



## SMC505

- Green LED
- 505 nm, 8 mW
- SMD package, Ceramic
- Dimension: 3.0 x 2.0 x 1.1 mm
- Viewing Angle: 112°



### Description

**SMC505** is a surface mount InGaN LED with a typical peak wavelength of **505 nm** and radiation of **8 mW**. It comes in SMD package (ceramic) and is sealed with silicone or epoxy resin.

### Maximum Ratings ( $T_{CASE}=25^{\circ}C$ )

Parameter	Symbol	Values		Unit
		Min.	Max.	
Power Dissipation	$P_D$		190	mW
Forward Current	$I_F$		50	mA
Pulse Forward Current *1	$I_{FP}$		100	mA
Reverse Voltage	$V_F$		5	V
Thermal Resistance	$R_{THJA}$		80	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 3 seconds

### Electro-Optical Characteristics ( $T_{CASE}=25^{\circ}C$ )

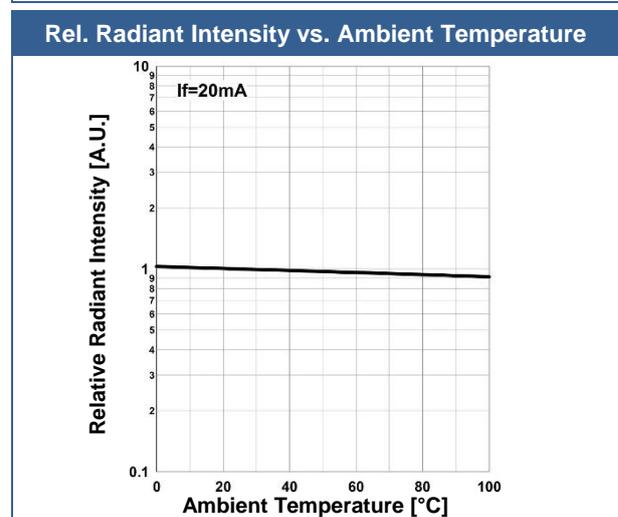
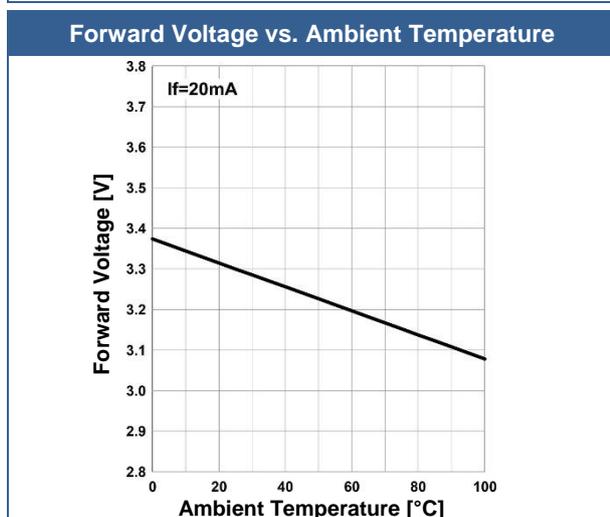
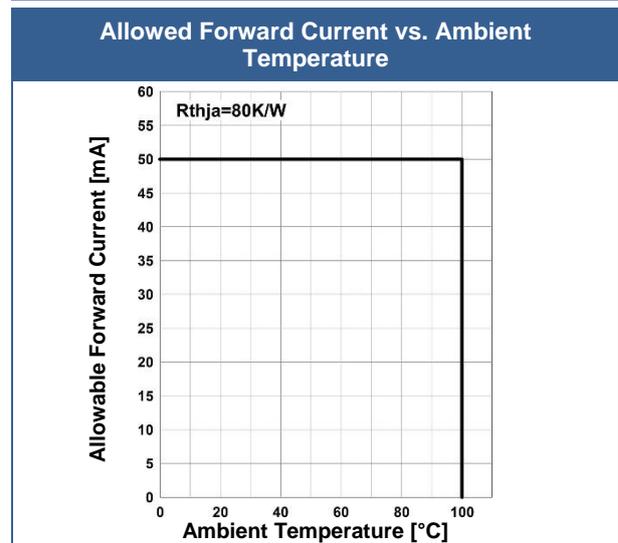
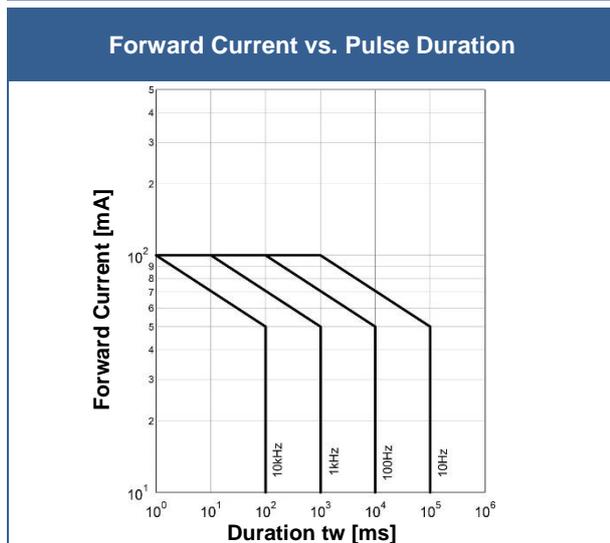
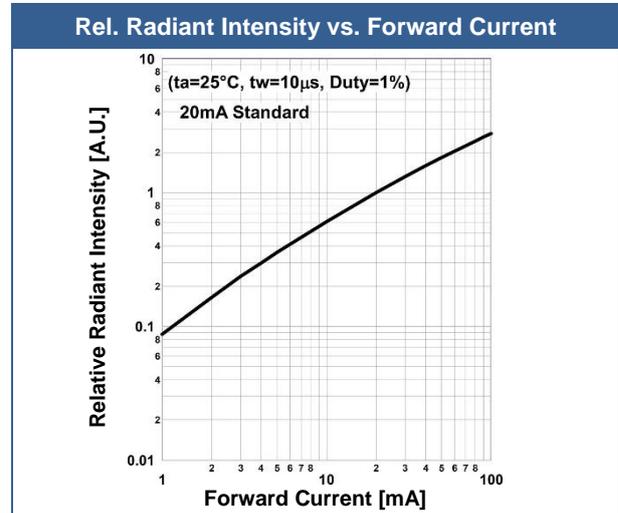
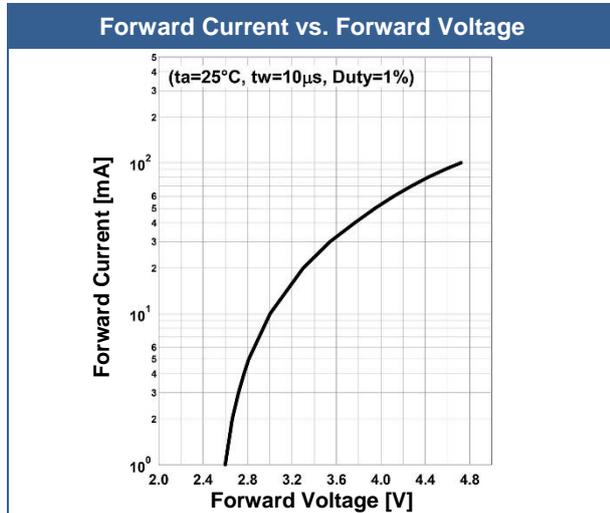
Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Peak Wavelength	$\lambda_P$	$I_F=20mA$	495		515	nm
Dominant Wavelength	$\lambda_D$	$I_F=20mA$		508		nm
Half Width	$\Delta\lambda$	$I_F=20mA$		30		nm
Forward Voltage	$V_F$	$I_F=20mA$		3.3	3.8	V
		$I_{FP}=100mA$		4.7		
Radiated Power *	$P_O$	$I_F=20mA$		8		mW
		$I_{FP}=100mA$		22		
Radiant Intensity	$I_E$	$I_F=20mA$		5.3		mW/sr
		$I_{FP}=100mA$		14		
Luminous Flux	$\Phi_V$	$I_F=20mA$		3300		mlm
Viewing Angle	$\varphi$	$I_F=20mA$		128		deg.
Rise Time	$t_r$	$I_F=20mA$		25		ns
Fall Time	$t_f$	$I_F=20mA$		70		ns

\*1 measured by S3584-08

\*2 measured by CIE127-2007 Condition B

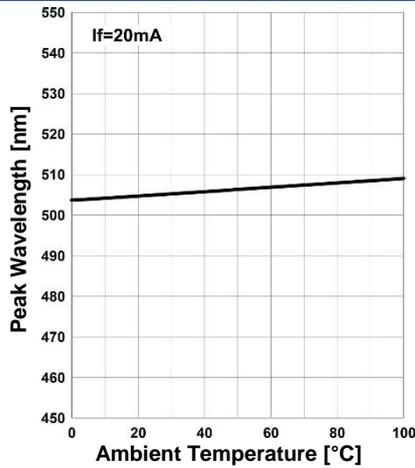


## Typical Performance Curves

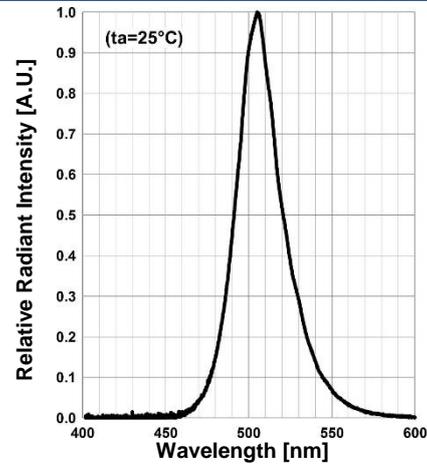




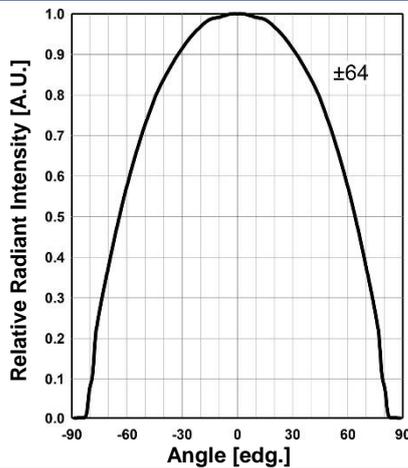
### Peak Wavelength vs. Ambient Temperature



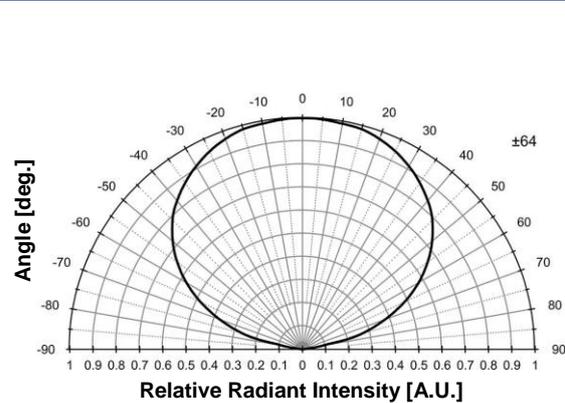
### Relative Spectral Emission



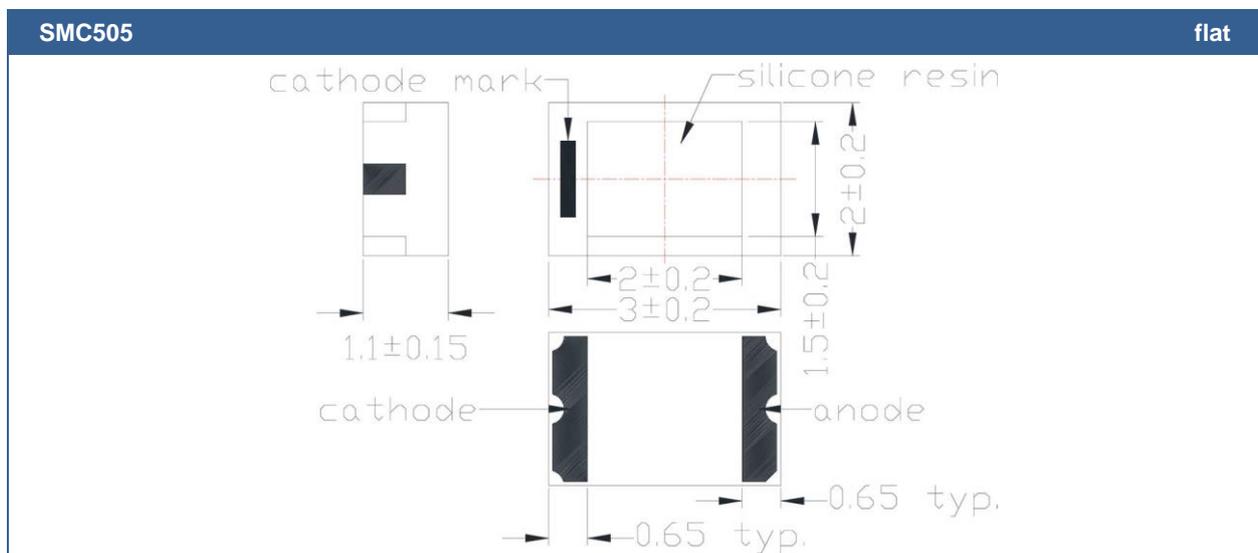
### Radiation Characteristics



### Radiation Characteristics



## Outline Dimensions



All Dimensions in mm



## Precautions

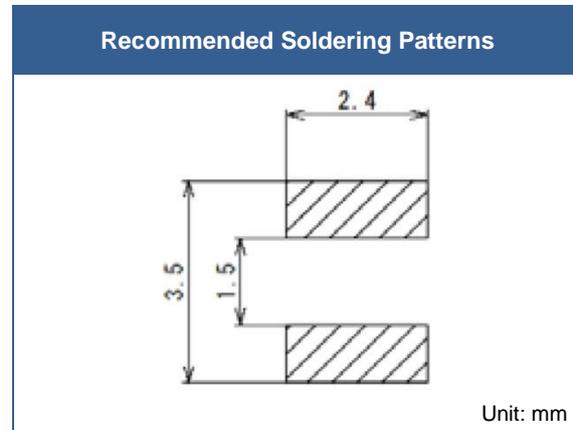
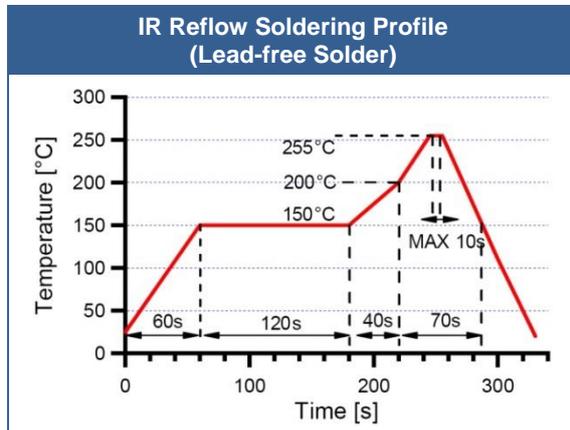
### Soldering:

- 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:

Those LEDs do emit **invisible light**, which is invisible and may cause cancer. Do avoid exposure to the emitted light. 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

---

Rel.	Rel. Date	Chapter	Modification	Page
A2	2017-01-01	Maximum Ratings	Included: Thermal Resistance, Junction Temperature P <sub>D</sub> : 190 mW (previously 120 mW) T <sub>CASE</sub> : -40..+100 °C (previously -20..+85 °C) T <sub>STG</sub> : -40..+100 °C (previously -30..+100 °C) T <sub>SLD</sub> : +250 °C (previously +220 °C)	1
		Electro-Optical Characteristics	V <sub>F</sub> : typ. 3.3 V (previously max. 3.5 V) max. 3.8 V (previously max. 4.3 V) 2θ <sub>1/2</sub> : 128° (previously 110°) P <sub>O</sub> : typ. 8 mW (previously typ. 1.0 mW) I <sub>E</sub> : typ. 5.3 mW/sr (previously typ. 0.3 mW/sr) Included: λ <sub>D</sub> , V <sub>FP</sub> , P <sub>O</sub> @ I <sub>FP</sub> , Φ <sub>V</sub> , t <sub>R</sub> , t <sub>F</sub>	1
		Typical Performance Curves	included	2-3
		Precautions	included	
A1	2007-10-22	-	Initial release	-

---

© All Rights Reserved

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