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SMB1N-525V-02

- Green High Power LED
- 525 nm, 230 mW
- SMD package, PA9T
- Dimension: 5.0 x 5.2 x 5.5 mm
- Viewing Angle: 22°

Description

SMB1N-525V-02 is a surface mount InGaN High Power LED with a typical peak wavelength of **525 nm** and radiation of **230 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°C)*

Parameter	Symbol	Values		Unit
		Min.	Max.	
Power Dissipation	P_D		1300	mW
Forward Current	I_F		350	mA
Pulse Forward Current *[1]	I_{FP}		1000	mA
Thermal Resistance	R_{THJA}		6	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 µs*
*[2] *must be completed within 5 seconds*

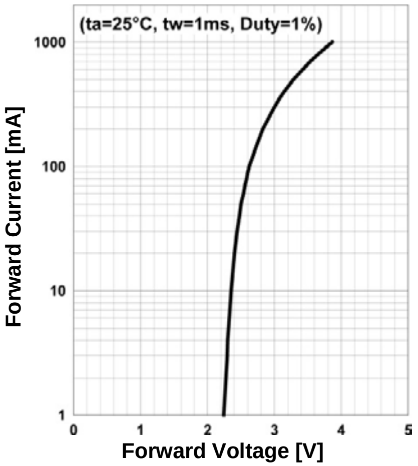
Electro-Optical Characteristics *(T_{CASE}=25°C)*

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Peak Wavelength	λ_P	I_F=350mA	515	525	535	nm
Half Width	$\Delta\lambda$	I_F=350mA		35		nm
Dominant Wavelength	λ_D	I_F=350mA		530		nm
Forward Voltage	V_F	I_F=350mA		3.1	3.6	V
	V_{FP}	I_{FP}=1A		3.9		
Radiated Power *[1]	P_O	I_F=350mA		230		mW
		I_{FP}=1A		460		
Radiant Intensity *[2]	I_E	I_F=350mA		450		mW/sr
		I_{FP}=1A		900		
Brigthness	I_V	I_F=350mA		270		cd
		I_{FP}=1A		590		
Viewing Angle	φ	I_F=100mA		22		deg.
Rise Time	t_R	I_F=350mA		250		ns
Fall Time	t_F	I_F=350mA		250		ns

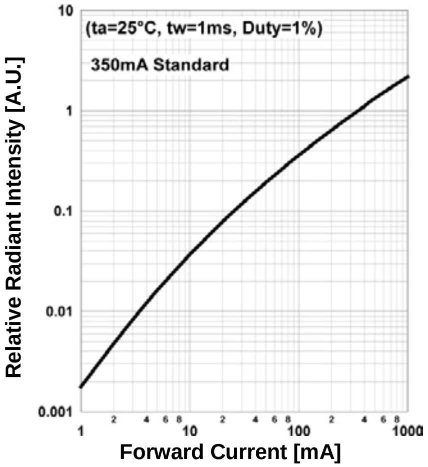
*[1] *measured by S3584-08*
*[2] *measured by Tektronix J-6512*

Typical Performance Curves

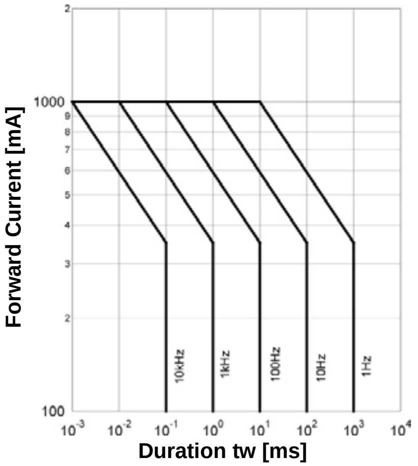
Forward Current vs. Forward Voltage



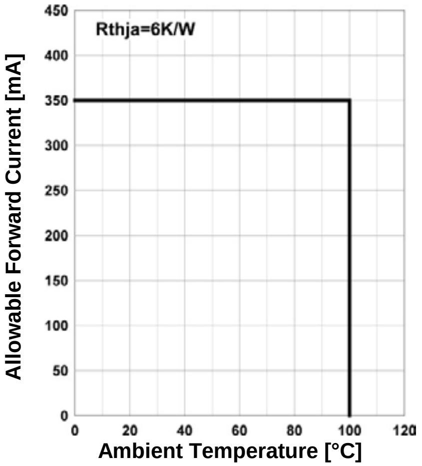
Rel. Radiant Intensity vs. Forward Current



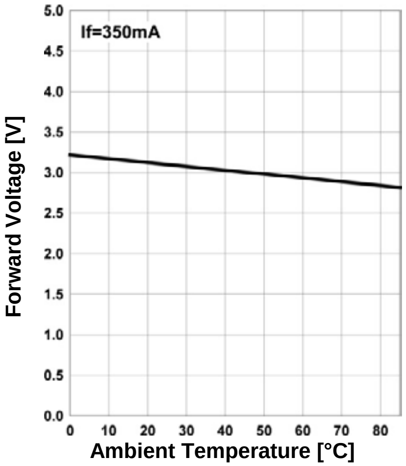
Forward Current vs. Pulse Duration



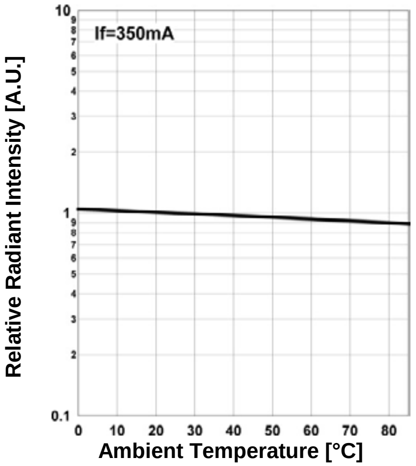
Allowed Forward Current vs. Ambient Temperature



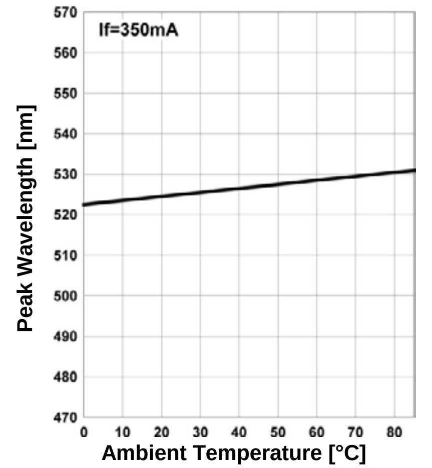
Forward Voltage vs. Ambient Temperature



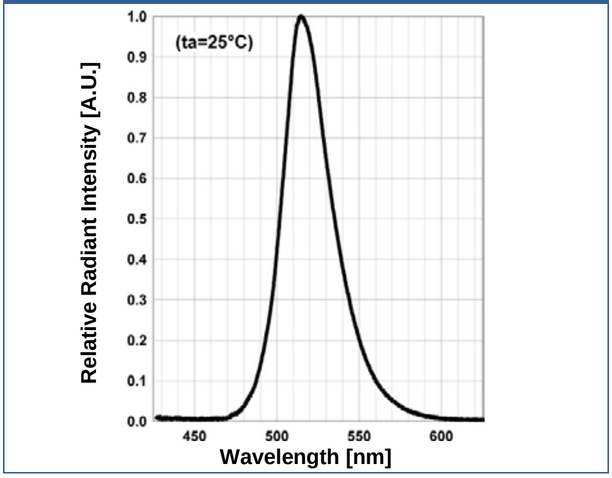
Rel. Radiant Intensity vs. Ambient Temperature



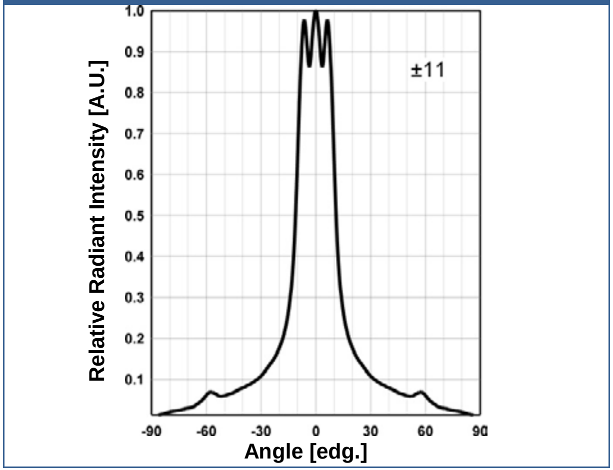
Peak Wavelength vs. Ambient Temperature



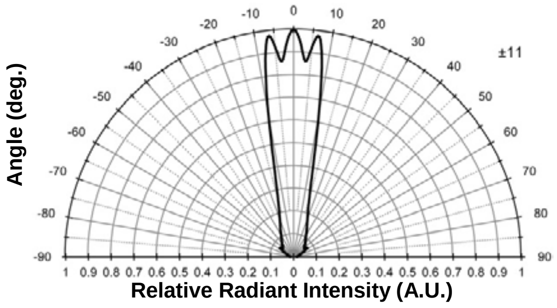
Relative Spectral Emission



Radiation Characteristics

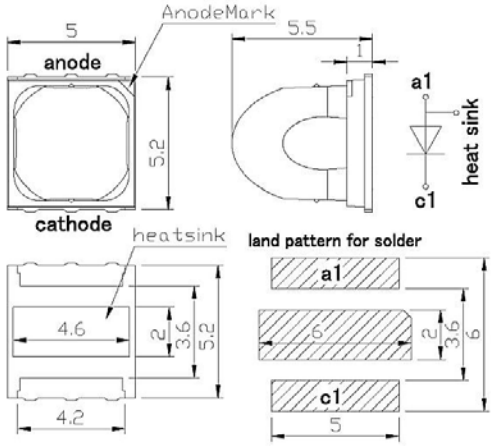


Radiation Characteristics



Outline Dimensions

SMB1N **lens**



Lead	Description
Pin a1	LED Anode
Pin c1	LED Cathode

All Dimensions in mm

Precautions

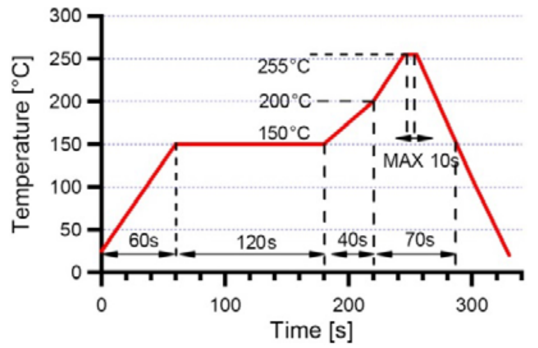
Soldering:

- 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

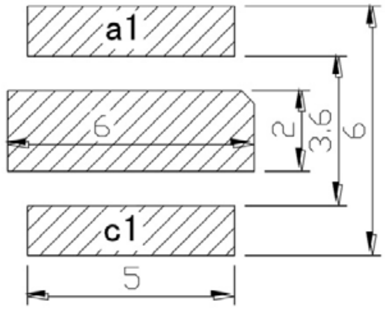
Recommended soldering conditions:

This LED is designed to be reflow soldered on to a PCB. If dip soldered or hand soldered, its reliability cannot be guarantee.
Nitrogen reflow soldering is recommended. Air flow soldering conditions can cause optical degradation, caused by heat and/or atmosphere.

IR Reflow Soldering Profile (Lead-free Solder)



Recommended Soldering Patterns



Unit: mm

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, chloroseen, 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.