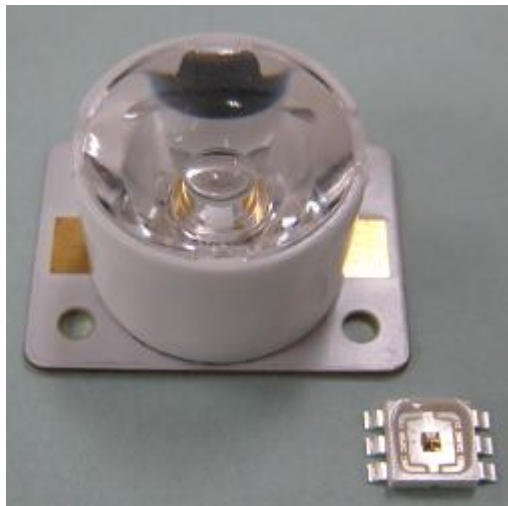


# SMB810NR-1100-TINA-W High Power type Top LED

The application data of SMB810NR-1100 and LEDIL's TINA-N83 Wide of lenses is described below. SMB810NR-1100 is an AlGaAs LED mounted on copper heat sink with a 5\*5 mm package. TINA-N83 Wide is high condensing lens which material is grade PC. Dimension is 16.1 x 10.1mm. These devices are available to be operated and 1800mW/sr at IFP=3A with FWHM Angle ±21.

◆ Specifications

- 1) Product Name High Power Top LED
- 2) Type No. SMB810NR-1100-TINA-W
- 3) Chip
  - (1) Chip Material GaAlAs
  - (2) Chip Dimension 1000um\*1000um
  - (3) Chip Number 1pce
  - (4) Peak Wavelength 810nm typ.
- 4) Package
  - (1) Lead Frame Die Silver Plated on Copper
  - (2) Package Resin PPA Resin
  - (3) Lens Polycarbonate



◆ Absolute Maximum Ratings

| Item                  | Symbol            | Maximum Rated Value | Unit | Ambient Temperature  |
|-----------------------|-------------------|---------------------|------|----------------------|
| Power Dissipation     | P <sub>D</sub>    | 2500                | mW   | T <sub>a</sub> =25°C |
| Forward Current       | I <sub>F</sub>    | 1000                | mA   | T <sub>a</sub> =25°C |
| Pulse Forward Current | I <sub>FP</sub>   | 3000                | mA   | T <sub>a</sub> =25°C |
| Reverse Voltage       | V <sub>R</sub>    | 5                   | V    | T <sub>a</sub> =25°C |
| Thermal Resistance    | R <sub>thja</sub> | 10                  | K/W  |                      |
| Junction Temperature  | T <sub>j</sub>    | 135                 | °C   |                      |
| Operating Temperature | T <sub>OPR</sub>  | -40 ~ +125          | °C   |                      |
| Storage Temperature   | T <sub>STG</sub>  | -40 ~ +125          | °C   |                      |
| Soldering Temperature | T <sub>SOL</sub>  | 255                 | °C   |                      |

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

‡Soldering condition: Soldering condition must be completed within 5 seconds at 255°C

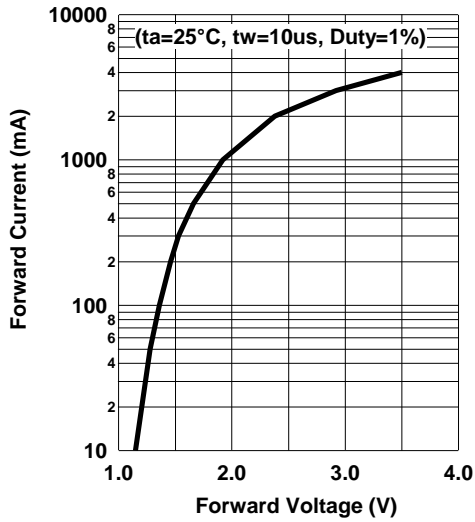
◆ Electro-Optical Characteristics [T<sub>a</sub>=25°C]

| Item               | Symbol                          | Condition              | Minimum | Typical | Maximum | Unit  |
|--------------------|---------------------------------|------------------------|---------|---------|---------|-------|
| Forward Voltage    | V <sub>F</sub> /V <sub>FP</sub> | I <sub>F</sub> =1000mA |         | 2.1     | 2.5     | V     |
|                    |                                 | I <sub>FP</sub> =3A    |         | 3.5     | 4.5     |       |
| Radiated Power     | P <sub>O</sub>                  | I <sub>F</sub> =1000mA | 200     | 300     |         | mW    |
|                    |                                 | I <sub>FP</sub> =3A    |         | 900     |         |       |
| Radiant Intensity  | I <sub>E</sub>                  | I <sub>F</sub> =1000mA |         | 600     |         | mW/sr |
|                    |                                 | I <sub>FP</sub> =3A    |         | 1800    |         |       |
| Peak Wavelength    | λ <sub>P</sub>                  | I <sub>F</sub> =100mA  |         | 810     |         | nm    |
| Half Width         | Δλ                              | I <sub>F</sub> =100mA  |         | 20      |         | nm    |
| Viewing Half Angle | θ <sub>1/2</sub>                | I <sub>F</sub> =100mA  |         | ±21     |         | deg.  |
| Rise Time          | t <sub>r</sub>                  | I <sub>F</sub> =100mA  |         | 25      |         | ns    |
| Fall Time          | t <sub>f</sub>                  | I <sub>F</sub> =100mA  |         | 15      |         | ns    |

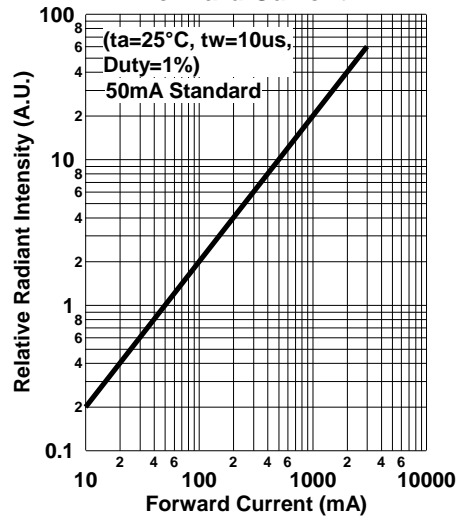
‡Radiated Power is measured by S3584-08.

‡Radiant Intensity is measured by Tektronix J-6512.

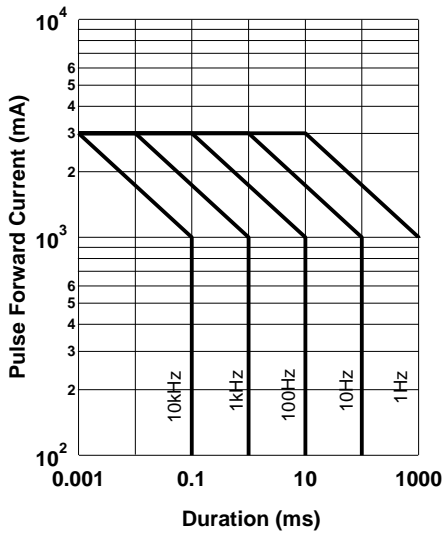
**Forward Current - Forward Voltage**



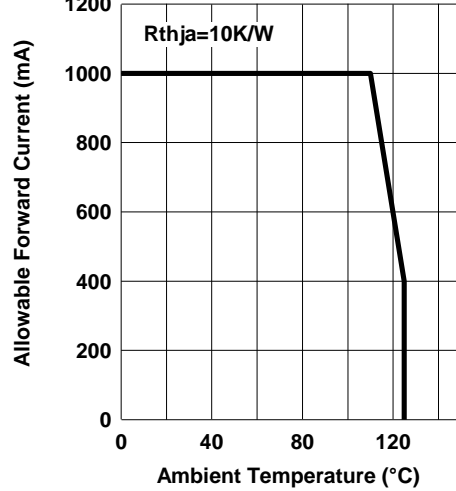
**Relative Radiant Intensity - Forward Current**



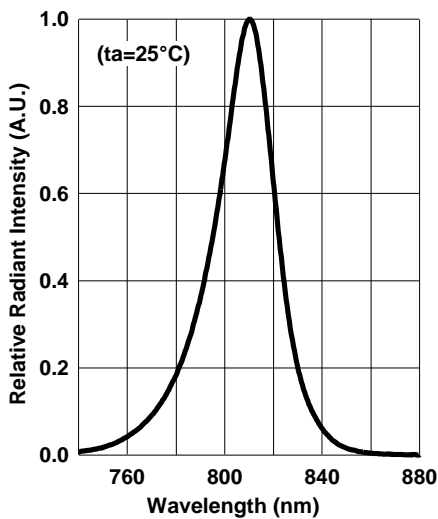
**Forward Current-Pulse Duration**



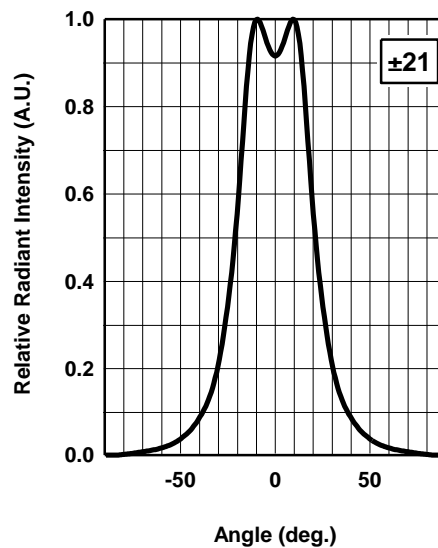
**Allowable Forward Current - Ambient Temperature**

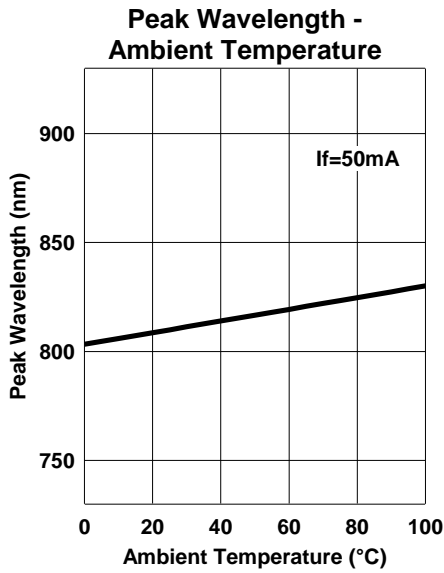
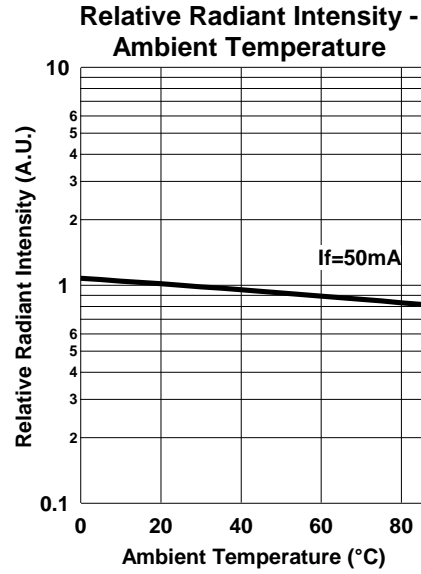
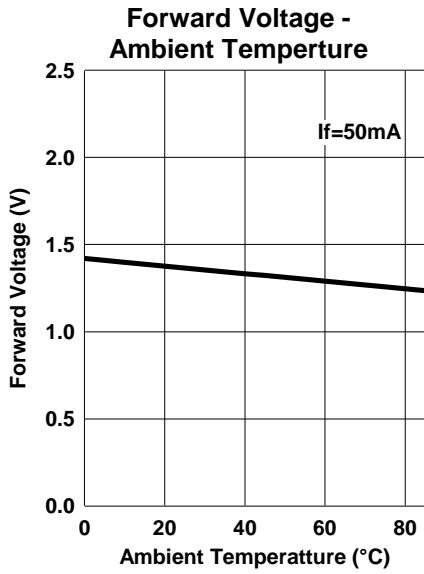


**Relative Spectral Emission**



**Radiation Pattern SMB810NR-1100-TINA-W**





◆ 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.

### < 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.

※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.