

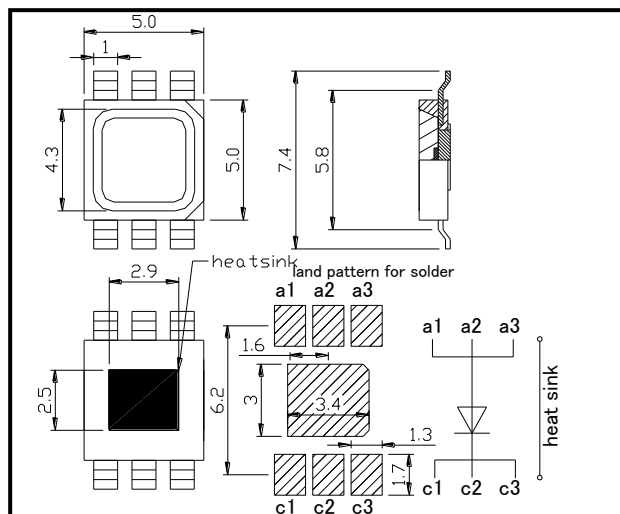
# SMB870-1100-I High Power type Top LED

SMB870-1100-I is an AlGaAs LED mounted on insulating heat sink with a 5\*5 mm package. These devices are available to be operated and 1500mW at IFP=4A.

◆ Specifications

- 1) Product Name High Power Top LED
- 2) Type No. SMB870-1100-I
- 3) Chip
  - (1) Chip Material GaAlAs
  - (2) Chip Dimension 1000um\*1000um
  - (3) Chip Number 1pce
- 4) Package
  - (1) Lead Frame Die Silver Plated on Copper
  - (2) Insulator AlN ceramics
  - (3) Package Resin PPA Resin
  - (4) Lens Epoxy Resin

◆ Outer dimension (Unit: mm)



◆ Absolute Maximum Ratings

| Item                  | Symbol            | Maximum Rated Value | Unit | Ambient Temperature  |
|-----------------------|-------------------|---------------------|------|----------------------|
| Power Dissipation     | P <sub>D</sub>    | 1800                | mW   | T <sub>a</sub> =25°C |
| Forward Current       | I <sub>F</sub>    | 800                 | mA   | T <sub>a</sub> =25°C |
| Pulse Forward Current | I <sub>FP</sub>   | 4000                | 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  |                      |
| Operating Temperature | T <sub>OPR</sub>  | -30 ~ +85           | °C   |                      |
| Storage Temperature   | T <sub>STG</sub>  | -30 ~ +100          | °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

‡Thermal resistance: junction-ambient air flow

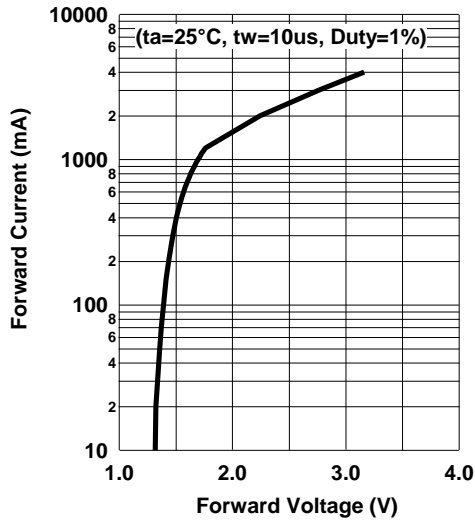
◆ Electro-Optical Characteristics [T<sub>a</sub>=25°C]

| Item               | Symbol           | Condition             | Minimum | Typical | Maximum | Unit  |
|--------------------|------------------|-----------------------|---------|---------|---------|-------|
| Forward Voltage    | V <sub>F</sub>   | I <sub>F</sub> =600mA |         | 1.7     | 2.1     | V     |
|                    | V <sub>FP</sub>  | I <sub>FP</sub> =4A   |         | 4.2     | 5.5     |       |
| Radiated Power     | P <sub>O</sub>   | I <sub>F</sub> =600mA | 160     | 230     |         | mW    |
|                    |                  | I <sub>FP</sub> =4A   |         | 1500    |         |       |
| Radiant Intensity  | I <sub>E</sub>   | I <sub>F</sub> =600mA |         | 70      |         | mW/sr |
|                    |                  | I <sub>FP</sub> =4A   |         | 460     |         |       |
| Peak Wavelength    | λ <sub>P</sub>   | I <sub>F</sub> =100mA |         | 870     |         | nm    |
| Half Width         | Δλ               | I <sub>F</sub> =100mA |         | 45      |         | nm    |
| Viewing Half Angle | θ <sub>1/2</sub> | I <sub>F</sub> =100mA |         | ±66     |         | deg.  |
| Rise Time          | t <sub>r</sub>   | I <sub>F</sub> =100mA |         | 15      |         | ns    |
| Fall Time          | t <sub>f</sub>   | I <sub>F</sub> =100mA |         | 10      |         | ns    |

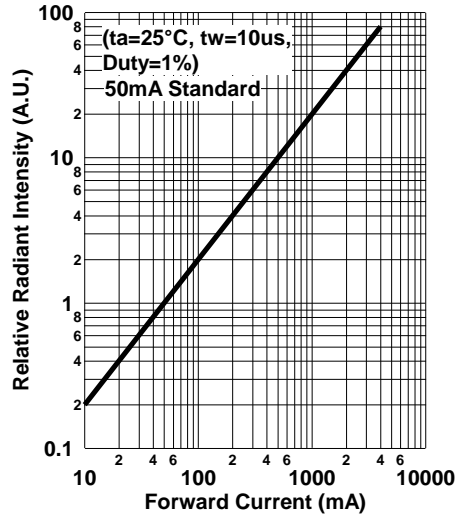
‡Radiated Power is measured by S3584-08.

‡Radiant Intensity is measured by Tektronix J-6512.

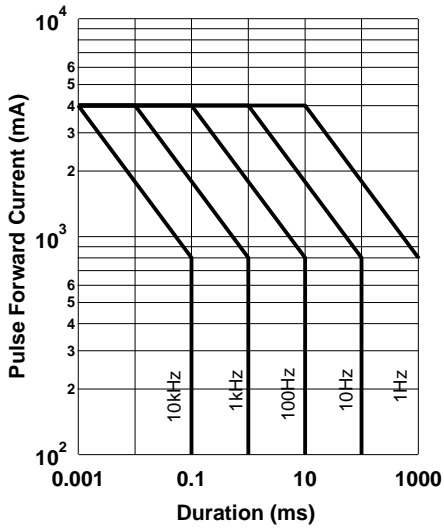
Forward Current - Forward Voltage



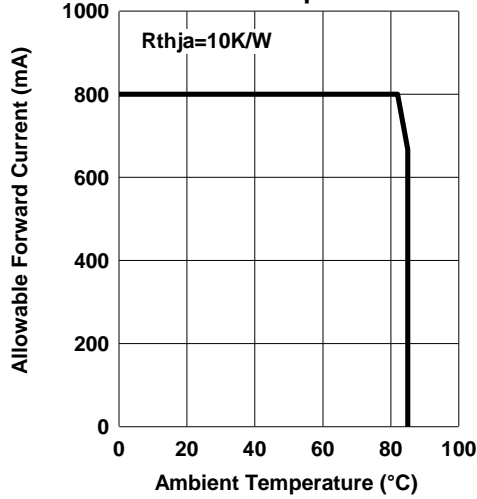
Relative Radiant Intensity - Forward Current



Forward Current-Pulse Duration



Allowable Forward Current - Ambient Temperature



Relative Spectral Emission

