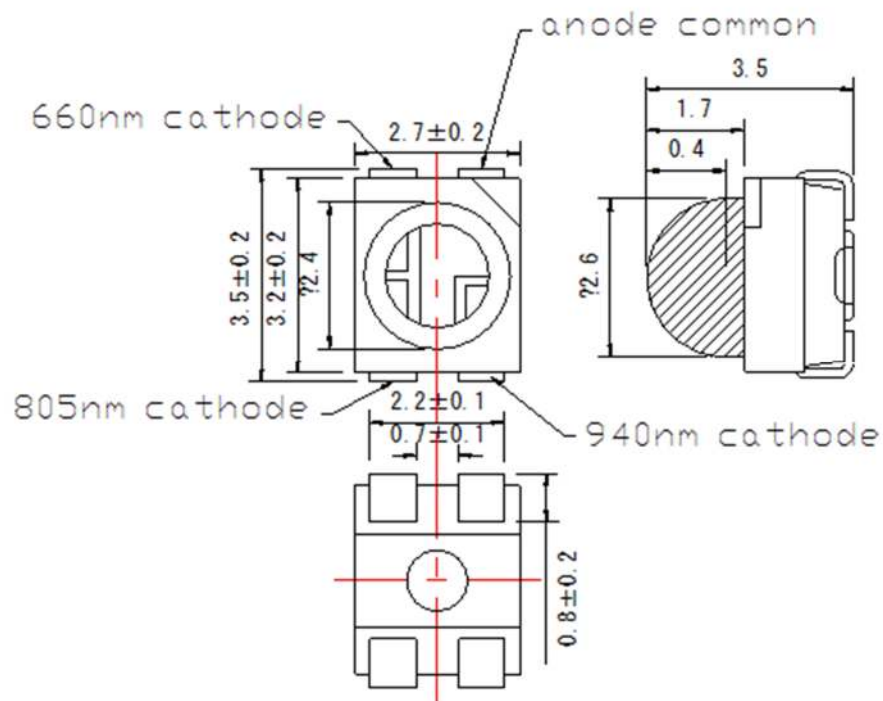


Data Sheet

SMT660N/805/940-23

High Performance Multi-color TOP LED

Outline and Internal Circuit



(Unit : mm)

Features

- Chip Material : AlGaInP / AlGaAs / AlGaAs
- Chip Dimension : 400um * 400um
- Number of Chips : 3pcs
- Peak Wavelength: 660nm / 805nm / 940nm typ.
- Lead Frame Die : Silver Plated
- Package Resin : PA6T
- Lens : Silicone or Epoxy Resin

660nm

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 | 2.5 | V | IF=20mA |
| | VFP | | 3.4 | | | IFP=300mA |
| Total Radiated Power | PO | | 12 | | mW | IF=20mA |
| | | | 160 | | | IFP=300mA |
| Peak Wavelength | λ_p | 650 | | 670 | nm | IF=20mA |
| Half Width | $\Delta\lambda$ | | 16 | | nm | IF=20mA |
| Rise Time | tr | | 30 | | ns | IF=20mA |
| Fall Time | tf | | 30 | | ns | IF=20mA |

‡ Radiated Power is measured by S3584-08.

805nm

Absolute Maximum Ratings (Tc=25°C)

| Item | Symbol | Ratings | Unit |
|-----------------------|--------|------------|------|
| Power Dissipation | PD | 200 | mW |
| Forward Current | IF | 100 | mA |
| Pulse Forward Current | IFP | 500 | 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 | | 1.6 | 1.8 | V | IF=20mA |
| | VFP | | 2.9 | | | IFP=500mA |
| Total Radiated Power | PO | | 7.0 | | mW | IF=20mA |
| | | | 170 | | | IFP=500mA |
| Peak Wavelength | λ_p | 795 | | 815 | nm | IF=20mA |
| Half Width | $\Delta\lambda$ | | 29 | | nm | IF=20mA |
| Rise Time | tr | | 40 | | ns | IF=20mA |
| Fall Time | tf | | 40 | | ns | IF=20mA |

‡ Radiated Power is measured by S3584-08.

940nm

Absolute Maximum Ratings (Tc=25°C)

| Item | Symbol | Ratings | Unit |
|-----------------------|--------|------------|------|
| Power Dissipation | PD | 140 | mW |
| Forward Current | IF | 100 | mA |
| Pulse Forward Current | IFP | 1000 | 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.

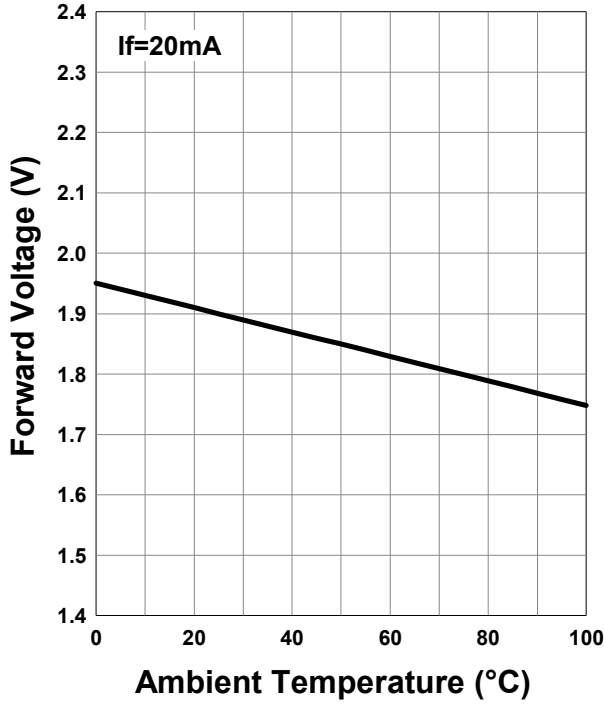
Optical and Electrical Characteristics (Tc=25°C)

| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|----------------------|-----------------|-----|-----|-----|------|----------------|
| Forward Voltage | VF | | 1.2 | 1.4 | V | IF=20mA |
| | VFP | | 2.2 | | | IFP=1A |
| Total Radiated Power | PO | | 4.5 | | mW | IF=20mA |
| | | | 200 | | | IFP=1A |
| Peak Wavelength | λ_p | 930 | | 950 | nm | IF=20mA |
| Half Width | $\Delta\lambda$ | | 50 | | nm | IF=20mA |
| Rise Time | tr | | 200 | | ns | IF=20mA |
| Fall Time | tf | | 800 | | ns | IF=20mA |

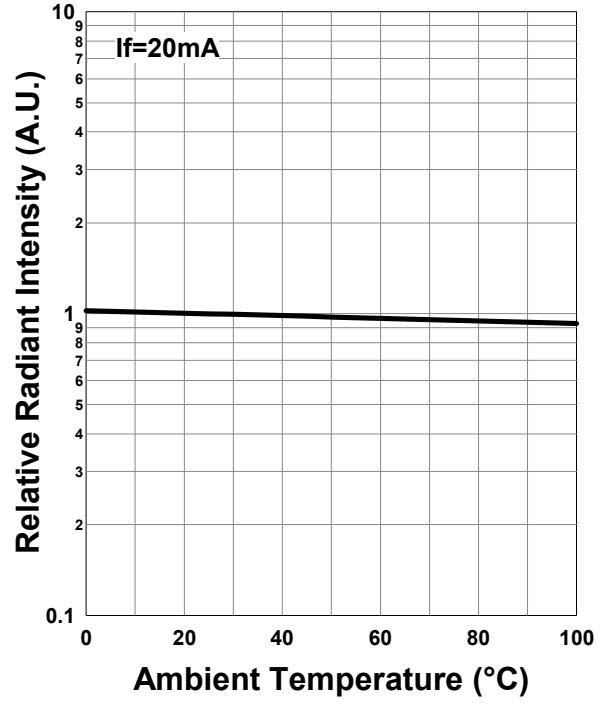
‡ Radiated Power is measured by S3584-08.

660nm

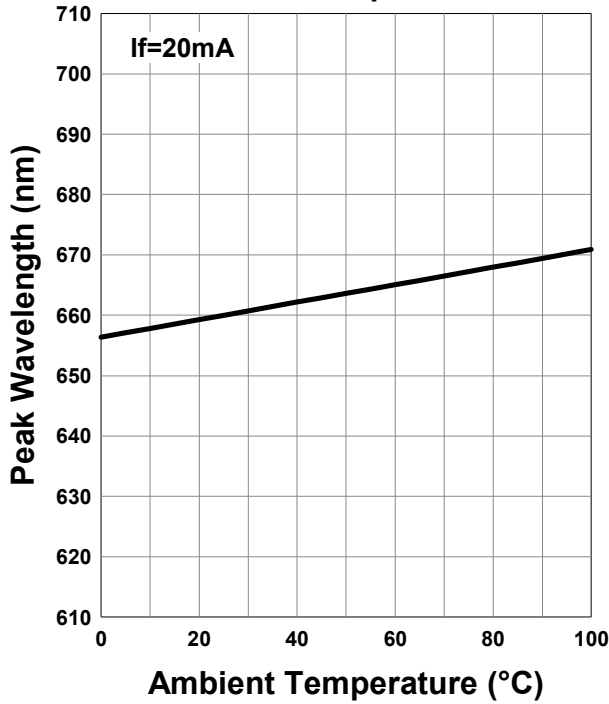
Forward Voltage - Ambient Temperature



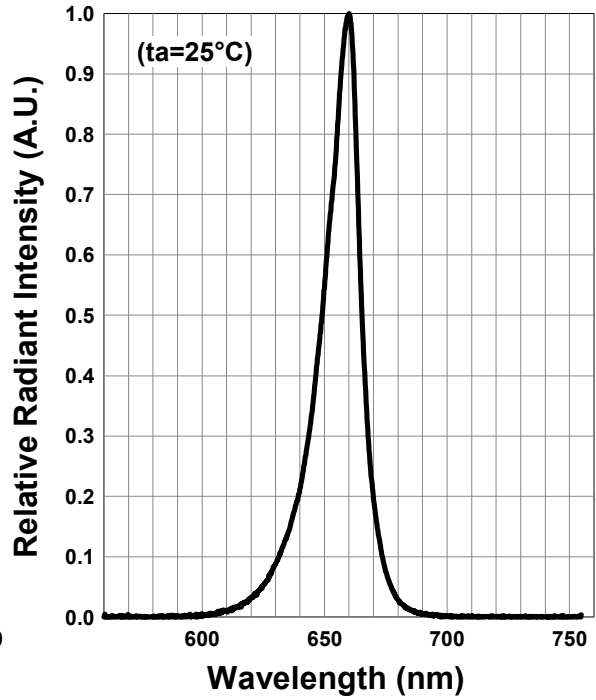
Relative Radiant Intensity - Ambient Temperature



Peak Wavelength - Ambient Temperature

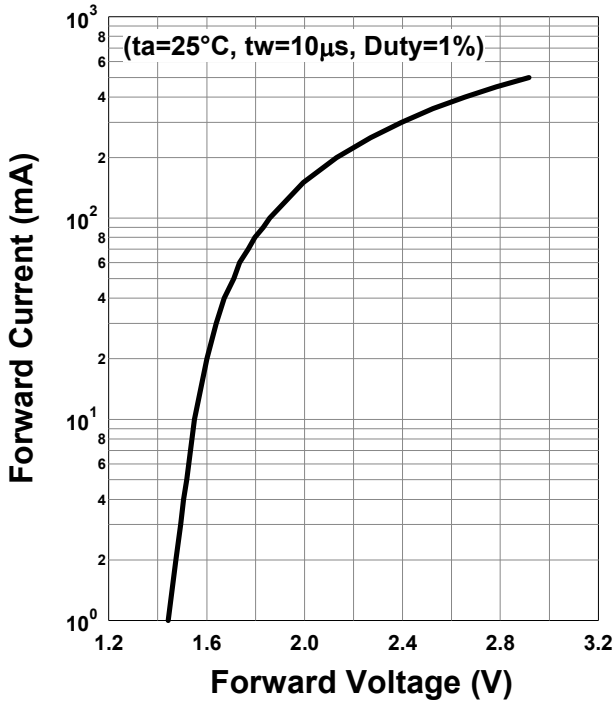


Relative Spectral Emission

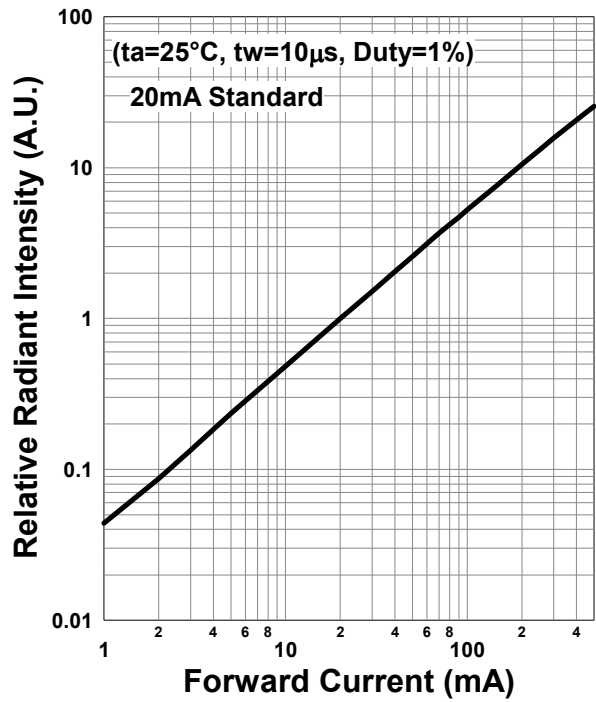


Typical Characteristic Curves 805nm

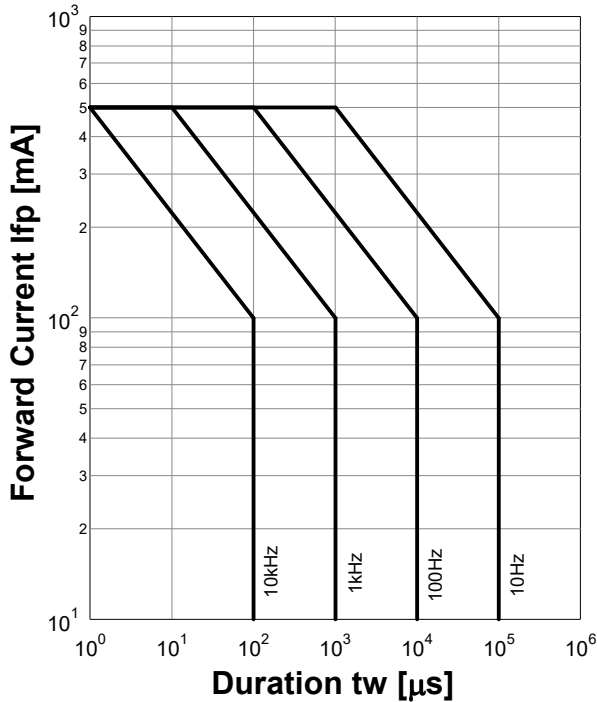
Forward Current - Forward Voltage



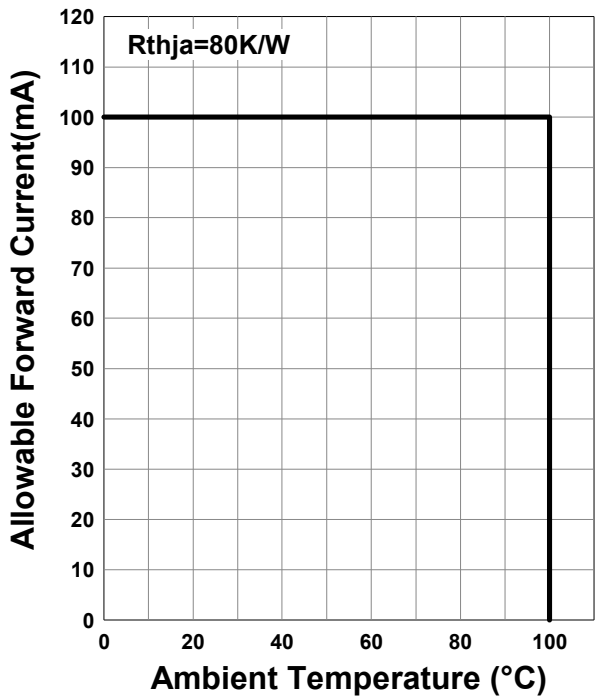
Relative Radiant Intensity - Forward Current



Forward Current - Pulse Duration

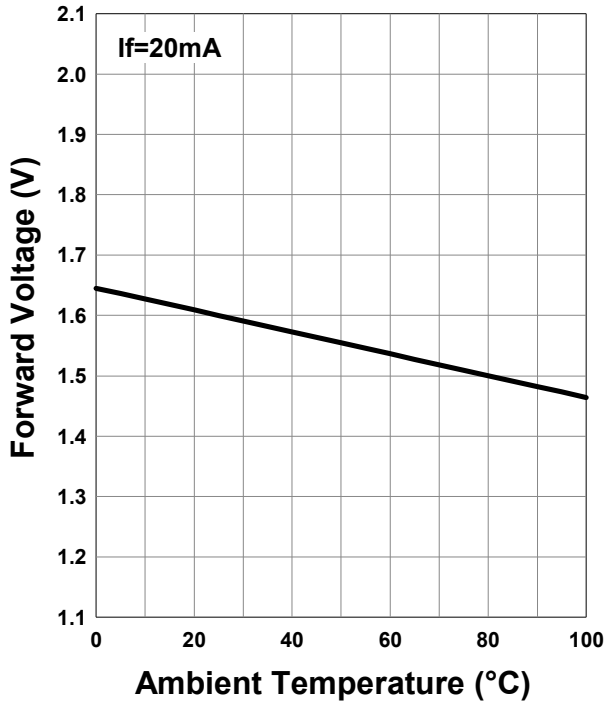


Allowable Forward Current - Ambient Temperature

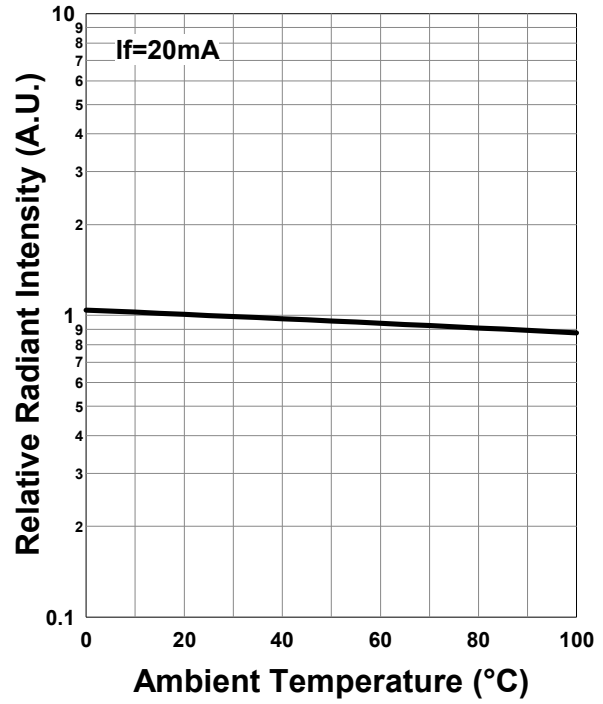


805nm

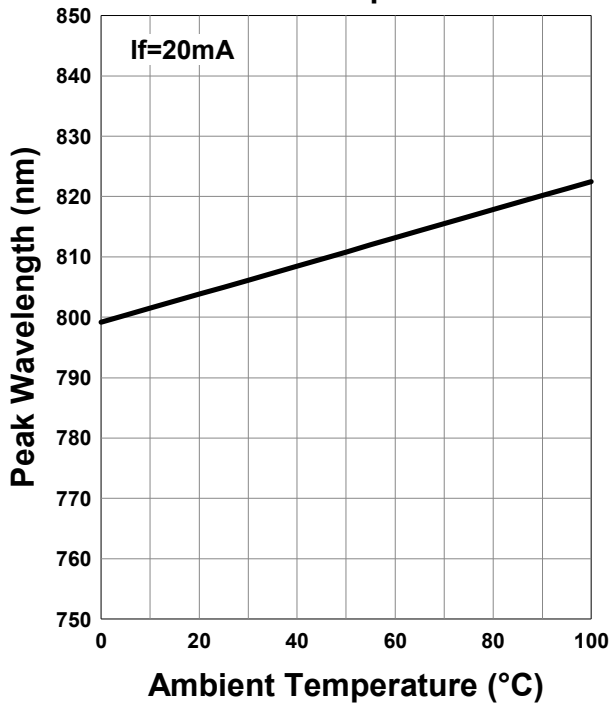
Forward Voltage - Ambient Temperature



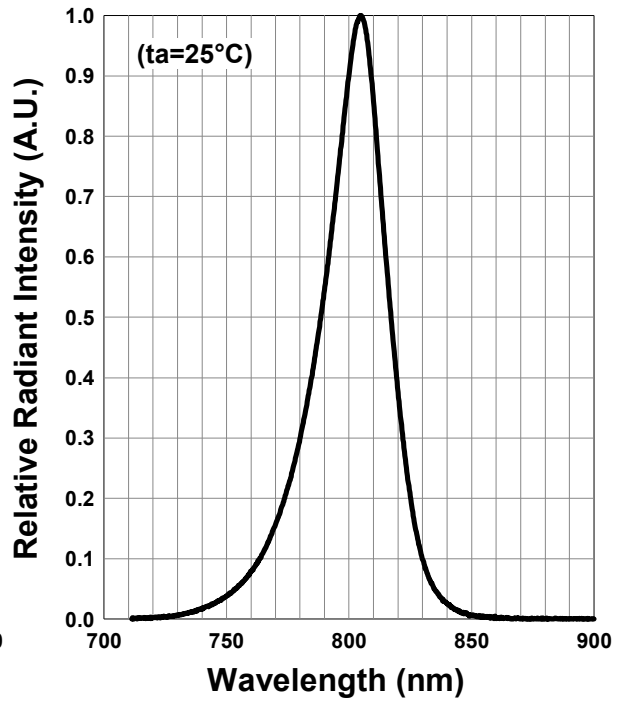
Relative Radiant Intensity - Ambient Temperature



Peak Wavelength - Ambient Temperature

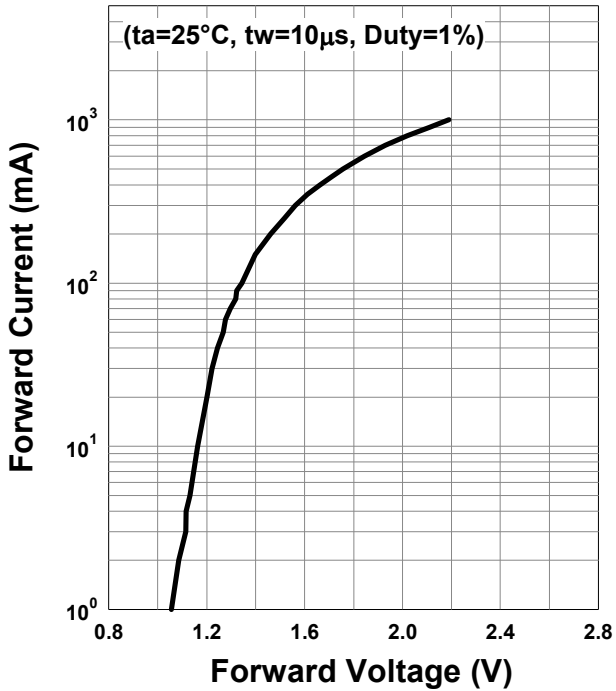


Relative Spectral Emission

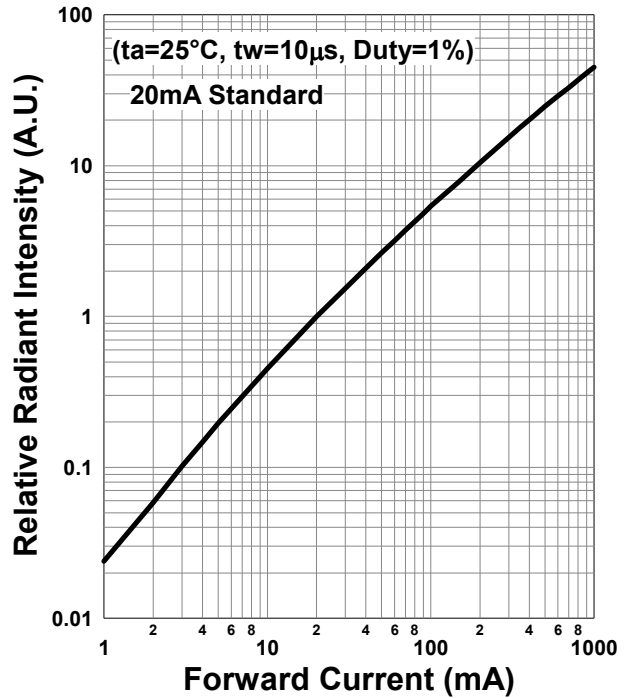


Typical Characteristic Curves 940nm

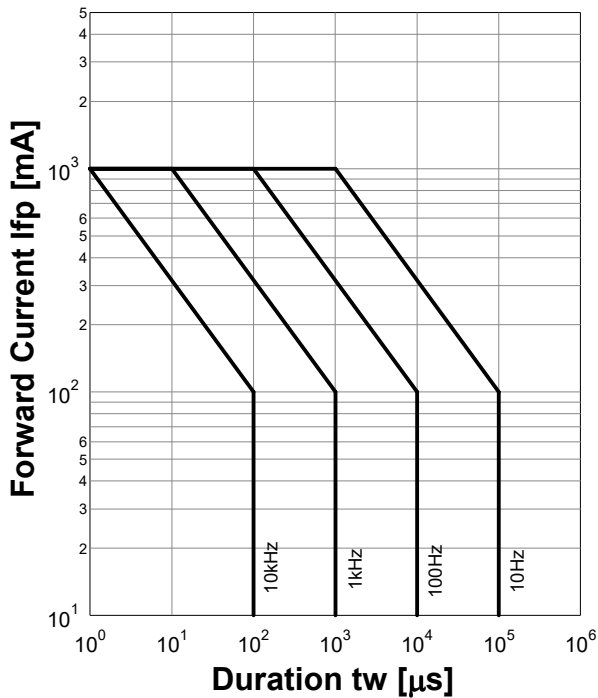
Forward Current - Forward Voltage



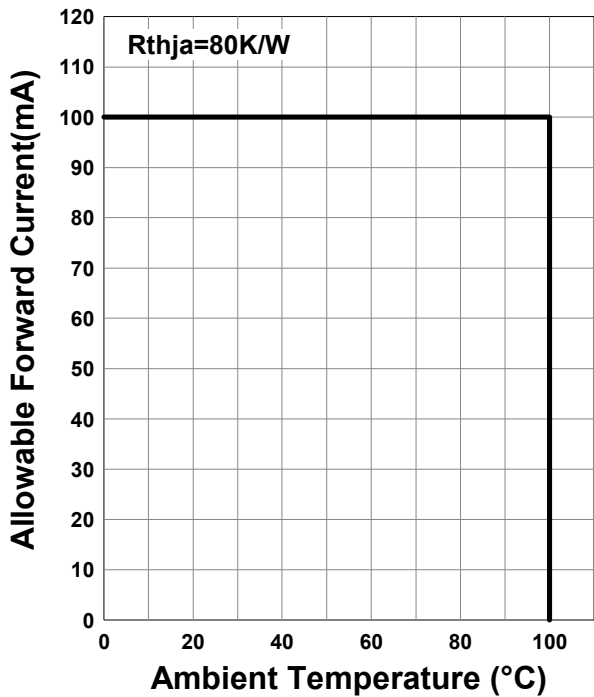
Relative Radiant Intensity - Forward Current



Forward Current - Pulse Duration

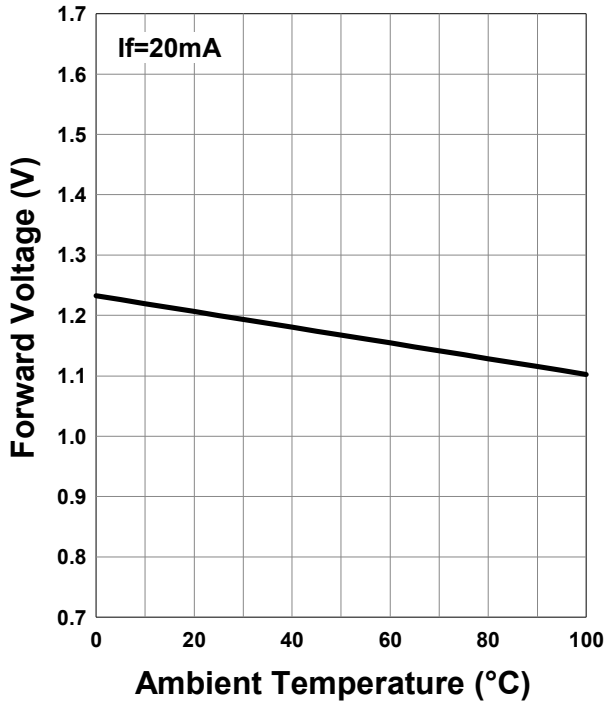


Allowable Forward Current - Ambient Temperature

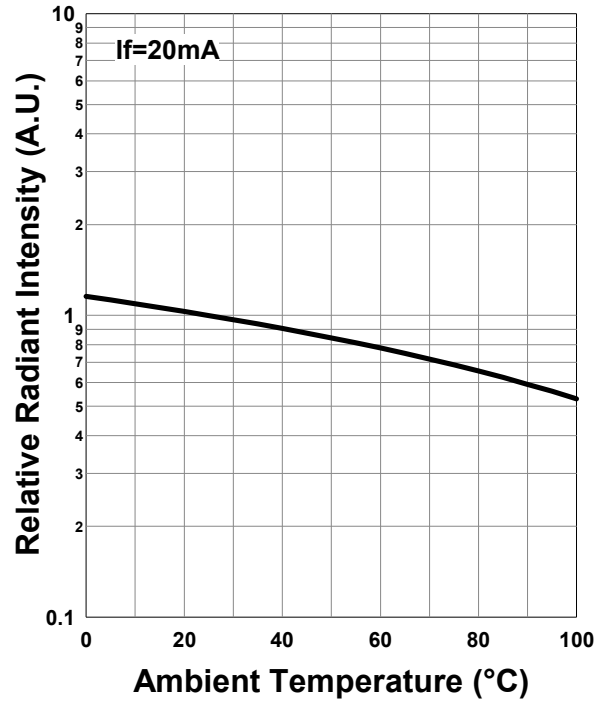


940nm

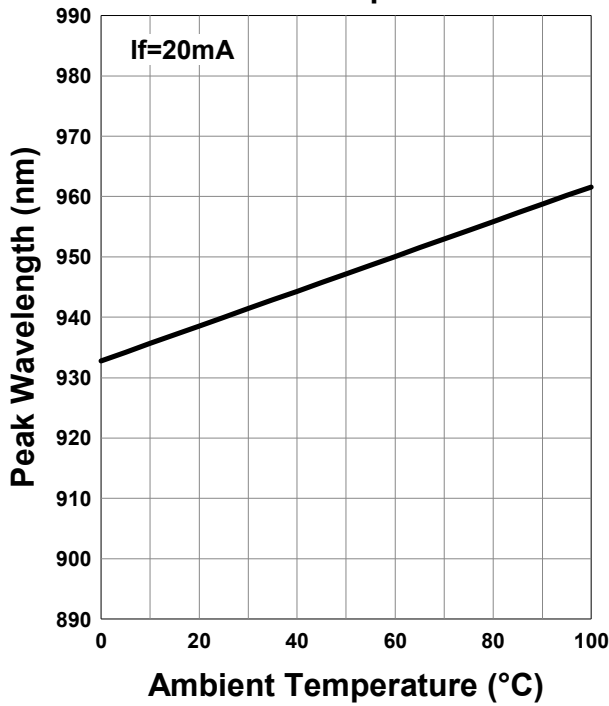
Forward Voltage - Ambient Temperature



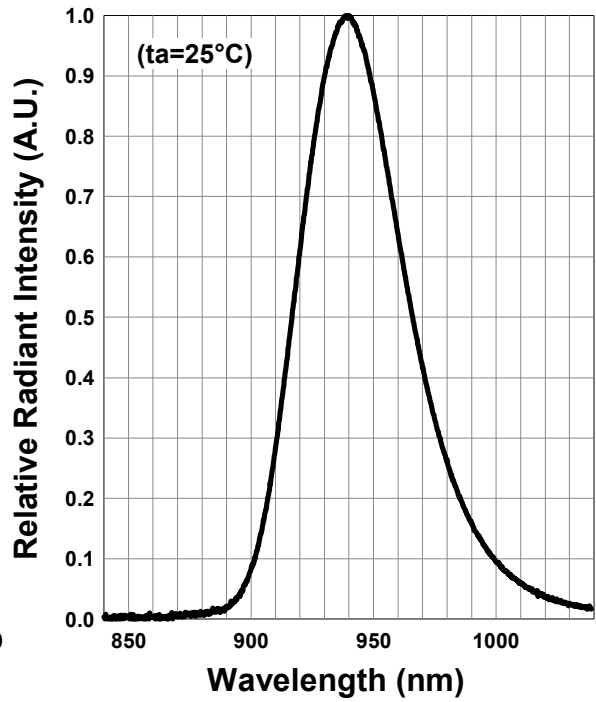
Relative Radiant Intensity - Ambient Temperature



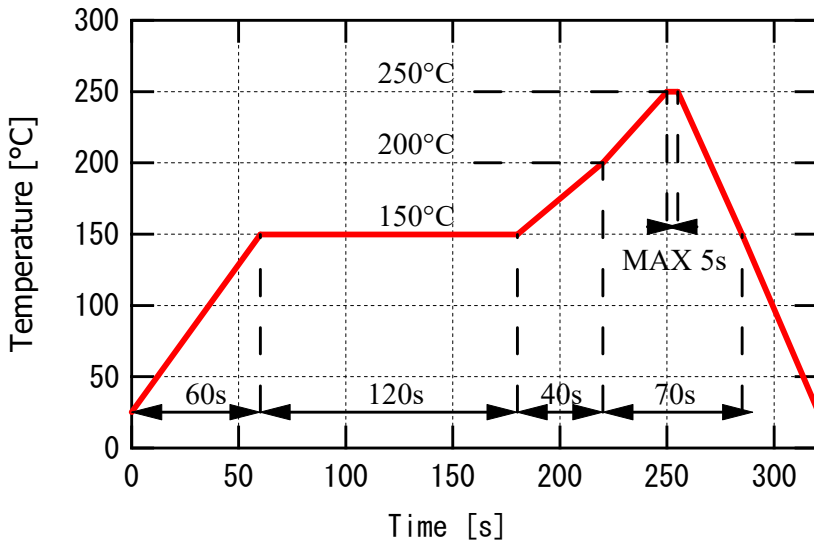
Peak Wavelength - Ambient Temperature



Relative Spectral Emission

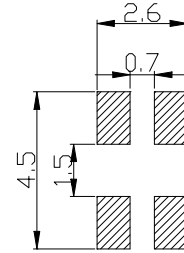


Recommended reflow soldering profile



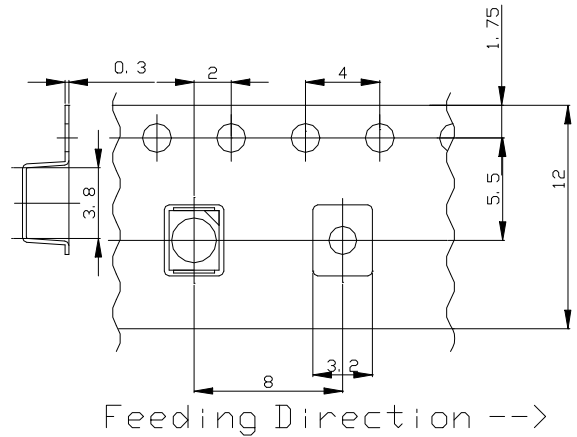
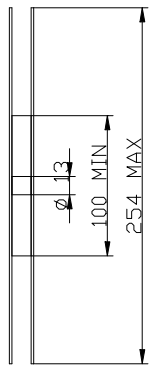
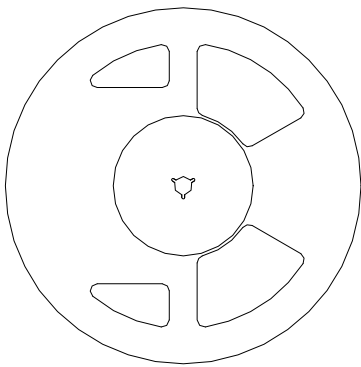
Don't put stress on SMD and a circuit board after soldering

Recommended Land Layout (Unit: mm)



SMD Packing

Tape and Reel Dimensions (Unit: mm)



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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