

Lead ( Pb ) Free Product – RoHS Compliant

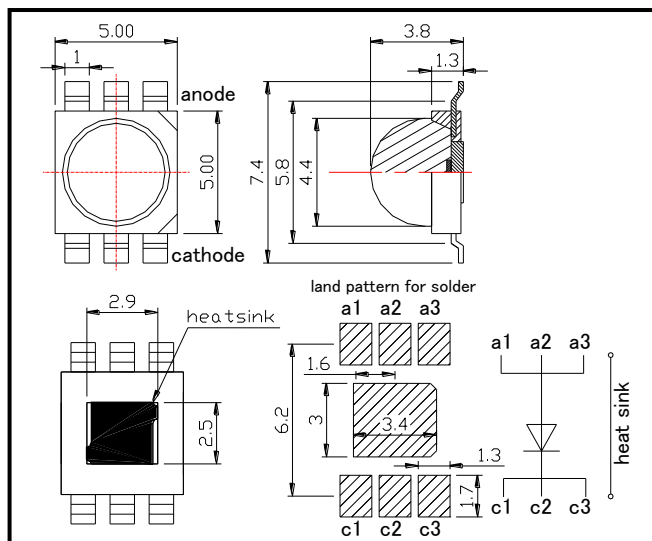
# SMB680-1100-05-I High Power type Top LED with Lens

SMB680-1100-05-I is an AlGaAs LED mounted on copper heat sink with a 5\*5 mm package. These devices are available to be operated and 400mW/sr at IFP=4A.

◆ Specifications

- 1) Product Name High Power Top LED
- 2) Type No. SMB680-1100-05-I
- 3) Chip
  - (1) Chip Material AlGaAs
  - (2) Chip Dimension 1000um\*1000um
  - (3) Chip Number 1pce
  - (4) Peak Wavelength 680nm typ.
- 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>	1600	mW	T <sub>a</sub> =25°C
Forward Current	I <sub>F</sub>	600	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	
Junction Temperature	T <sub>j</sub>	100	°C	
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

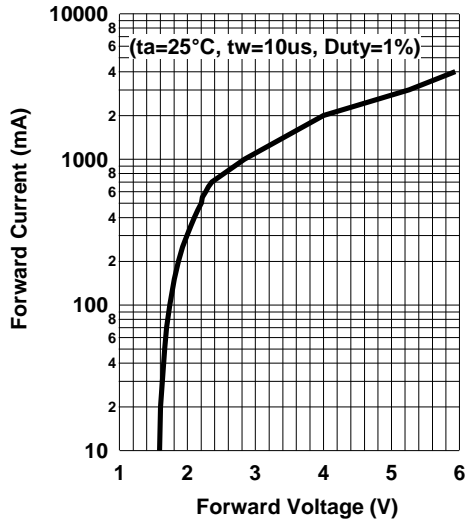
◆ Electro-Optical Characteristics [T<sub>a</sub>=25°C]

Item	Symbol	Condition	Minimum	Typical	Maximum	Unit
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =500mA		2.4	2.7	V
	V <sub>FP</sub>	I <sub>FP</sub> =4A		5.0	6.0	V
Radiated Power	P <sub>O</sub>	I <sub>F</sub> =500mA		90		mW
		I <sub>FP</sub> =4A		720		
Radiant Intensity	I <sub>E</sub>	I <sub>F</sub> =500mA		50		mW/sr
		I <sub>FP</sub> =4A		400		
Peak Wavelength	λ <sub>P</sub>	I <sub>F</sub> =100mA		680		nm
Half Width	Δλ	I <sub>F</sub> =100mA		25		nm
Viewing Half Angle	θ <sub>1/2</sub>	I <sub>F</sub> =100mA		±43		deg.
Rise Time	t <sub>r</sub>	I <sub>F</sub> =100mA		80		ns
Fall Time	t <sub>f</sub>	I <sub>F</sub> =100mA		80		ns

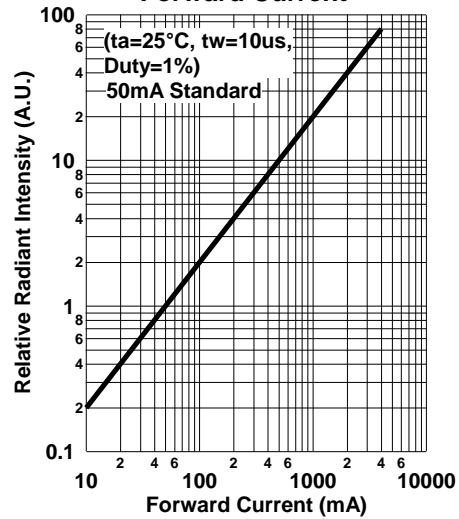
‡Radiated Power is measured by S3584-08.

‡Radiant Intensity is measured by Tektronix J-6512.

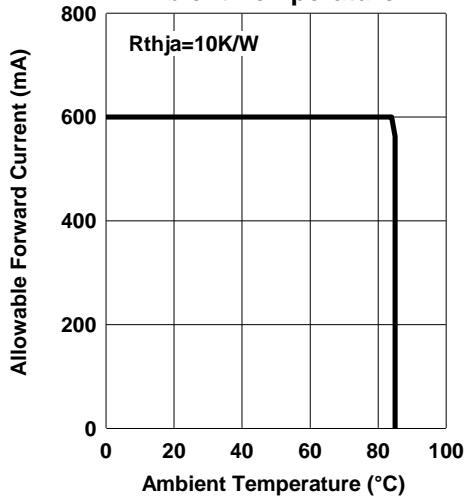
**Forward Current - Forward Voltage**



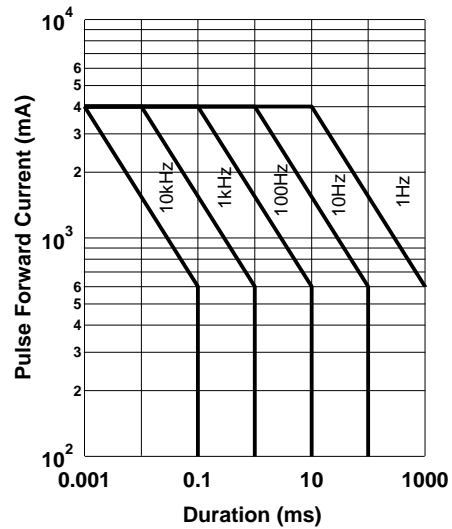
**Relative Radiant Intensity - Forward Current**



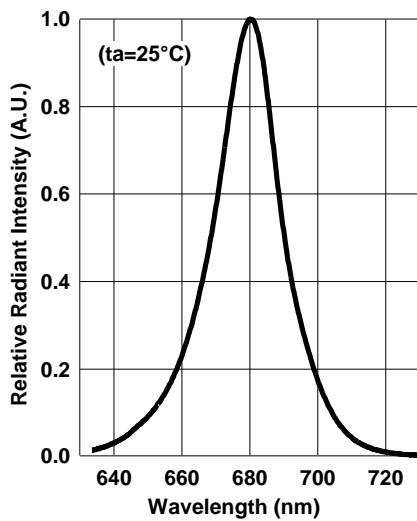
**Allowable Forward Current - Ambient Temperature**

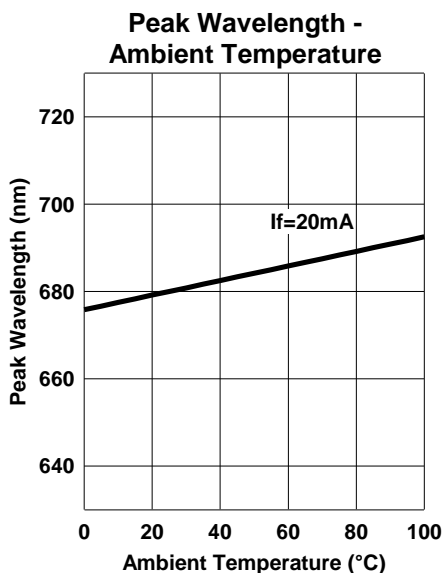
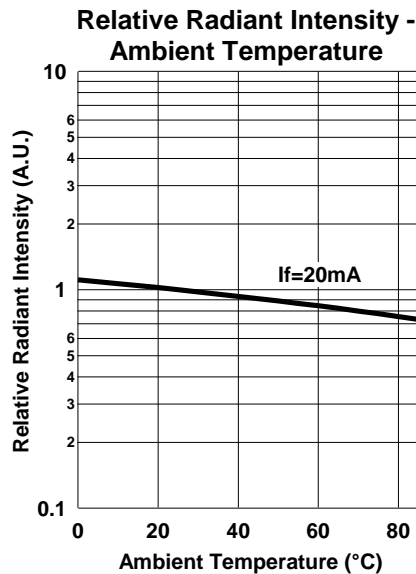
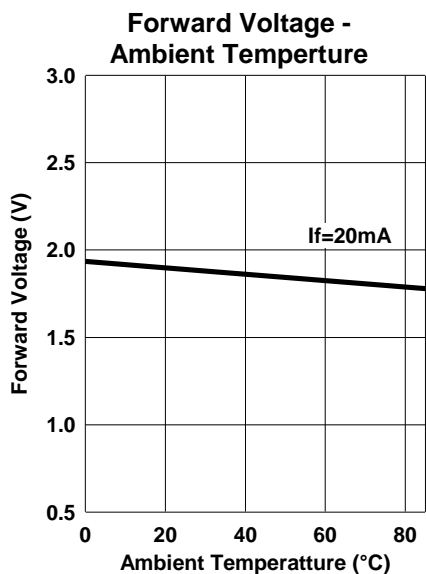


**Forward Current-Pulse Duration**



**Relative Spectral Emission**

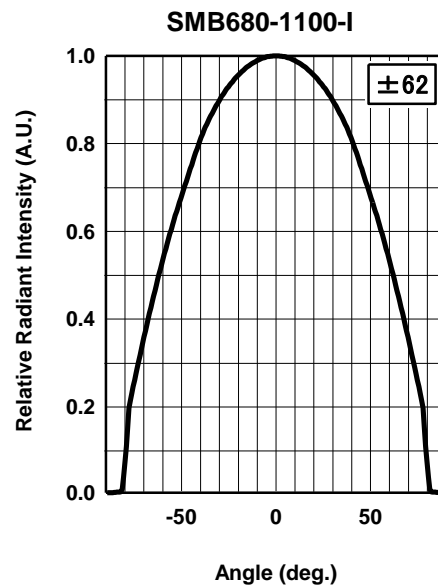
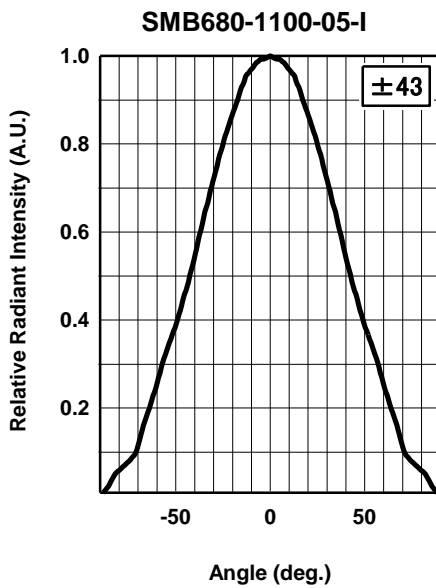
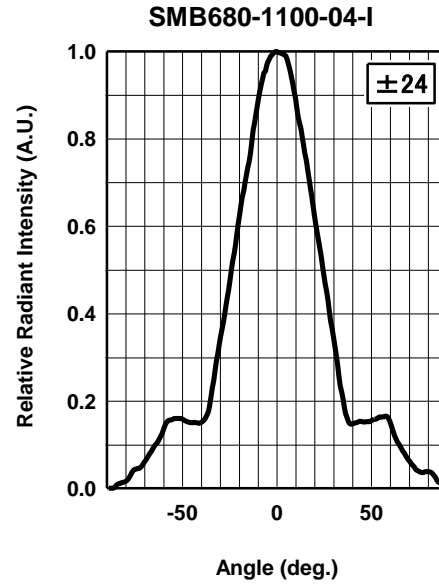
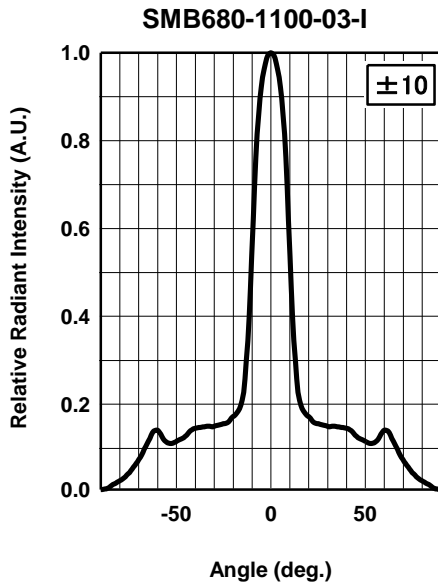
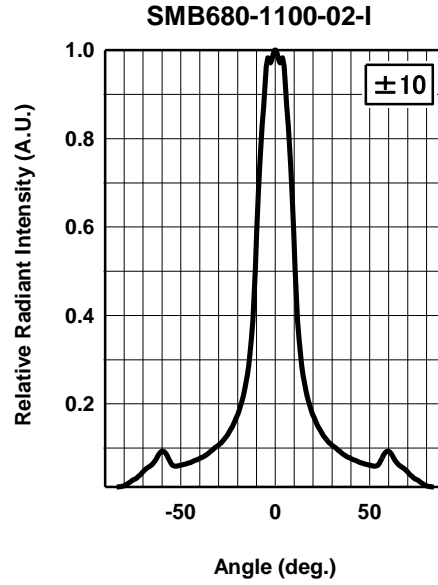
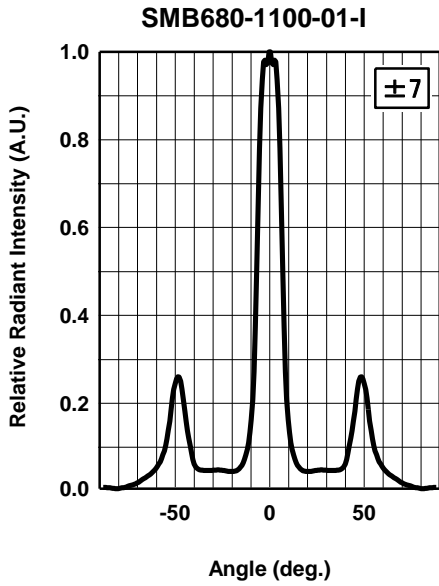




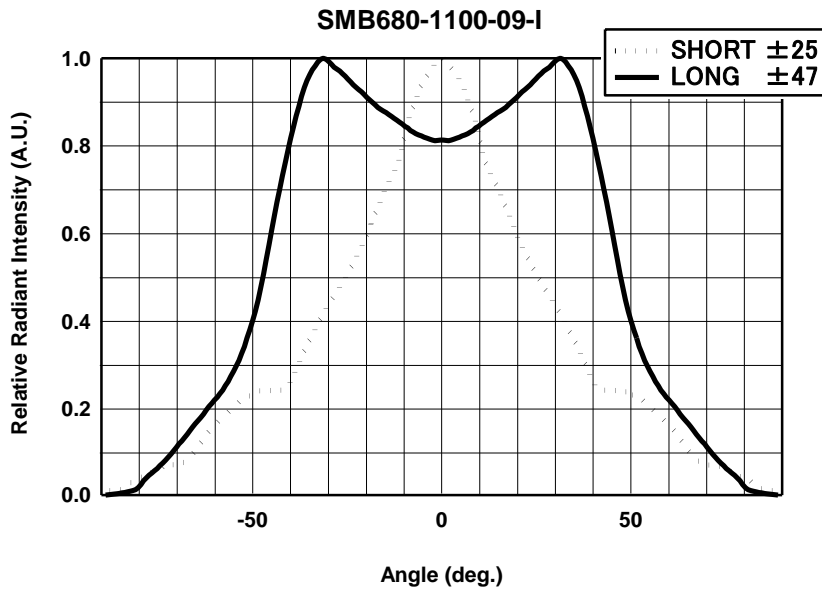
◆ Wrapping

Moisture barrier bag aluminum laminated film with a desiccant to keep out the moisture absorption during the transportation and storage.

Radiation Pattern



Radiation Pattern



## 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 48 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 48 -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.