



SMB1N-750D

- Infrared High Power LED
- 750 nm, 700 mW
- AlGaInP chip, 1000 x 1000 μm
- PA9T SMD package
- Viewing Angle: 128°



Description

SMB1N-750D is a surface mount AlGaInP based high power infrared LED, with a typical peak wavelength of 750 nm and optical output power of 700 mW @ 800 mA. It comes in SMD package (PA9T) with silver plated soldering pads (lead free solderable), copper heat sink, and silicone resin molded flat window.

Maximum Ratings (T_{CASE} = 25°C)

Parameter	Symbol	Values		Unit
		Min.	Max.	
Power Dissipation	P_D		2000	mW
Forward Current	I_F		800	mA
Pulse Forward Current *1	I_{FP}		2000	mA
Reverse Voltage	V_F		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 (max. 5s)	T_{SLD}		+ 250	°C

*1 duty=1%, pulse width = 10 μs

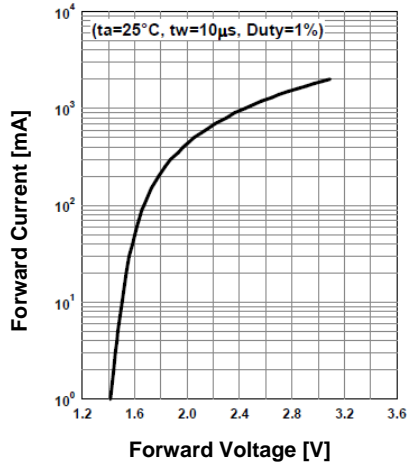
Electro-Optical Characteristics (T_{CASE} = 25°C)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Peak Wavelength	λ_P	$I_F=800\text{ mA}$	740		760	nm
Half Width	λ_{Δ}	$I_F=800\text{ mA}$		22		nm
Forward Voltage	V_F	$I_F=800\text{ mA}$		2.3	2.5	V
	V_{FP}	$I_{FP}=2\text{ A}$		3.1		
Total Radiated Power	P_O	$I_F=800\text{ mA}$		700		mW
		$I_{FP}=2\text{ A}$		1700		
Radiant Intensity	I_E	$I_F=800\text{ mA}$		230		mW/sr
		$I_{FP}=2\text{ A}$		560		
Viewing Angle	$2\theta_{1/2}$	$I_F=100\text{ mA}$		128		deg.
Rise Time	t_r	$I_F=800\text{ mA}$		200		ns
Fall Time	t_f	$I_F=800\text{ mA}$		150		ns

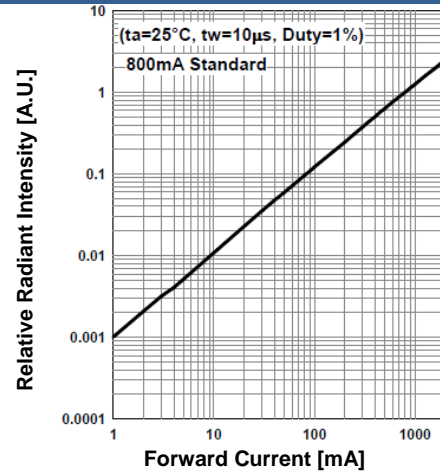


Typical Performance Curves

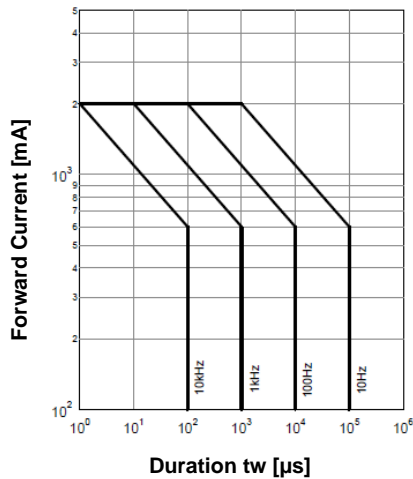
Forward Current vs. Forward Voltage



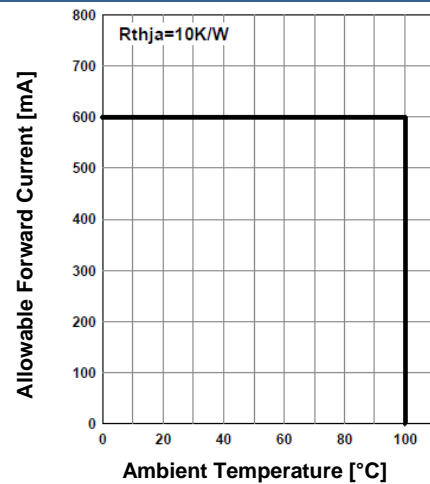
Relative Radiant Intensity vs. Forward Current



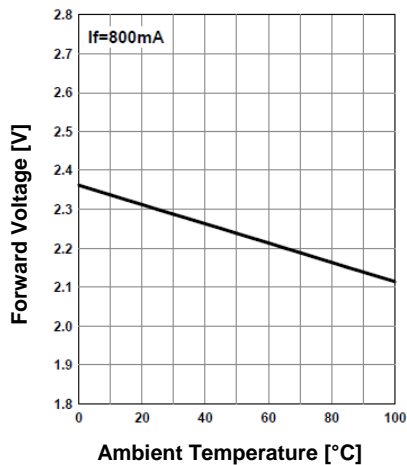
Forward Current vs. Pulse Duration



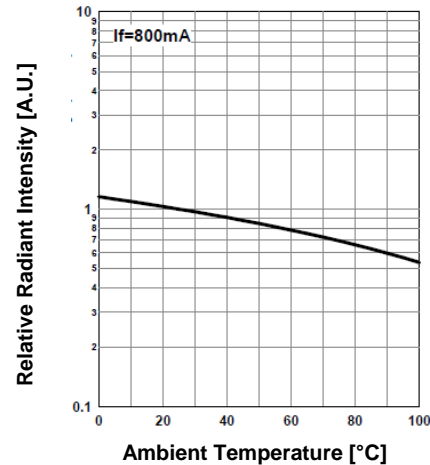
Allowed Forward Current vs. Amb. Temperature



Forward Voltage vs. Ambient Temperature



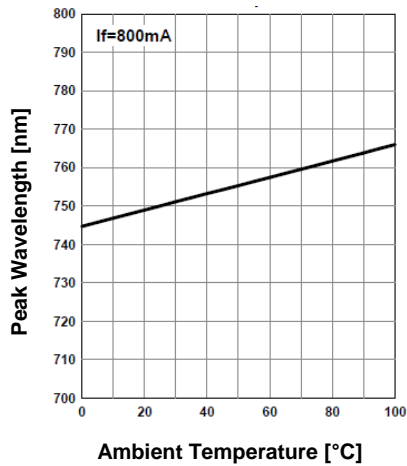
Rel. Radiant Intensity vs. Ambient Temperature



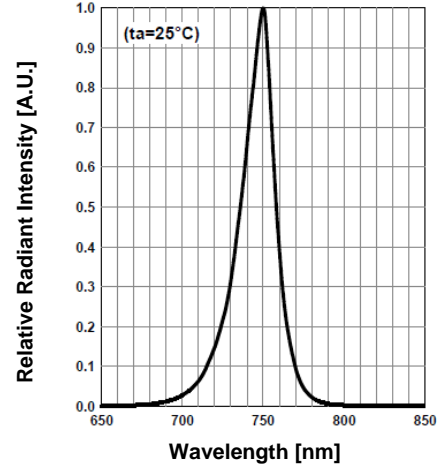


Typical Performance Curves

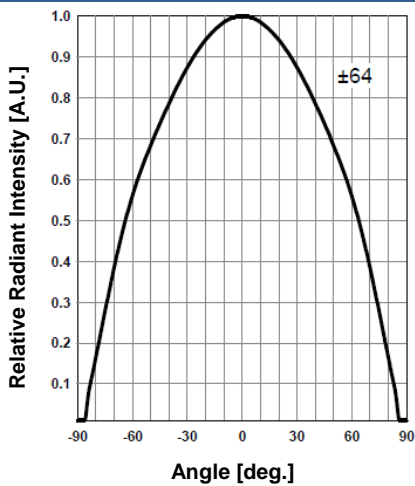
Peak Wavelength vs. Amb. Temp.



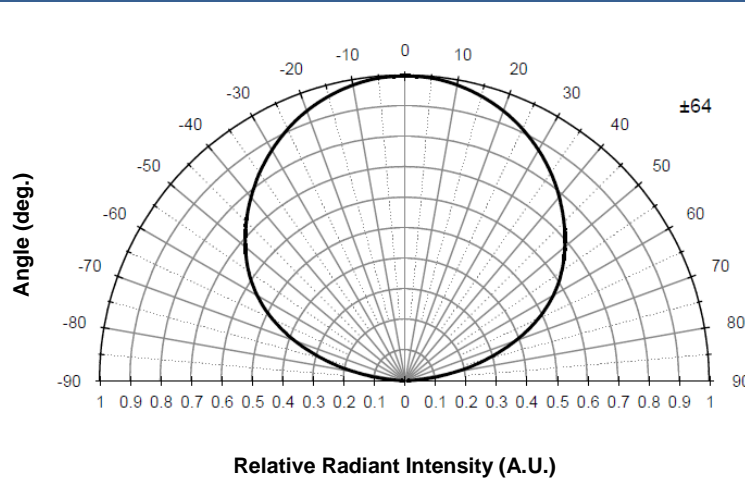
Relative Spectral Emission



Radiation Characteristics

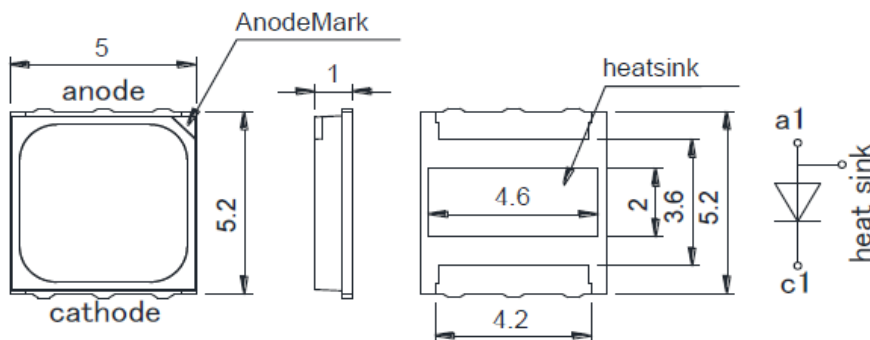


Radiation Characteristics



Outline Dimensions

PA9T



Lead	Function
Pin a1	Anode
Pin c1	Cathode

all dimensions in mm

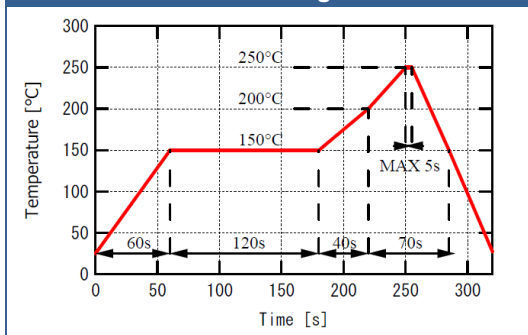


Precautions

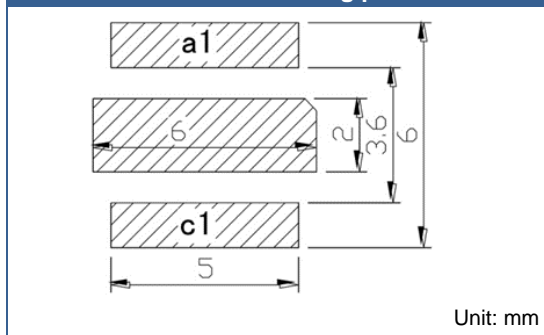
Soldering

- 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



Recommended soldering patterns



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 light, which **could be hazardous to skin and eyes**, and **may cause cancer**. Do avoid exposure to the emitted light. Protective glasses if needed. 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.