



S6505SMD

- Red Laser Diode
- 650 nm, 5 mW
- Single mode
- SMD 5630 package



Description

S6505SMD is an IR laser diode, typically emitting at 650 nm, with a wide operating temperature range of up to 70°C. **S6505SMD** comes in SMD 5630 package.

Maximum Rating* (T_{CASE} = 25°C)

Parameter	Symbol	Values		Unit
		Min.	Max.	
Optical Output Power*1	P_{MAX}		5	mW
Reverse Voltage	V_R		2	V
Operating Temperature*1	T_{OPR}	- 10	+ 70	°C
Storage Temperature	T_{STG}	- 40	+ 85	°C
Soldering Temperature (max. 3s)	T_{SOL}		+ 260	°C

*1 operating at maximum ratings may influence the life time

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

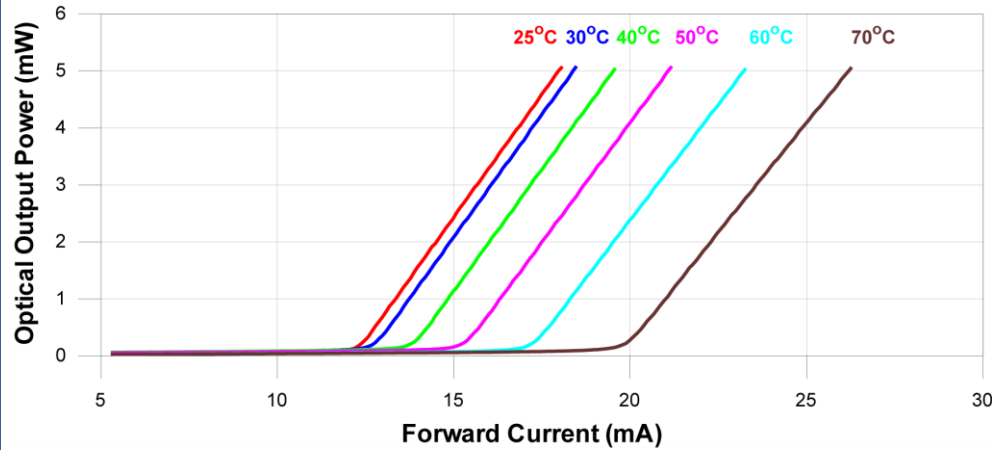
Parameter	Symbol	Values			Unit	
		Min.	Typ.	Max.		
Peak Wavelength	λ_P	640	650	660	nm	
Optical Output Power	P_O		5		mW	
Operating Voltage	V_F		2.2	2.5	V	
Threshold Current	I_{th}		12	25	mA	
Operating Current	I_F		17	25	mA	
Slope Efficiency	η	0.7	1.0		mW/mA	
Beam Divergence (FWHM)	parallel	$\Theta_{ }$	5	7.5	12	deg.
	perpendicular	Θ_{\perp}	30	36	42	deg.



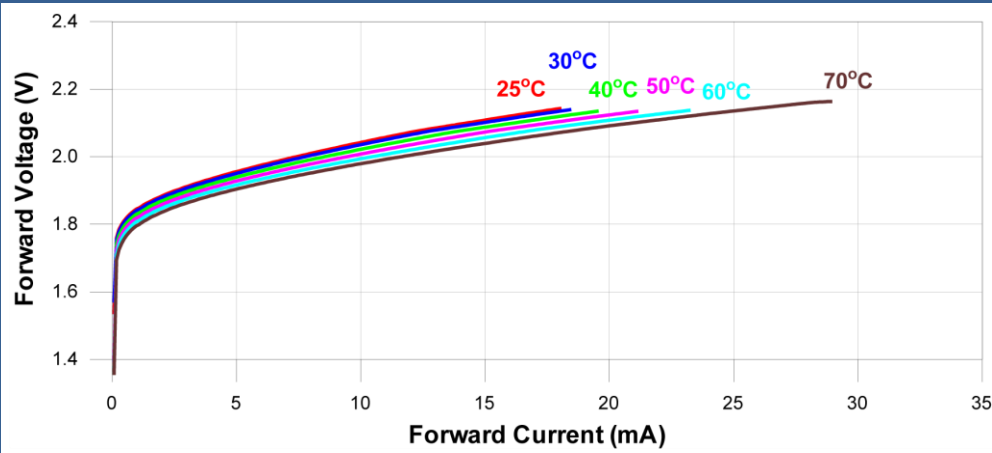


Performance Characteristics

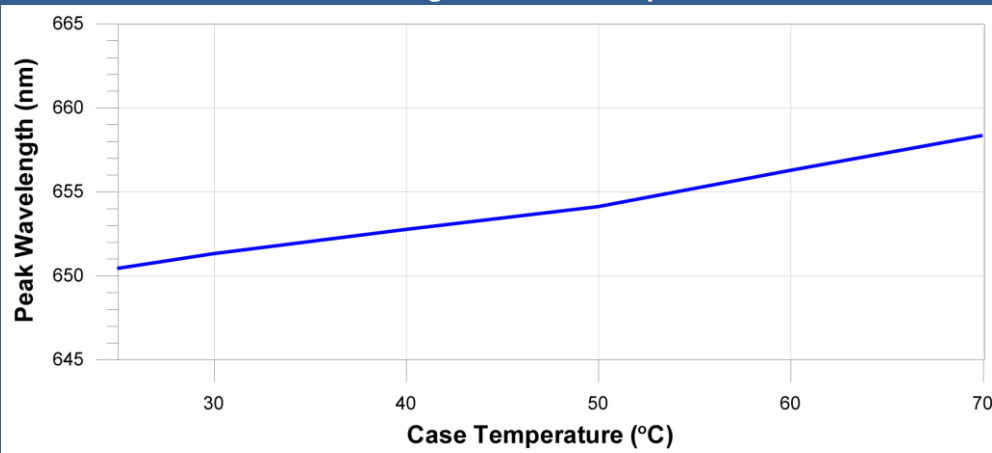
Optical Output Power vs. Forward Current



Forward Voltage vs. Forward Current

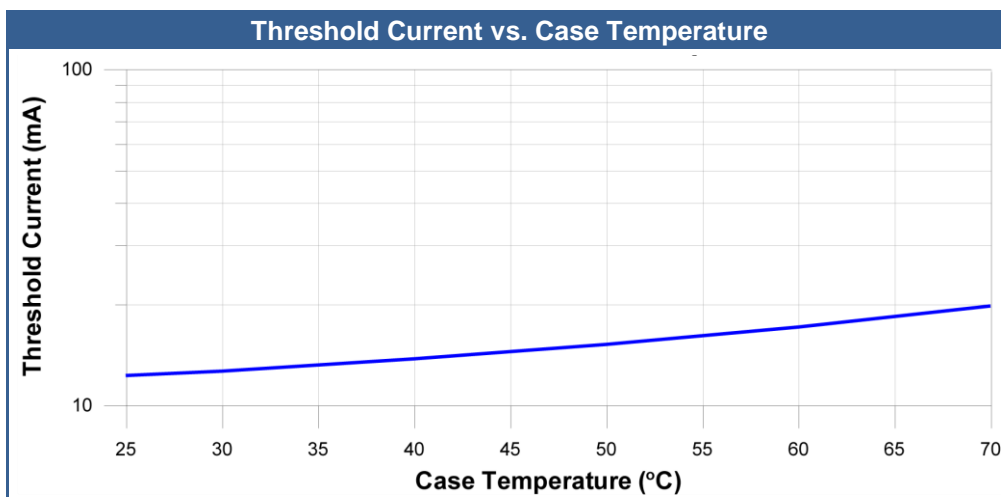
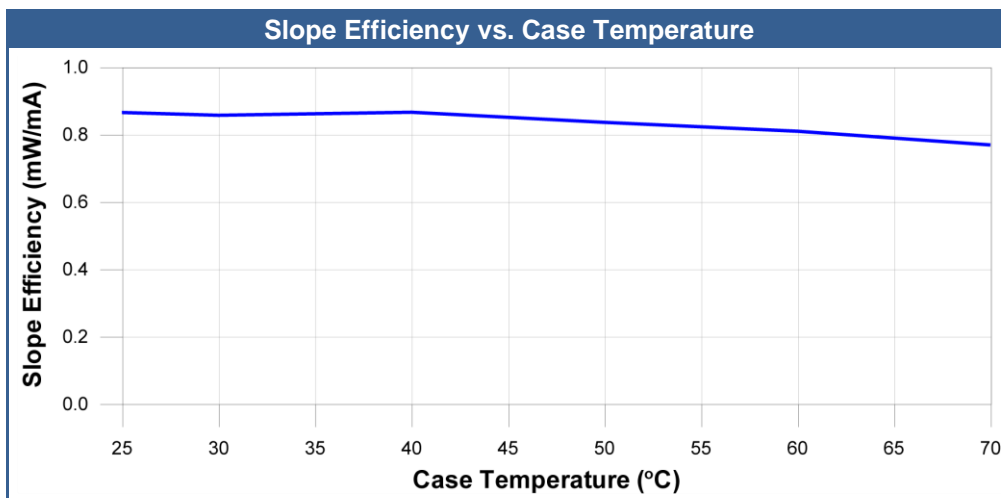
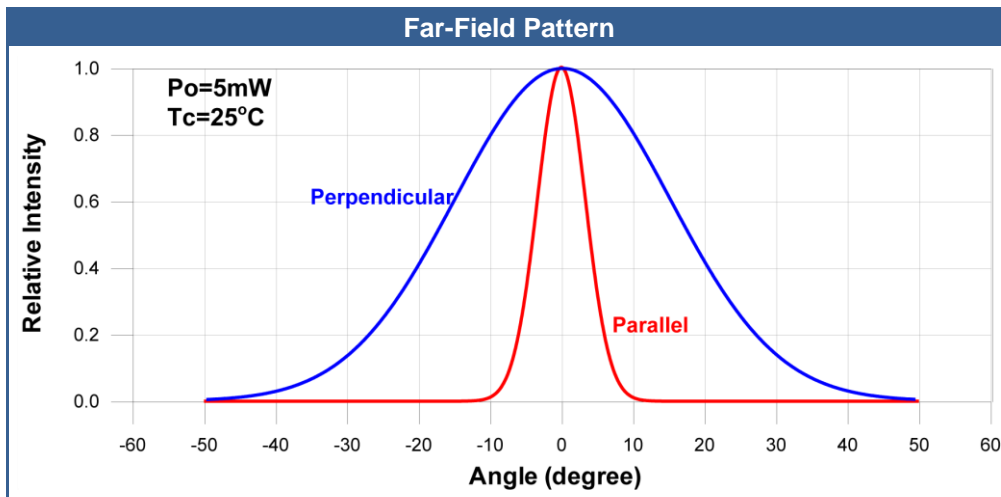


Peak Wavelength vs. Case Temperature





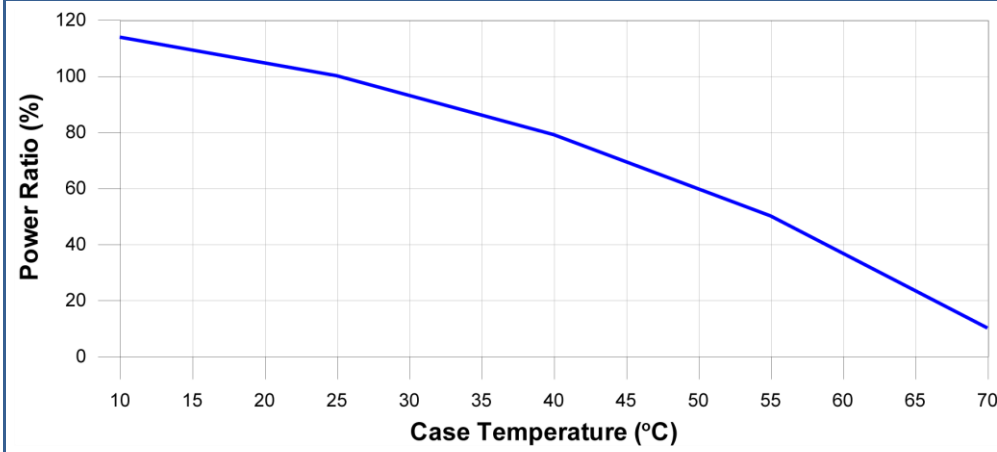
Performance Characteristics



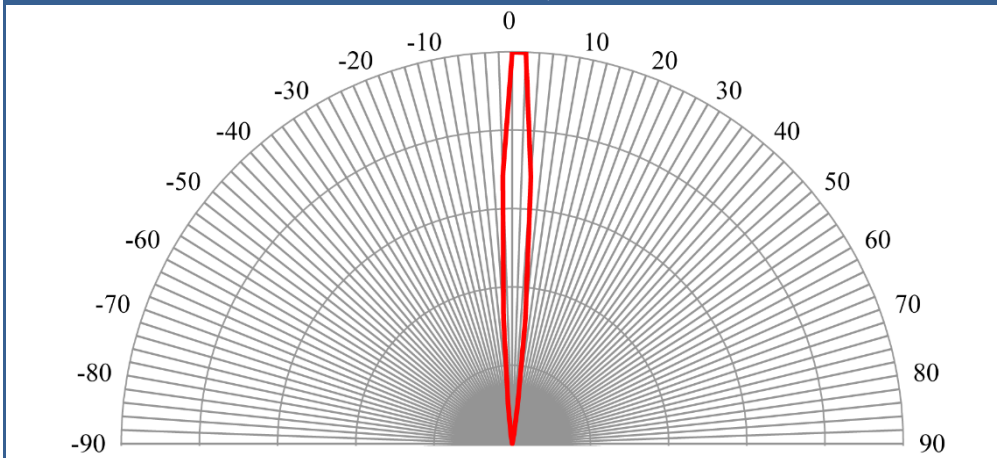


Performance Characteristics

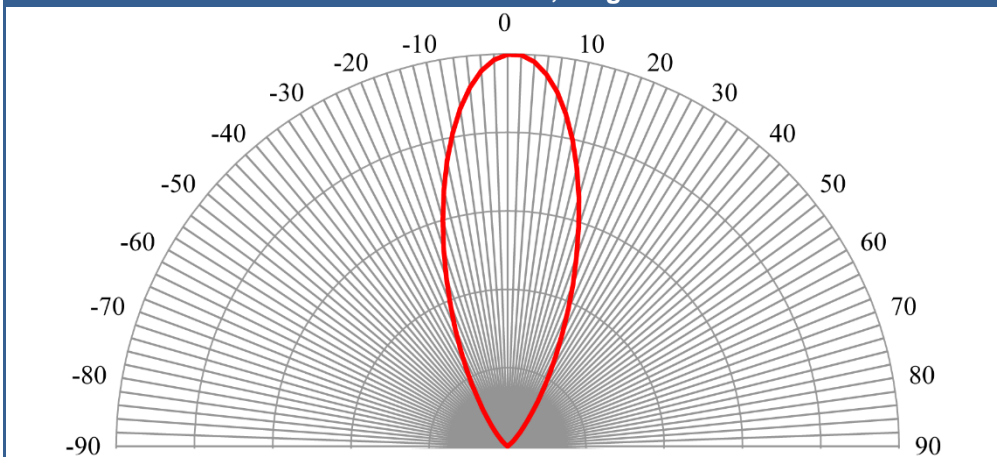
Power vs. Case Temperature



Radiation Pattern, short axis

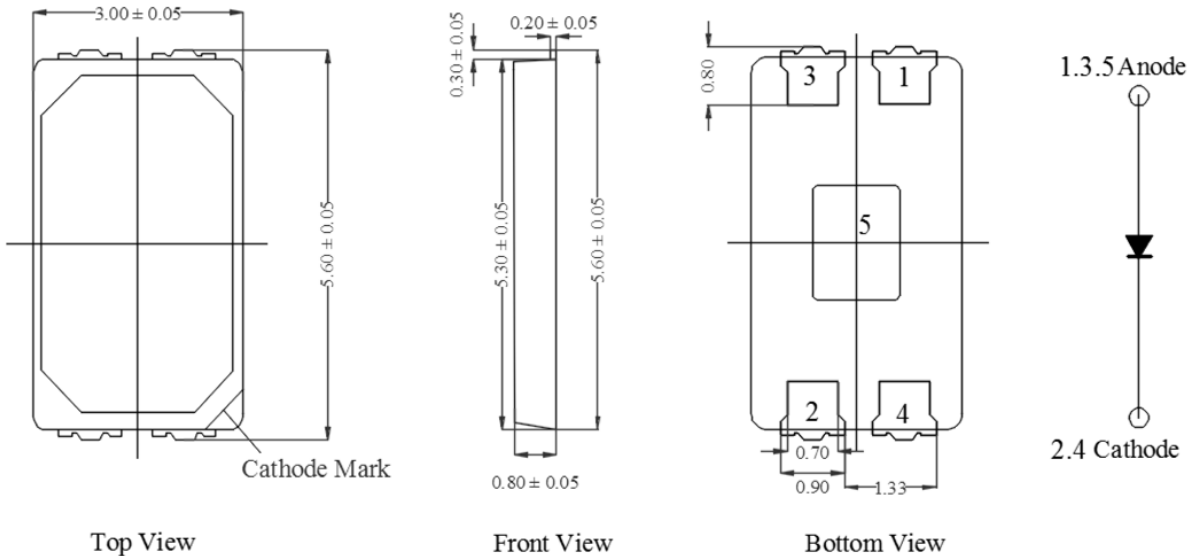


Radiation Pattern, long axis



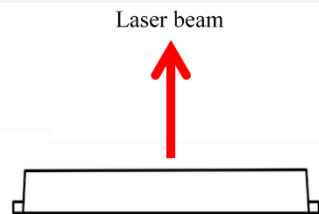


Outline Dimensions



All dimensions in mm

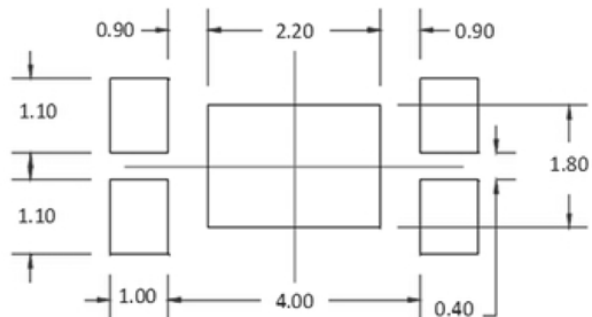
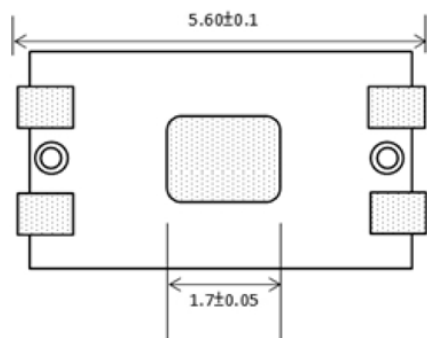
Emission Direction



Soldering Conditions (Reference Outline)

Soldering pad pattern

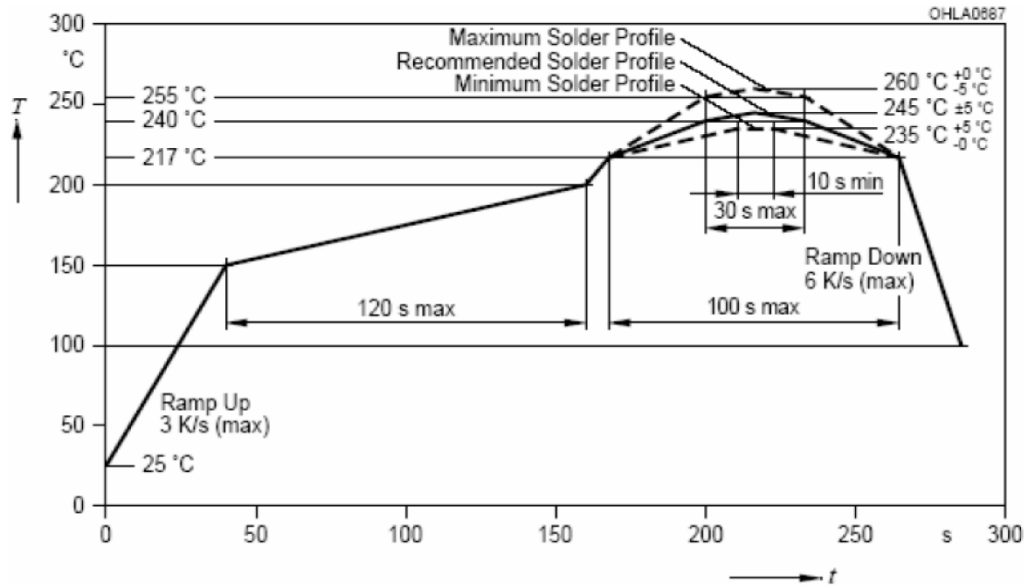
Metal solder stencil aperture



All dimensions in mm



Recommend Reflow Conditions



Precautions

Safety

Caution: Laser light emitted from any laser diode may be **harmful to the human eye**. Avoid looking directly into the laser diode's aperture when the diode is in operation.

Note: The use of optical lenses with this laser diode will increase eye hazard

ESD caution

Always do handle laser diodes with extreme care to **prevent electrostatic discharge**, the primary cause of unexpected diode failure. To prevent ESD related failures, it is strongly advised to always **wearing wrist straps**, and **grounding all applicable work surfaces**, when handling laser diodes

Operating Considerations

It is strongly advised to only operate this laser diode with a current source. The current of a laser diode is an exponential function of the voltage across it. **Usage of current regulated drive circuits is mandatory.** Laser diodes may be damaged by excessive drive currents or switching transients

It is advised, to operate the laser diode at the lowest temperature possible, and to never exceed maximum specifications as outlined in the datasheet. Device degradation will accelerate with increased temperature. **Proper heat sinking will greatly enhance stability and life time of the laser diode**