



SMB1N-BB450-02

- Broad Band High Power LED
- 300 mW @ 400-1000 nm
- InGaN chip, 1000 x 1000 μm
- PA9T SMD package (5.0x5.2x5.5 mm)
- Viewing Angle: 20°



Description

SMB1N-BB450-02 is a surface mount InGaN based high power broad band LED, with a typical peak wavelength of 450 nm and broad band emission from **400 nm to 1000 nm**. It comes in SMD package (PA9T) with silver plated soldering pads (lead free solderable), copper heat sink, and silicone resin molded lens.

Maximum Ratings (T_{CASE} = 25°C)

Parameter	Symbol	Values		Unit
		Min.	Max.	
Power Dissipation	P_D		2300	mW
Forward Current	I_F		500	mA
Pulse Forward Current *1	I_{FP}		700	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	+ 85	°C
Storage Temperature	T_{STG}	- 40	+ 85	°C
Lead Solder Temperature *2	T_{SLD}		+ 250	°C

*1 duty=1%, pulse width = 10 μs

*2 must be completed within 5 seconds

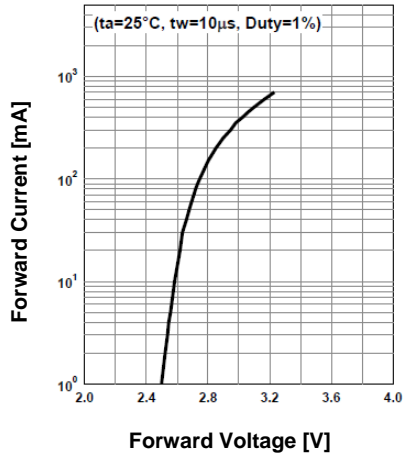
Electro-Optical Characteristics (T_{CASE} = 25°C)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Peak Wavelength	λ_P	$I_F=500\text{ mA}$		450		
Forward Voltage	V_F	$I_F=500\text{ mA}$		3.1	4.5	V
	V_{FP}	$I_{FP}=700\text{ mA}$		3.2		
Total Radiated Power ($\lambda=400 - 1000\text{ nm}$)	P_O	$I_F=500\text{ mA}$		300		mW
Radiated Power ($\lambda=400 - 500\text{ nm}$)	P_O	$I_F=500\text{ mA}$		140		mW
Radiated Power ($\lambda=500 - 1000\text{ nm}$)	P_O	$I_F=500\text{ mA}$		160		mW
Viewing Angle	$2\theta_{1/2}$	$I_F=100\text{ mA}$		20		deg.
Rise Time	t_r	$I_F=500\text{ mA}$		90		ns
Fall Time	t_f	$I_F=500\text{ mA}$		160		ns

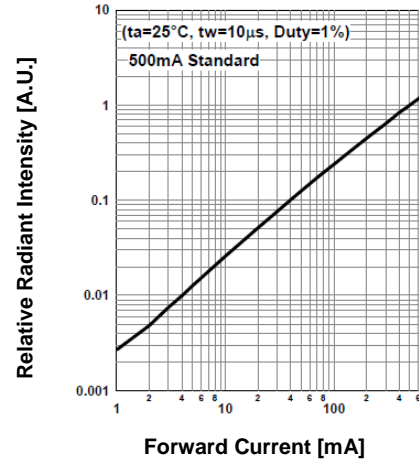


Typical Performance Curves

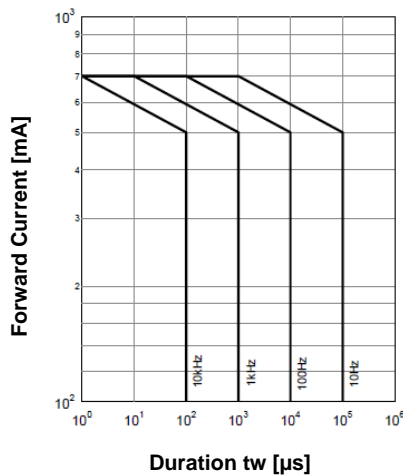
Forward Current vs. Forward Voltage



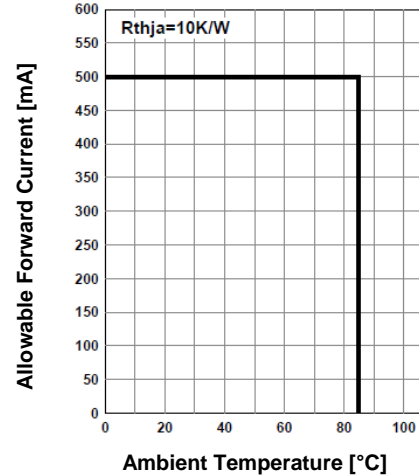
Relative Radiant Intensity vs. Forward Current



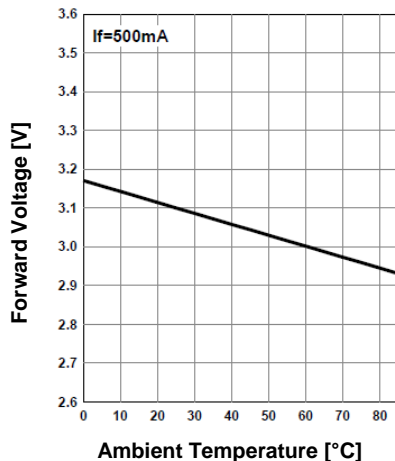
Forward Current vs. Pulse Duration



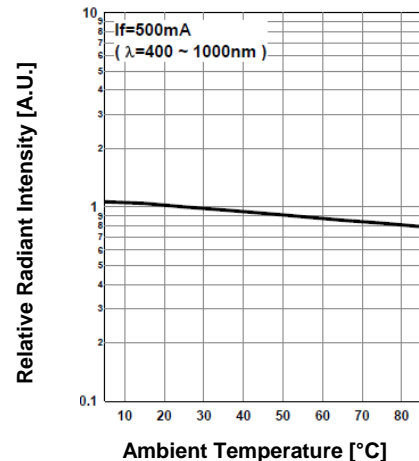
Allowed Forward Current vs. Amb. Temperature



Forward Voltage vs. Ambient Temperature



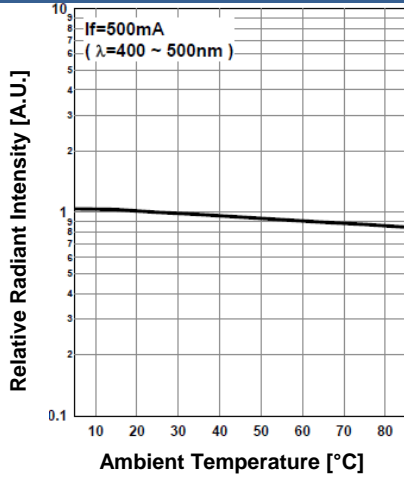
Rel. Radiant Intensity vs. Ambient Temperature



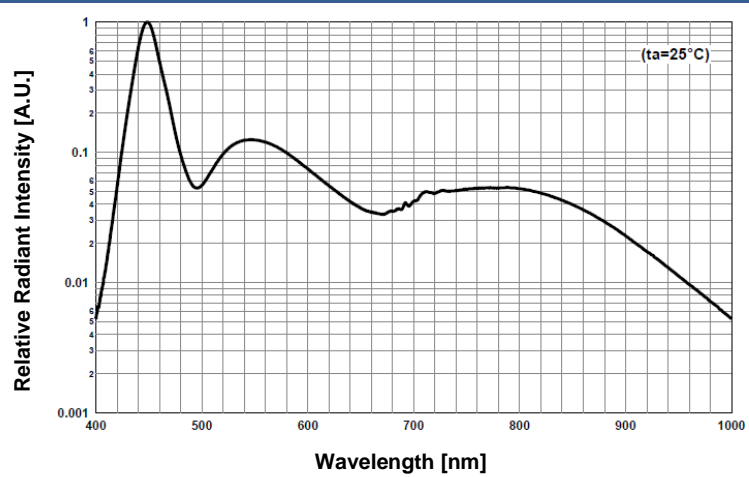


Typical Performance Curves

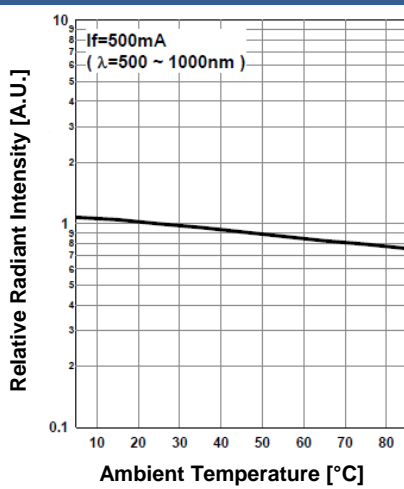
Rel. Rad. Intensity vs. Amb. Temp.



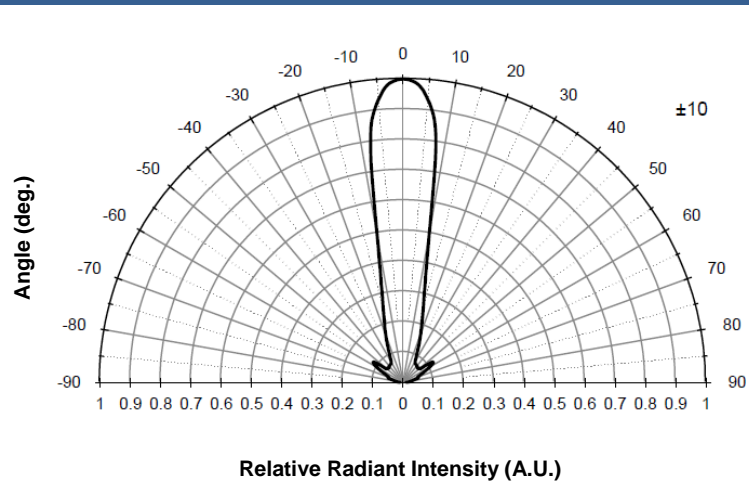
Relative Spectral Emission



Rel. Rad. Intensity vs. Amb. Temp.

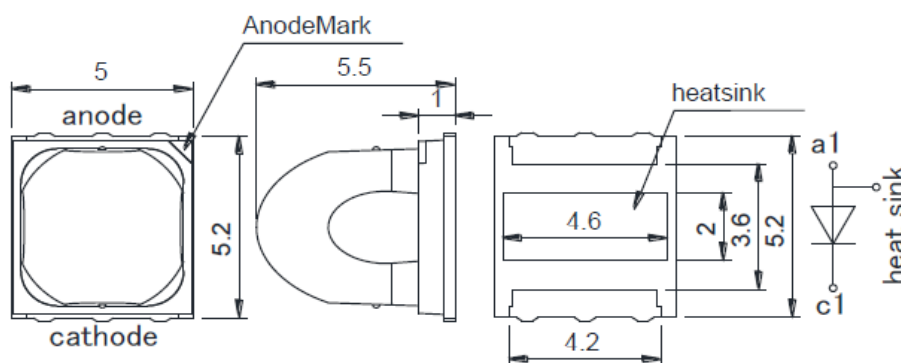


Radiation Characteristics



Outline Dimensions

PA9T



Lead	Function
Pin a1	Anode
Pin c1	Cathode

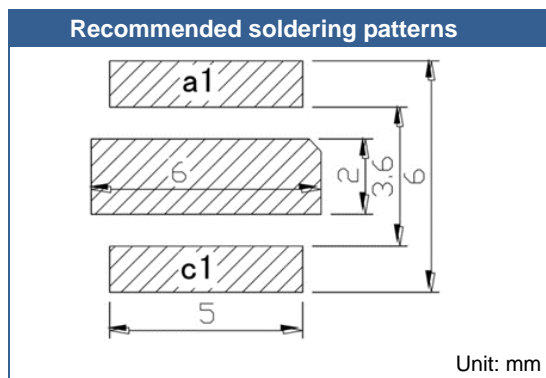
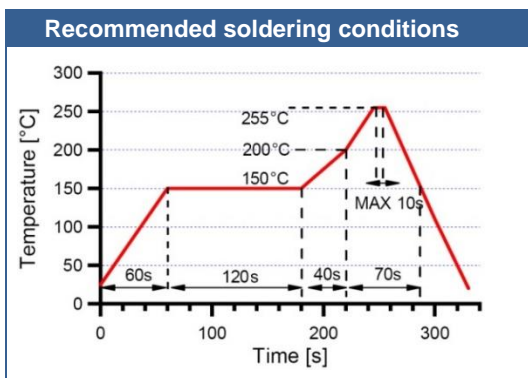
all dimensions in mm



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



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.



ROITHNER LASERTECHNIK GmbH

WIEDNER HAUPTSTRASSE 76 1040 VIENNA AUSTRIA
TEL. +43 1 586 52 43 -O. FAX. -44 OFFICE@ROITHNER-LASER.COM



Revision History

Revision	Release Date	Note
A1	2021-02	Initial release