as soon as possible after opening the aluminum bag

### Notes about Re-sealing a Moisture-Barrier Aluminum Bag

- When vacuum-sealing an opened aluminum bag, if you find the moisture-indicator of the silica gel has changed to pink from blue (indicating a relative humidity of 30 % or more), please do not use the unused LEDs, the aluminum bag, or the silica gel.

### Notes about Opening a Re-sealed Moisture-Barrier Aluminum Bag

- When opening a vacuumed and re-sealed aluminum bag in order to use the remaining LEDs stored in the bag, if you find that the moisture-indicator of the silica has changed to pink, please do not use the LEDs.

## Disclaimer

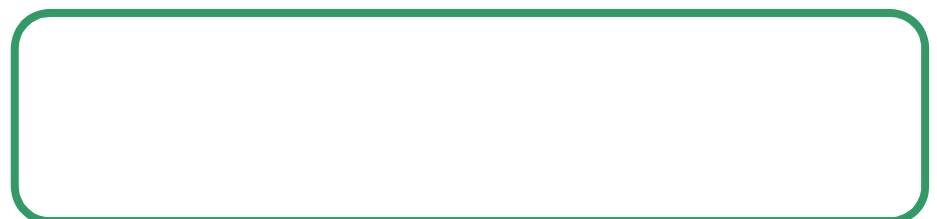
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\*Effective July 2016, Ushio Epitex Inc. is now USHIO OPTO SEMICONDUCTORS, INC.