



## SMB1N-800D

- High Power LED
- 800 nm, 450 mW
- SMD package, PA9T
- Dimension: 5.0 x 5.2 x 1.0 mm
- Viewing Angle: 136°



### Description

**SMB1N-800D** is a surface mount AlGaAs High Power LED with a typical peak wavelength of **800 nm** and radiation of **450 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	$P_D$		2100	mW
Forward Current	$I_F$		800	mA
Pulse Forward Current *1	$I_{FP}$		2000	mA
Reverse Voltage	$V_R$		5	V
Thermal Resistance	$R_{THJA}$		10	K/W
Junction Temperature	$T_J$		120	°C
Operating Temperature	$T_{CASE}$	- 40	+ 100	°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 $(T_{CASE}=25^{\circ}C)$

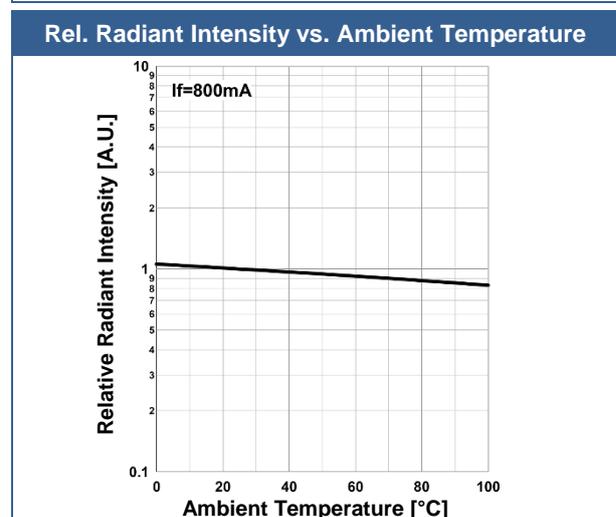
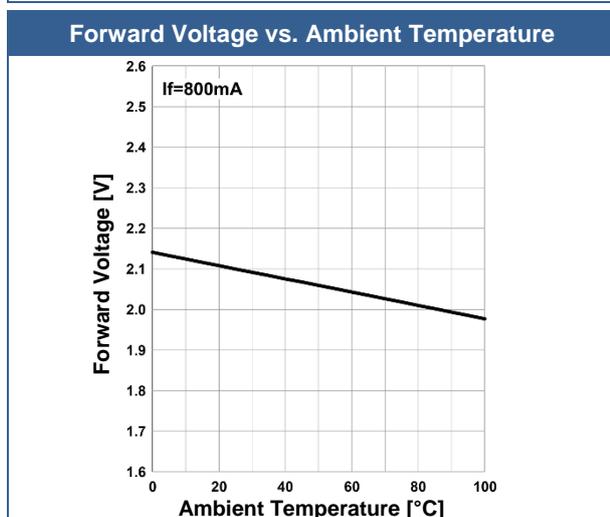
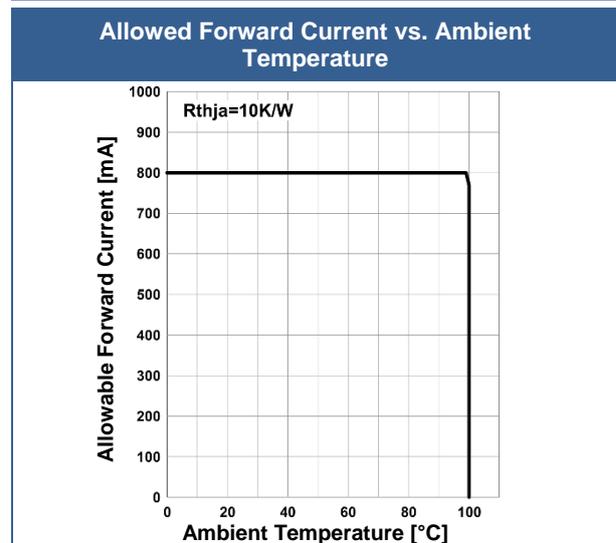
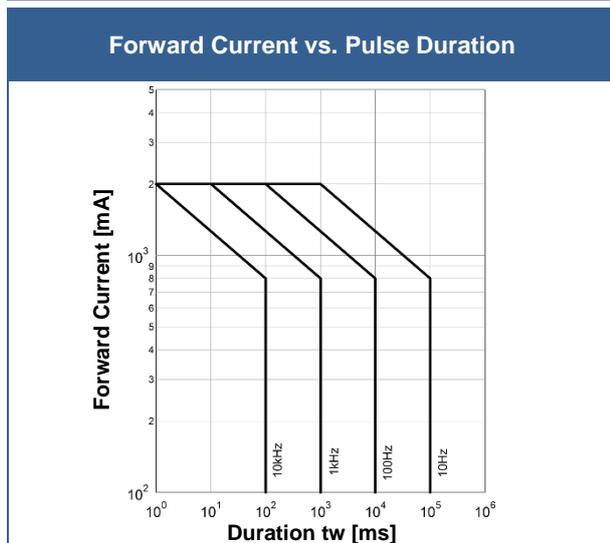
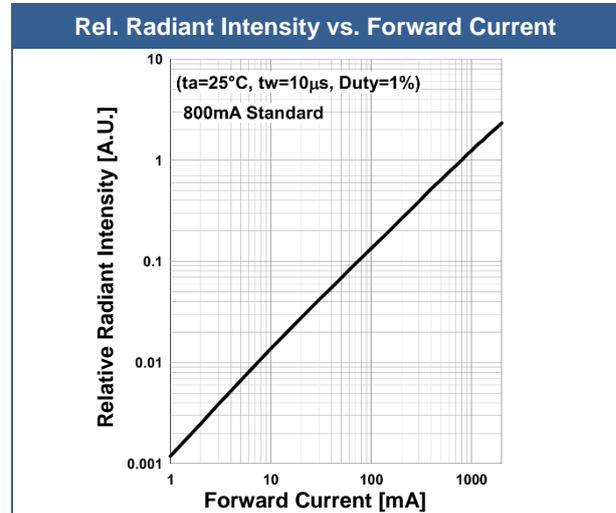
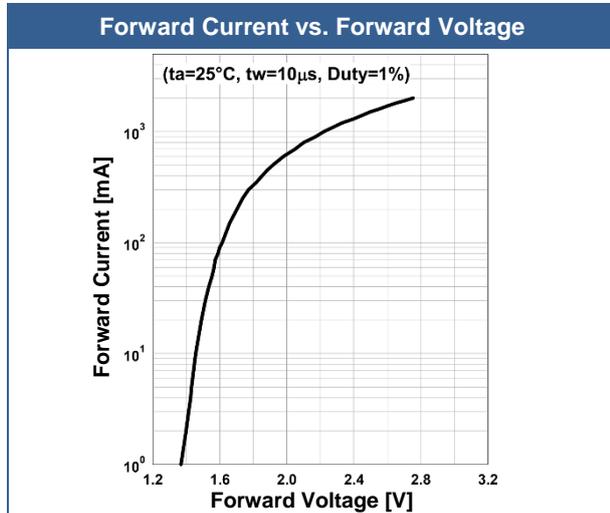
Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Peak Wavelength	$\lambda_P$	$I_F=500mA$	790		810	nm
Half Width	$\Delta\lambda$	$I_F=500mA$		32		nm
Forward Voltage	$V_F$	$I_F=800mA$		2.1	2.6	V
	$V_{FP}$	$I_{FP}=2A$		2.8		
Radiated Power *1	$P_O$	$I_F=800mA$	350	450		mW
		$I_{FP}=2A$		1000		
Radiant Intensity *2	$I_E$	$I_F=800mA$		150		mW/sr
		$I_{FP}=2A$		330		
Viewing Angle	$\varphi$	$I_F=100mA$		128		deg.
Rise Time	$t_R$	$I_F=800mA$		20		ns
Fall Time	$t_F$	$I_F=800mA$		30		ns

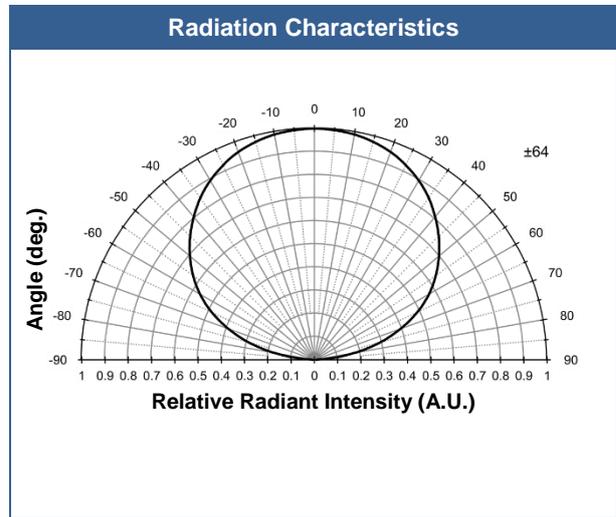
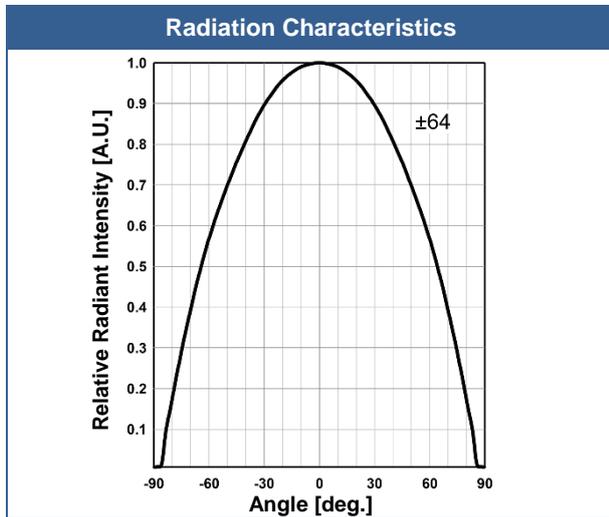
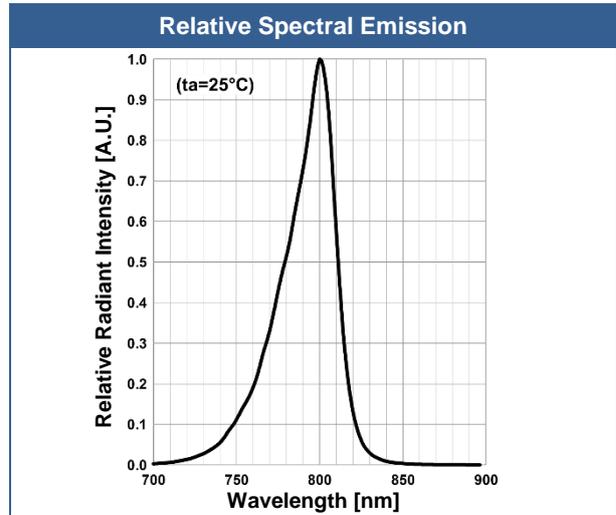
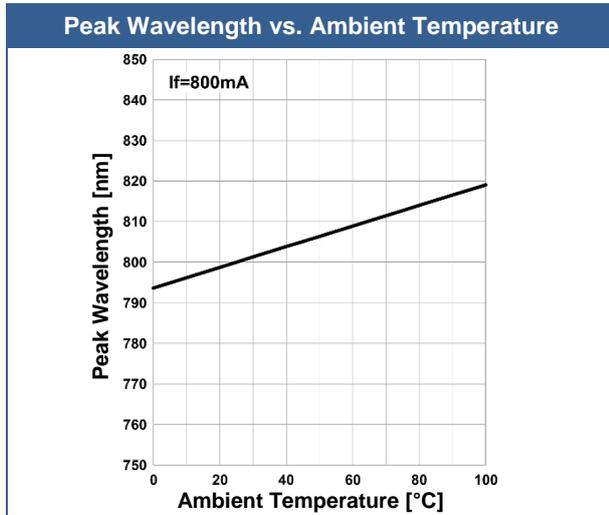
\*1 measured by S3584-08

\*2 measured by CIE127-2007 Condition B



## Typical Performance Curves





## Outline Dimensions

SMB1N
flat

Dimensions (mm):  
 Top view: 5 (width), 5.2 (height), 1 (AnodeMark offset)  
 Side view: 1 (height)  
 Land pattern: 4.6 (anode width), 4.2 (cathode width), 2 (lead width), 3.6 (lead length), 5.2 (total length), 6 (total width), 2 (lead offset), 3.6 (lead length), 6 (total length)

Lead	Description
Pin a1	LED Anode
Pin c1	LED Cathode

All Dimensions in mm



## Precautions

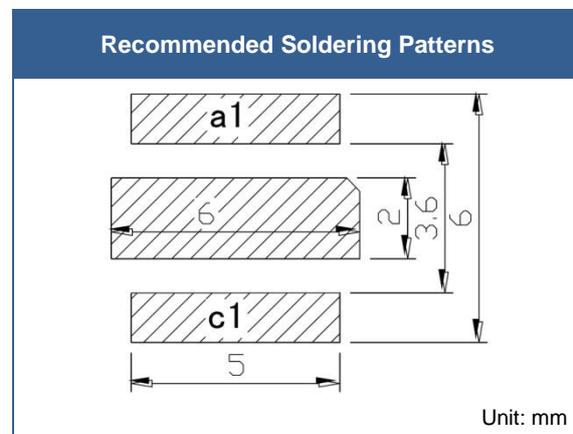
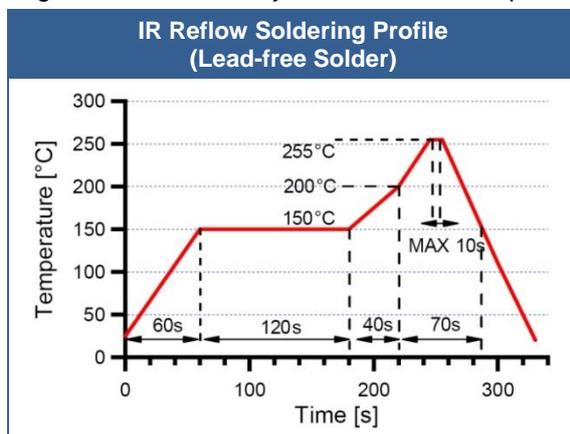
### Soldering:

- 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.



## Revisions History

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Rel.	Rel. Date	Chapter	Modification	Page
A1	2020-10-03	-	Initial release	-

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The above specifications are for reference purpose only and subjected to change without prior notice