



LD-520-50SG

- Green Laser Diode
- 520 nm, 50 mW
- Single transverse mode
- TO38 package, Flat Window



Description

LD-520-50SG is a direct emitting, **GaN based**, 520 nm green laser diode in 3.8 mm TO-Can without monitor photodiode. It offers single transverse mode emission and >100 Mhz modulation bandwidth. It is an efficient radiation source for many applications like laser projection or biomedical application.

Maximum Ratings*

Parameter	Symbol	Values		Unit
		Min.	Max.	
Operating Current*1	I_{MAX}		200	mA
Output Power*1	P_{MAX}		50	mW
Reverse Voltage	V_R		2	V
Reverse Current	I_R		10	μ A
Operating Temperature*1	T_{OPR}	- 20	+ 60	$^{\circ}$ C
Storage Temperature	T_{STG}	- 40	+ 85	$^{\circ}$ C
Soldering Temperature (max. 3s)	T_{SOL}		+ 260	$^{\circ}$ C
Junction Temperature*1	T_J		+ 120	$^{\circ}$ C



* operating outside these conditions may damage the device

*1 operating at or near maximum ratings may degrade reliability and life time

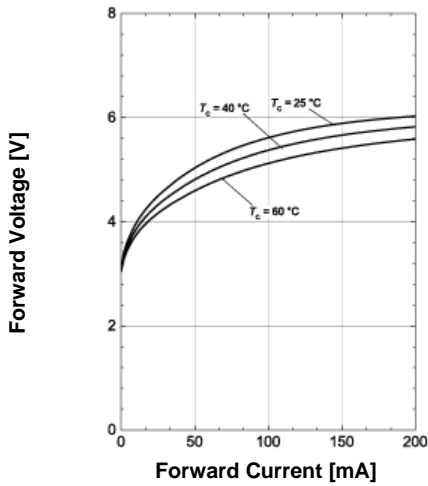
Electro-Optical Characteristics (T_{CASE} = 25 $^{\circ}$ C, P_O = 50mW)

Parameter	Symbol	Values			Unit	
		Min.	Typ.	Max.		
Peak Wavelength	λ_P	515	520	530	nm	
Spectral Width (FWHM)	$\Delta\lambda$		2		nm	
Operating Voltage	V_F		6.0	6.9	V	
Threshold Current	I_{th}		30	65	mA	
Operating Current	I_F		115	140	mA	
Modulation Frequency	f	100			MHz	
Polarization (TE)	P_{TE}		100:1			
Beam Divergence (FWHM)	parallel	$\Theta_{ }$	6	8	10	deg.
	perpendicular	Θ_{\perp}	19	22	25	deg.
Thermal Resistance (junction to case)	R_{th}		38		K/W	

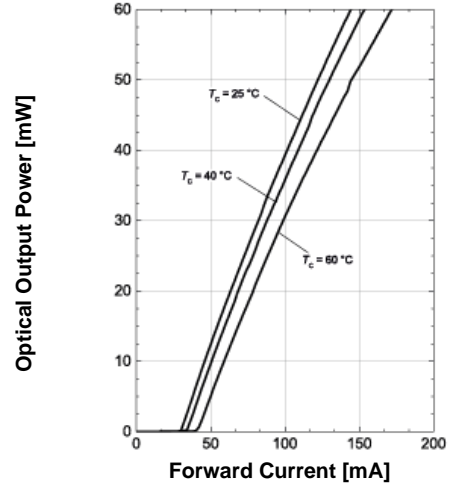


Typical Performance Curves

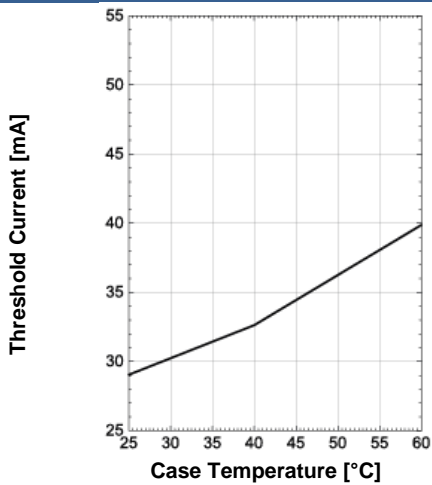
Forward Voltage vs. Forward Current



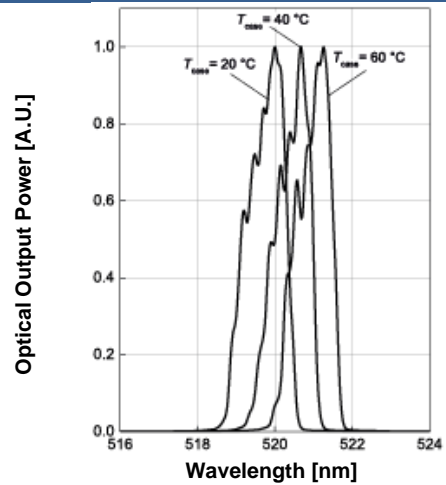
Optical Output Power vs. Forward Current



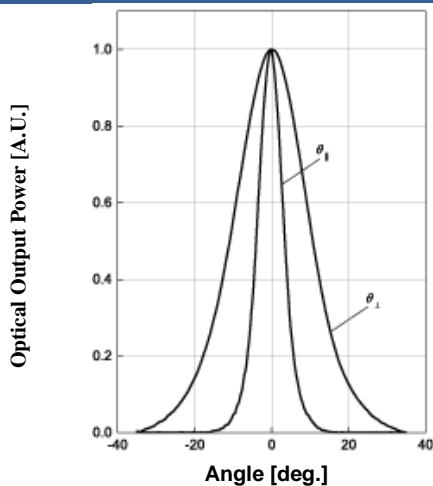
Threshold Current vs. Case Temperature



Spectral Emission

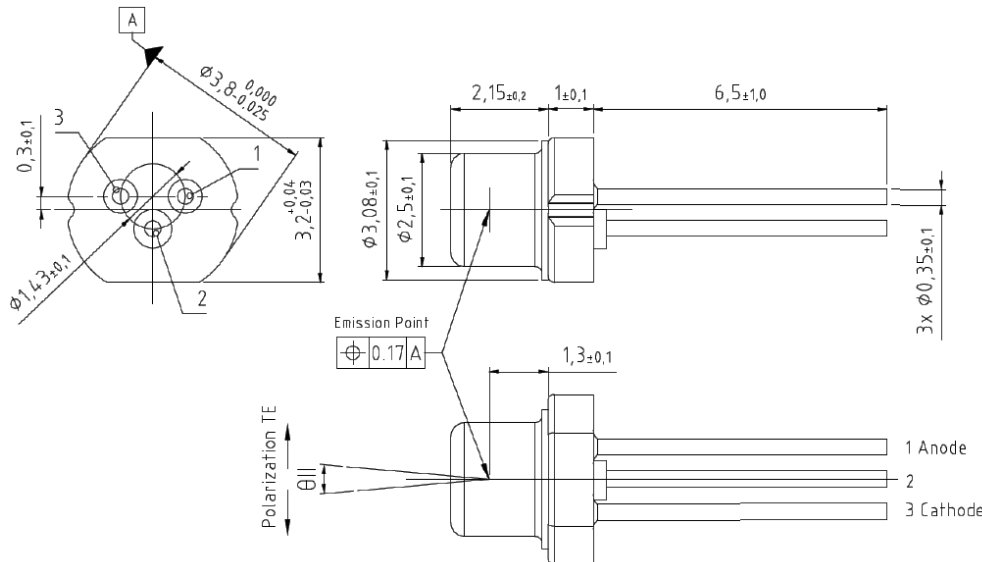


Radiation Characteristics





Outline & Electrical Connection



Pin #	Function
Pin 1	LD Anode
Pin 2	Case
Pin 3	LD Cathode

All dimensions in mm

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, we do advise to **wear wrist straps**, and to **ground all applicable work surfaces**, when handling laser diodes



Operating considerations

We do advise to operate this laser diode with a current source only. 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

We do advise to operate the laser diode at the lowest temperature possible, and never exceed the maximum specifications as outlined in the datasheet. Device degradation will accelerate with increased temperature. **Proper heat sinking will greatly enhance stability and lifetime of the laser diode**