



## SMB1N-590-02

- Yellow High Power LED
- 590 nm, 120 mW
- SMD package, PA9T
- Dimension: 5.0 x 5.2 x 5.5 mm
- Viewing Angle: 20°



### Description



**SMB1N-590-02** is a surface mount AlGaInP High Power LED with a typical peak wavelength of **590 nm** and radiation of **120 mW**. It comes in SMD package (PA9T) with silver plated soldering pads (lead free solderable), copper heat sink, and molded with silicone resin.

### Maximum Ratings ( $T_{CASE}=25^{\circ}C$ )

| Parameter                  | Symbol     | Values |       | Unit |
|----------------------------|------------|--------|-------|------|
|                            |            | Min.   | Max.  |      |
| Power Dissipation          | $P_D$      |        | 1200  | mW   |
| Forward Current            | $I_F$      |        | 350   | mA   |
| Pulse Forward Current *1   | $I_{FP}$   |        | 1000  | mA   |
| Reverse Voltage            | $V_F$      |        | 5     | V    |
| Thermal Resistance         | $R_{THJA}$ |        | 10    | KW   |
| Junction Temperature       | $T_J$      |        | 100   | °C   |
| Operating Temperature      | $T_{CASE}$ | - 40   | + 85  | °C   |
| Storage Temperature        | $T_{STG}$  | - 40   | + 100 | °C   |
| Lead Solder Temperature *2 | $T_{SLD}$  |        | + 250 | °C   |

\*1 duty=1%, pulse width = 10  $\mu$ s

\*2 must be completed within 5 seconds

### Electro-Optical Characteristics ( $T_{CASE}=25^{\circ}C$ )

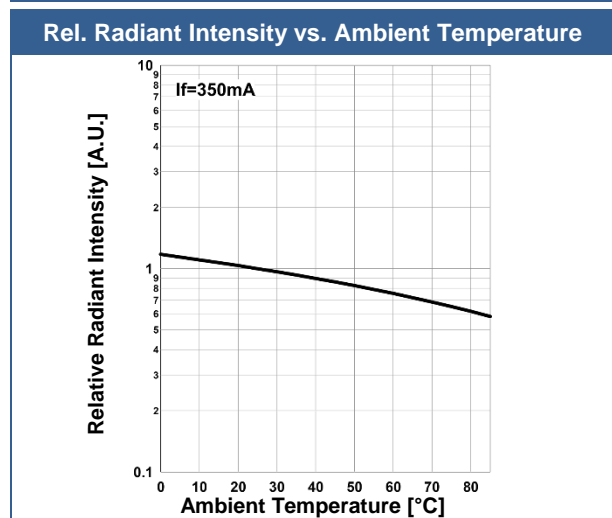
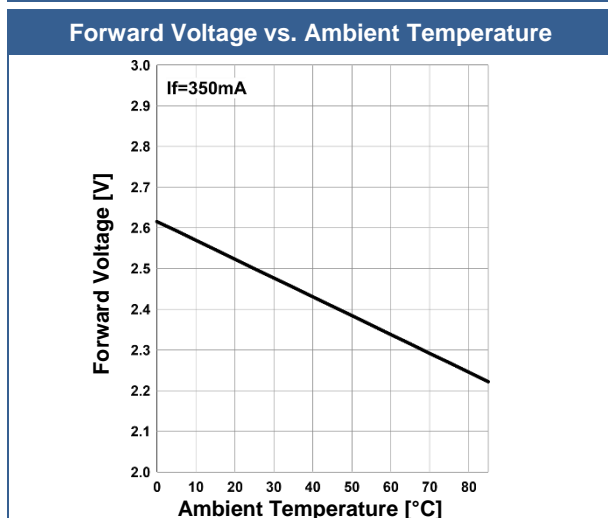
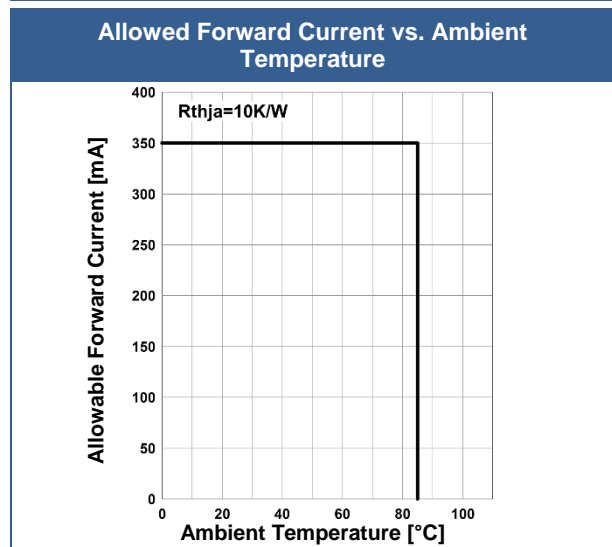
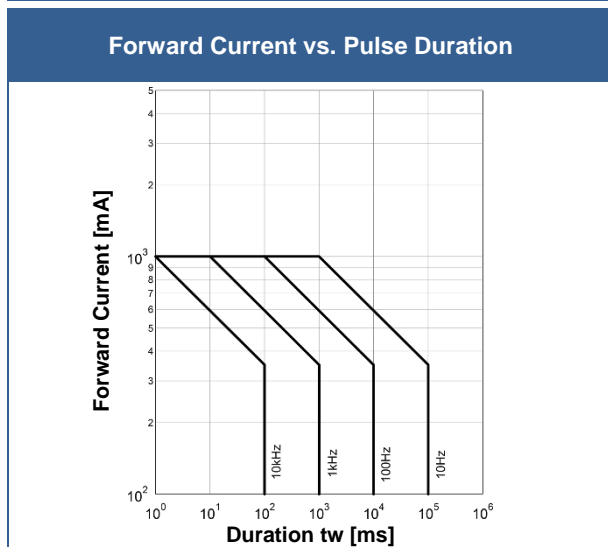
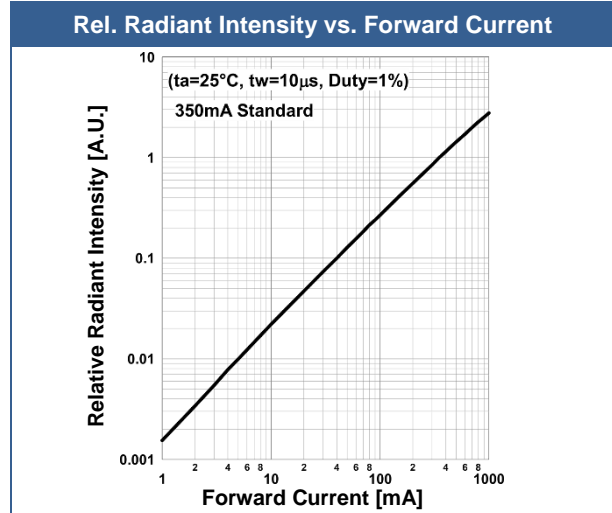
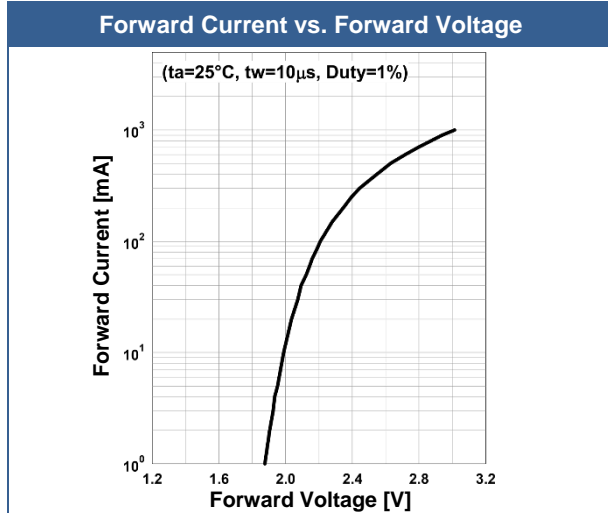
| Parameter            | Symbol          | Conditions  | Values |      |       | Unit  |
|----------------------|-----------------|-------------|--------|------|-------|-------|
|                      |                 |             | Min.   | Typ. | Max.  |       |
| Peak Wavelength      | $\lambda_P$     | $I_F=350mA$ | 580    |      | 600   | nm    |
| Dominant Wavelength  | $\lambda_D$     | $I_F=350mA$ |        | 587  |       | nm    |
| Half Width           | $\Delta\lambda$ | $I_F=350mA$ |        | 14   |       | nm    |
| Forward Voltage      | $V_F$           | $I_F=350mA$ |        | 2.5  | (3.0) | V     |
|                      | $V_{FP}$        | $I_{FP}=1A$ |        | 3.0  |       |       |
| Radiated Power *1    | $P_O$           | $I_F=350mA$ |        | 120  |       | mW    |
|                      |                 | $I_{FP}=1A$ |        | 330  |       |       |
| Radiant Intensity *2 | $I_E$           | $I_F=350mA$ |        | 500  |       | mW/sr |
|                      |                 | $I_{FP}=1A$ |        | 1400 |       |       |
| Luminous Flux        | $\Phi_V$        | $I_F=350mA$ |        | 60   |       | lm    |
| Viewing Angle        | $\varphi$       | $I_F=100mA$ |        | 20   |       | deg.  |
| Rise Time            | $t_R$           | $I_F=350mA$ |        | 60   |       | ns    |
| Fall Time            | $t_F$           | $I_F=350mA$ |        | 40   |       | ns    |

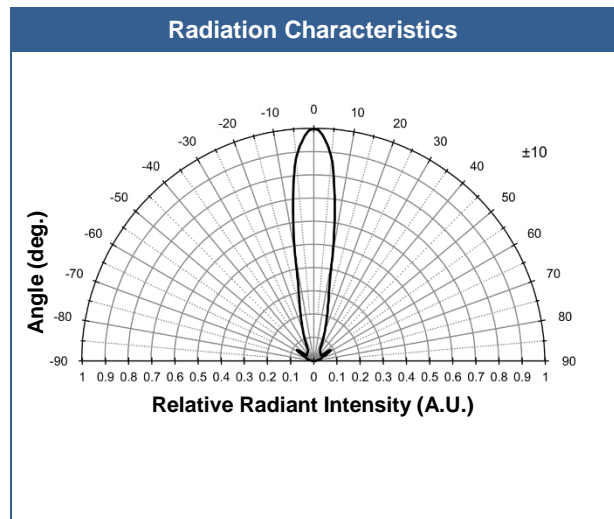
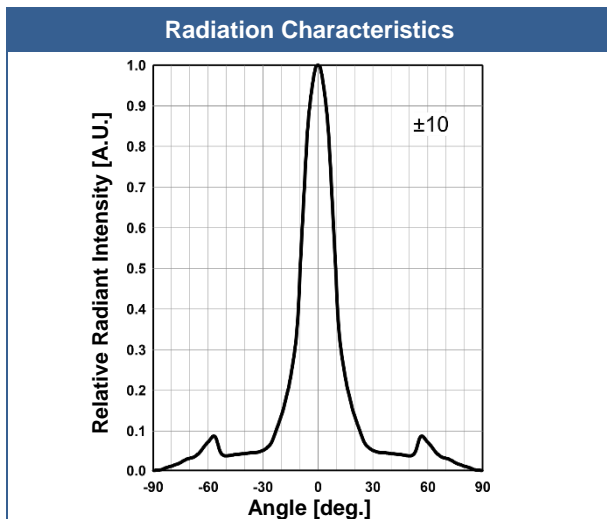
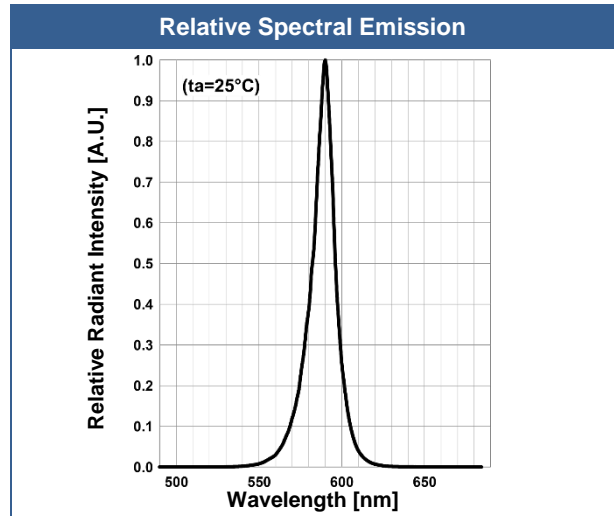
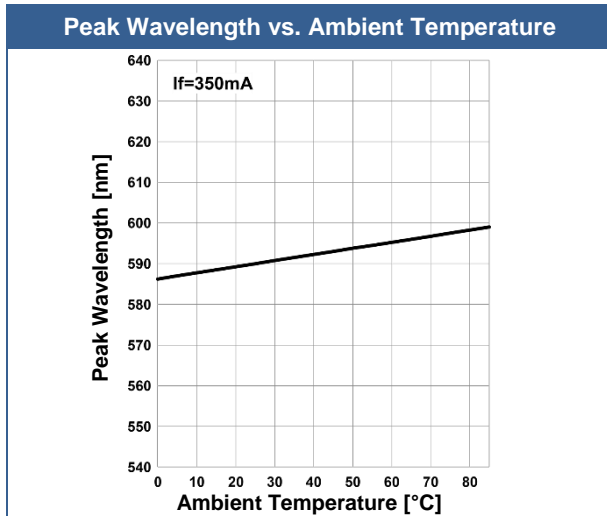
\*1 measured by S3584-08

\*2 measured by CIE127-2007 Condition B



## Typical Performance Curves





## Outline Dimensions

SMB1N
lens

| Lead   | Description |
|--------|-------------|
| Pin a1 | LED Anode   |
| Pin c1 | LED Cathode |

land pattern for solder



All Dimensions in mm

## Precautions

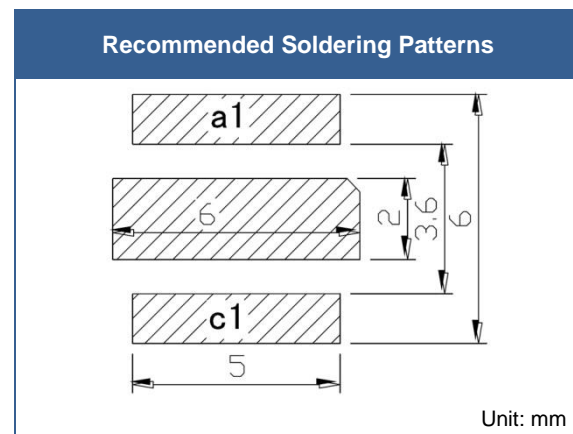
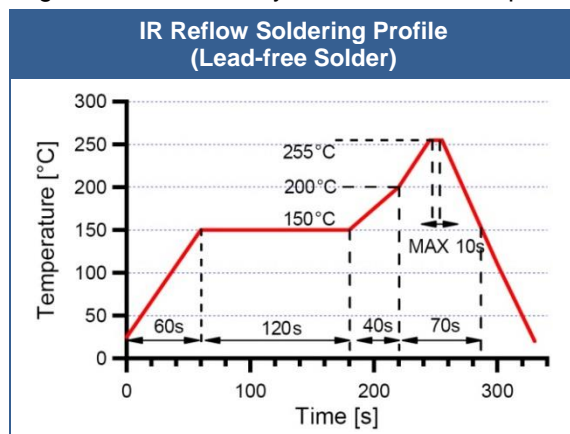
### Soldering:

- Do avoid overheating of the LED
- Do avoid electrostatic discharge (ESD)
- Do avoid mechanical stress, shock, and vibration
- Do only use non-corrosive flux
- Do not apply current to the LED until it has cooled down to room temperature after soldering

### Recommended soldering conditions:

This LED is designed to be reflow soldered on to a PCB. If dip soldered or hand soldered, its reliability cannot be guaranteed.

Nitrogen reflow soldering is recommended. Air flow soldering conditions can cause optical degradation, caused by heat and/or atmosphere.



Above table specifies the maximum allowed duration and temperature during soldering. It is strongly advised to perform soldering at the shortest time and lowest temperature possible.

### Cleaning:

**Cleaning with isopropyl alcohol, propanol, or ethyl alcohol is recommended**

DO NOT USE acetone, chloroform, trichloroethylene, or MKS

DO NOT USE ultrasonic cleaners

### Static Electricity:

**LEDs are sensitive to electrostatic discharge (ESD).** Precautions against ESD must be taken when handling or operating these LEDs. Surge voltage or electrostatic discharge can result in complete failure of the device.

### Radiation:

During operation these LEDs do emit **high intensity light**, which is hazardous to skin and eyes, and may cause cancer. Do avoid exposure to the emitted light. **Protective glasses are recommended.** It is further advised to attach a warning label on products/systems.

### Operation:

**Do only operate LEDs with a current source.**

Running these LEDs from a voltage source will result in complete failure of the device.

Current of a LED is an exponential function of the voltage across it. Usage of current regulated drive circuits is mandatory.



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