

Data Sheet

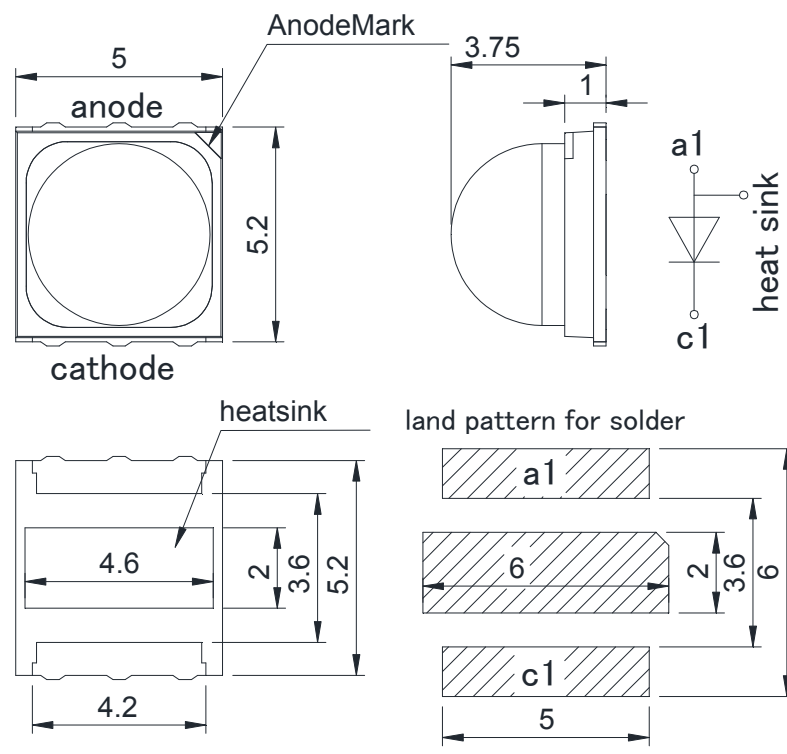
PRELIMINARY

SMBB890D-1100-05

890nm High Power TOP LED



Outline and Internal Circuit



(Unit : mm)

Features

- Chip Material : AlGaAs
- Chip Dimension : 1000um * 1000um
- Number of Chips : 1pce
- Peak Wavelength : 890nm typ.
- Lead Frame Die : Silver Plated on Copper
- Package Resin : PA9T
- Lens : Silicone Resin

Application

Absolute Maximum Ratings (Tc=25°C)

| Item | Symbol | Ratings | Unit |
|-----------------------|--------|------------|------|
| Power Dissipation | PD | 2500 | mW |
| Forward Current | IF | 1000 | mA |
| Pulse Forward Current | IFP | (5000) | mA |
| Reverse Voltage | VR | 5 | V |
| Thermal Resistance | Rthja | 10 | 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)

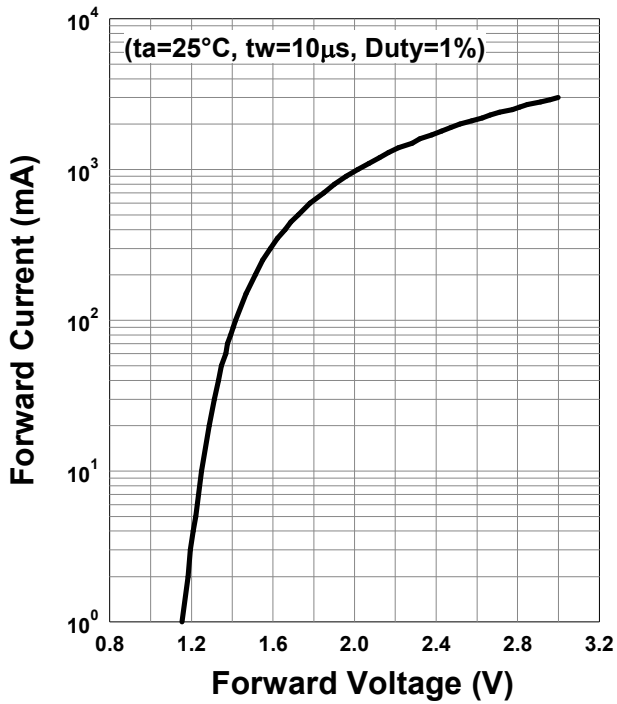
| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|----------------------|-----------------|-----|------|-------|-------|----------------|
| Forward Voltage | VF | | 1.9 | (2.5) | V | IF=800mA |
| | VFP | | 3.0 | | | IFP=3A |
| Total Radiated Power | PO | | 590 | | mW | IF=800mA |
| | | | 2000 | | | IFP=3A |
| Radiant Intensity | IE | | 880 | | mW/sr | IF=800mA |
| | | | 3000 | | | IFP=3A |
| Peak Wavelength | λ_p | 880 | | 900 | nm | IF=800mA |
| Half Width | $\Delta\lambda$ | | 36 | | nm | IF=800mA |
| Viewing Half Angle | $\theta_{1/2}$ | | ±45 | | deg. | IF=100mA |
| Rise Time | tr | | 30 | | ns | IF=800mA |
| Fall Time | tf | | 50 | | ns | IF=800mA |

‡ Radiated Power is measured by S3584-08.

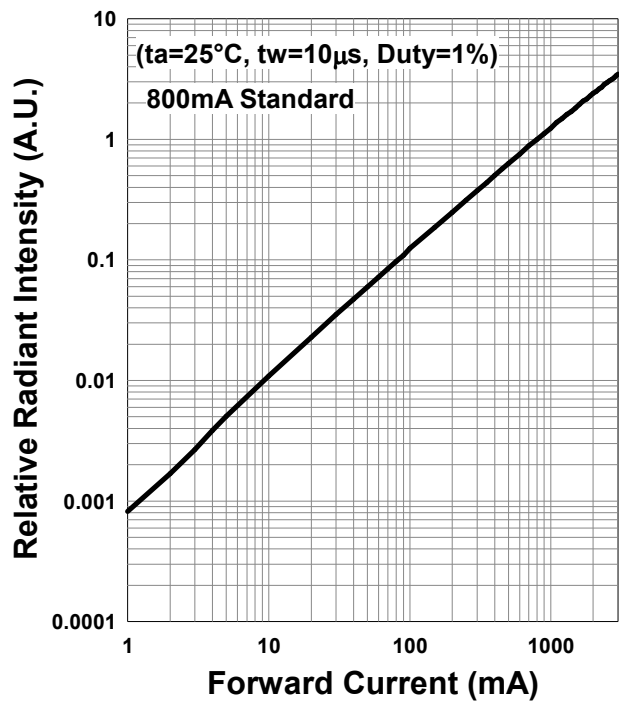
‡ Radiant Intensity is measured by CIE127-2007 Condition B.

Typical Characteristic Curves

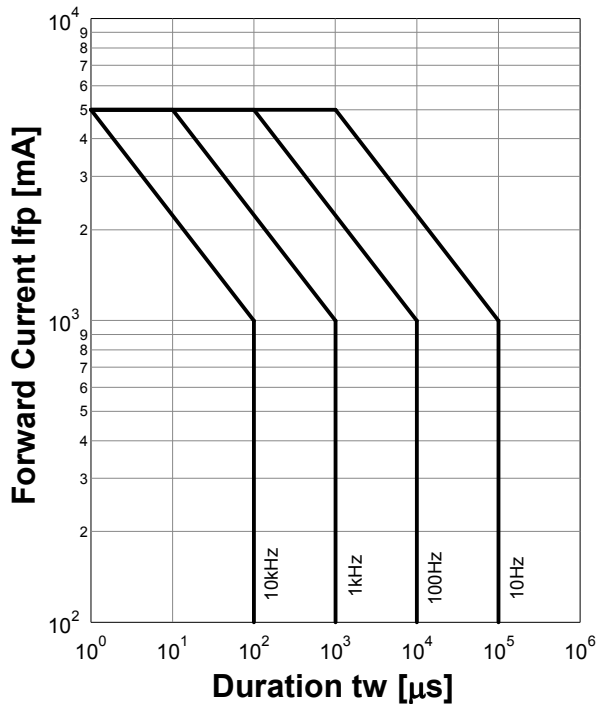
Forward Current - Forward Voltage



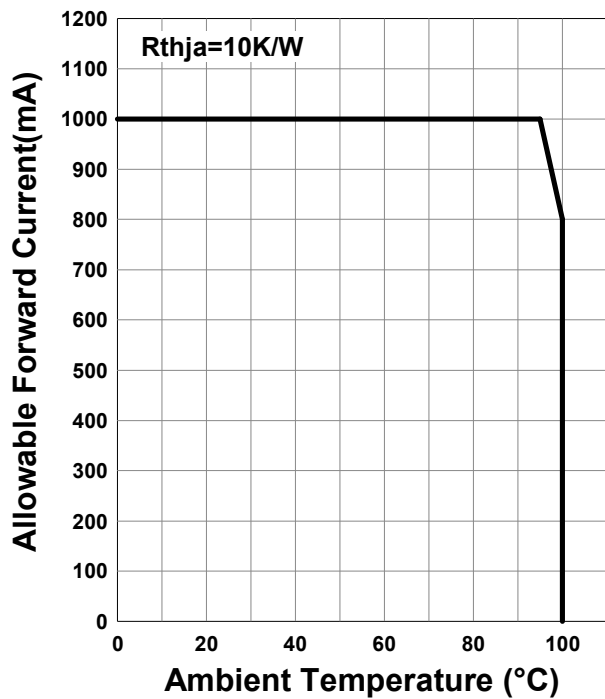
Relative Radiant Intensity - Forward Current



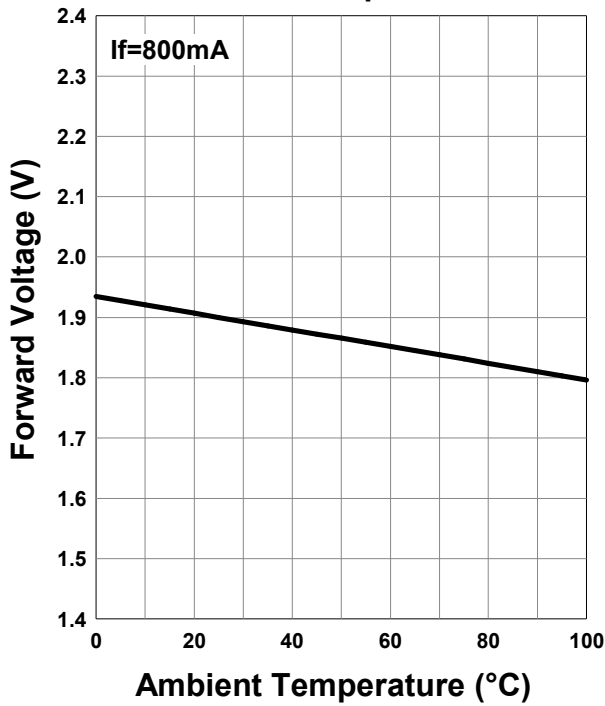
Forward Current - Pulse Duration



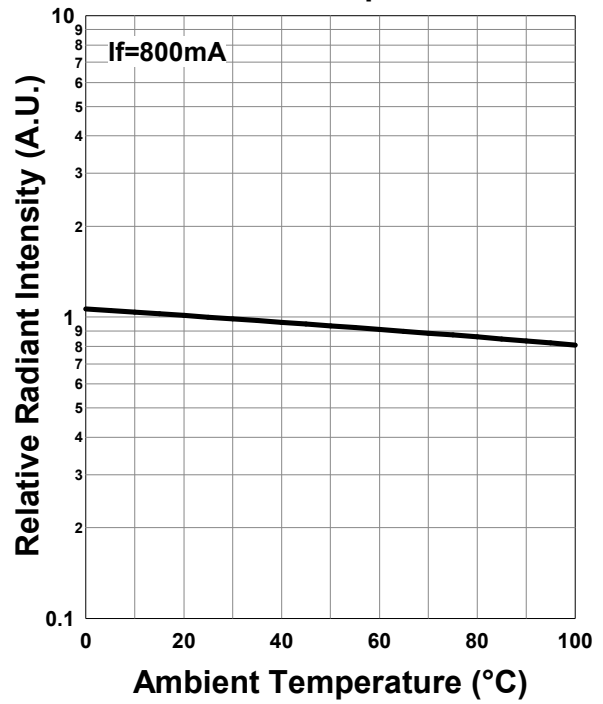
Allowable Forward Current - Ambient Temperature



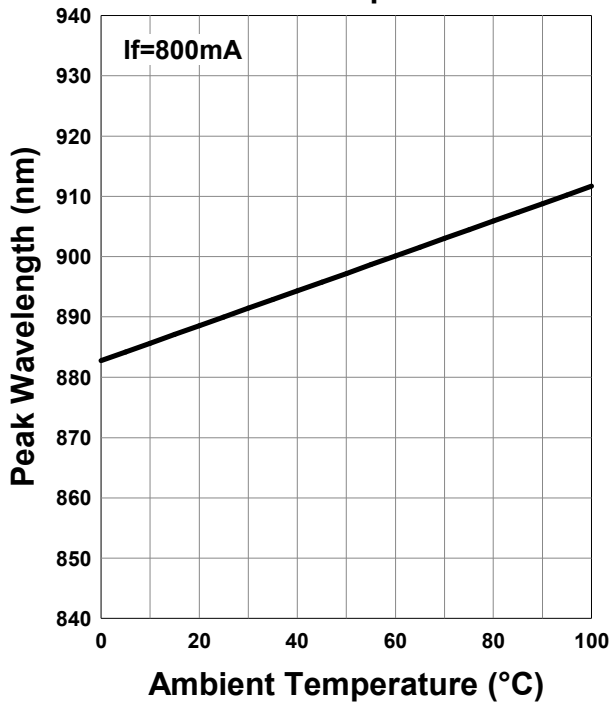
Forward Voltage - Ambient Temperature



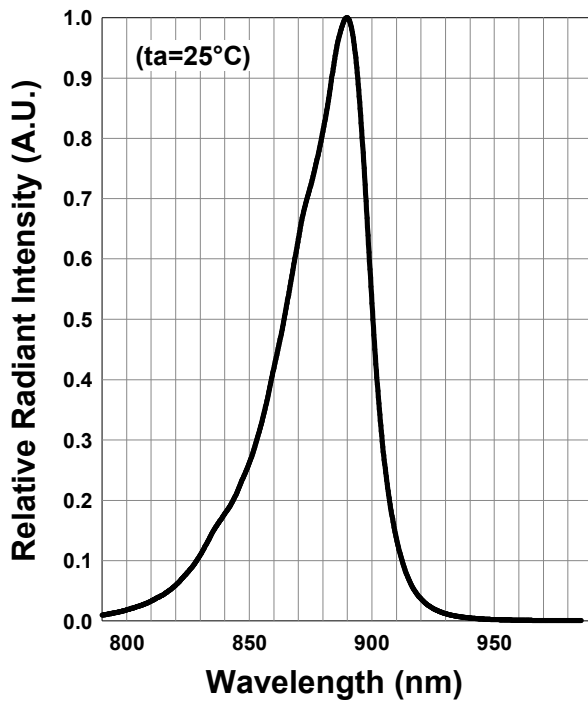
Relative Radiant Intensity - Ambient Temperature



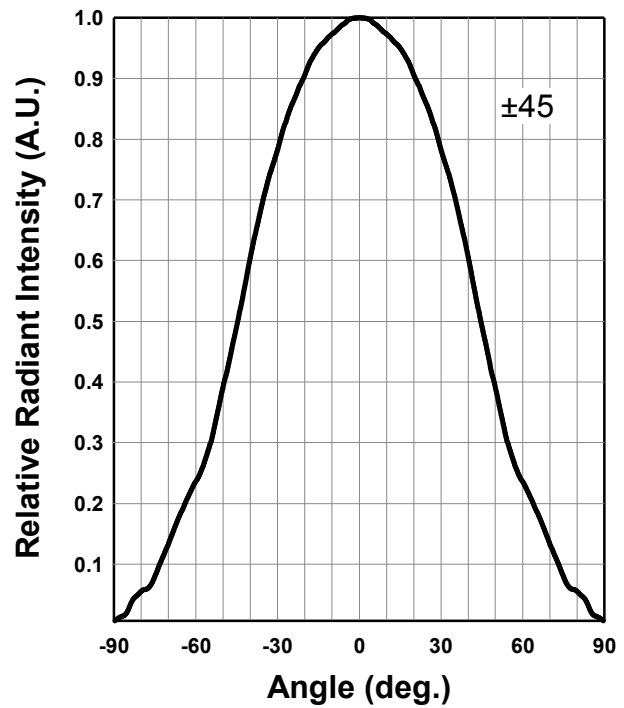
Peak Wavelength - Ambient Temperature



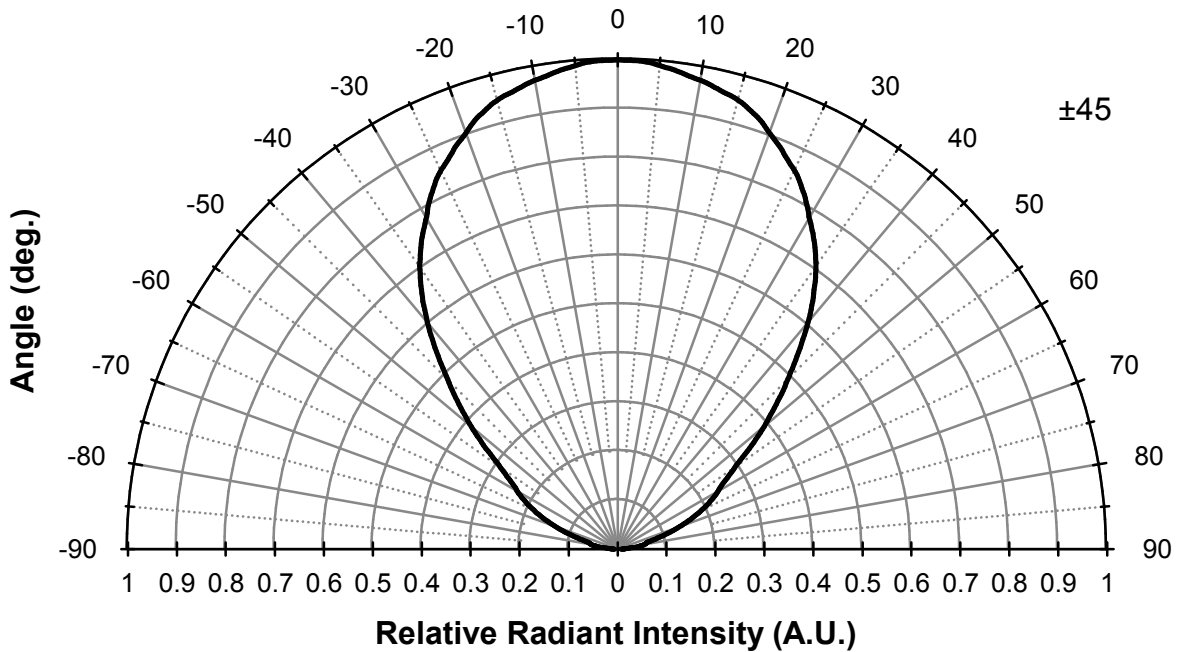
Relative Spectral Emission



Radiation Characteristics



Radiation Characteristics



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.

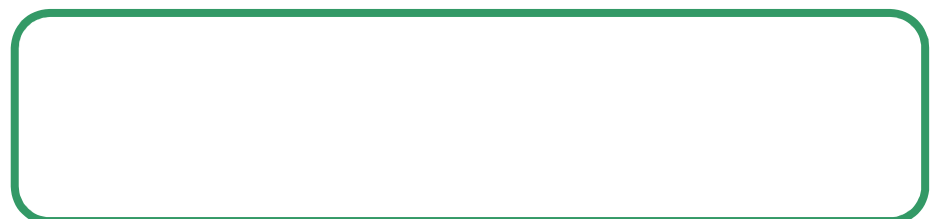
Disclaimer

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Product data and parameters in this catalog are typical values based on reasonably up-to-date measurements.

Product data and parameters may vary by user application and over time.

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