



LD-450-1602MG

- Blue Laser Diode
- 447 nm, 1600 mW
- Multi Transverse Mode
- 5.6 mm TO-Can
- ESD Protection Diode



Description

LD-450-1602MG is a blue multi transverse mode laser diode emitting at typically 447 nm with rated output power of 1600 mW CW, in a standard 5.6 mm TO package, with integrated ESD protection. **LD-450-1602MG** has no internal PD.

Maximum Ratings (T_{CASE} = 25°C)

Parameter	Symbol	Values		Unit
		Min.	Max.	
Output power	P_O		1.8	W
Operating current	I_O		1.5	A
Operating temperature	T_O	- 20	85	°C
Storage temperature	T_S	- 20	100	°C
Junction temperature	T_J		135	°C
Soldering temperature *	T_{SOL}		260	°C

* must be completed within 10 seconds

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

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Peak wavelength* ¹	λ_P	$P_O = 1.6 W$	440	447	460	nm
Threshold current* ²	I_{TH}			190	300	mA
Operating current* ²	I_O	$P_O = 1.6 W$		1.2	1.5	A
Forward voltage* ³	V_F	$P_O = 1.6 W$		4.9	6.0	V
Beam divergence parallel (1/e ²)	$\Theta_{ }$	$P_O = 1.6 W$	6	10	13	deg.
Beam divergence perpendicular (1/e ²)	Θ_{\perp}	$P_O = 1.6 W$	35	44	50	deg.
TE polarization	P_{TE}	$P_O = 1.6 W$		100:1		
Thermal resistance junction-case	R_{TH}			13		K/W

*¹ measurement tolerance ± 1 nm

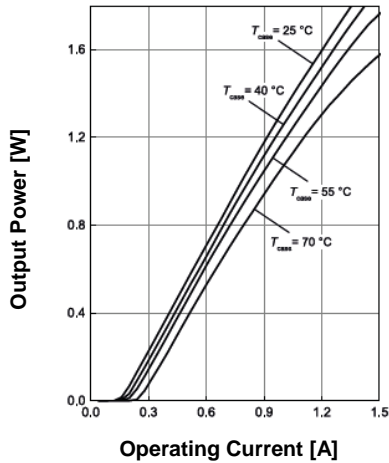
*² measurement tolerance ± 0.1 A

*³ measurement tolerance ± 0.1 V

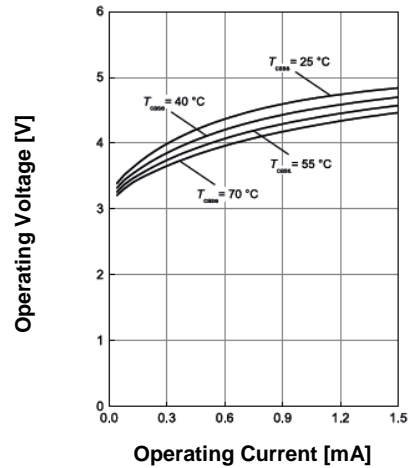


Typical Performance Curves

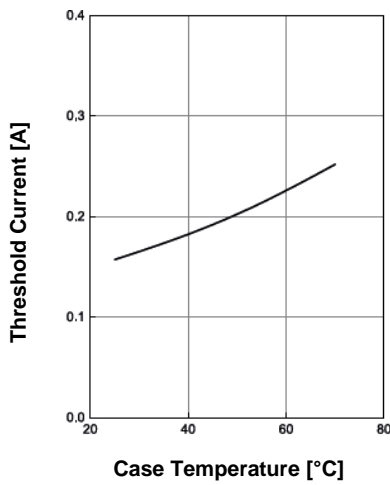
Output Power vs. Operating Current



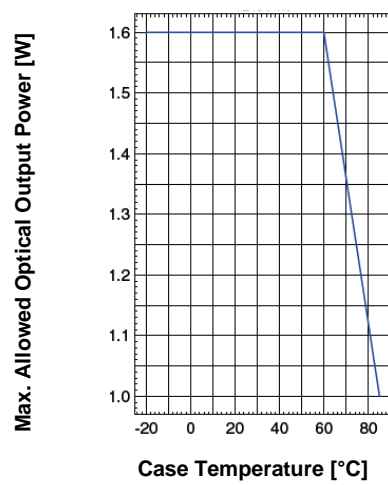
Operating Voltage vs. Operating Current



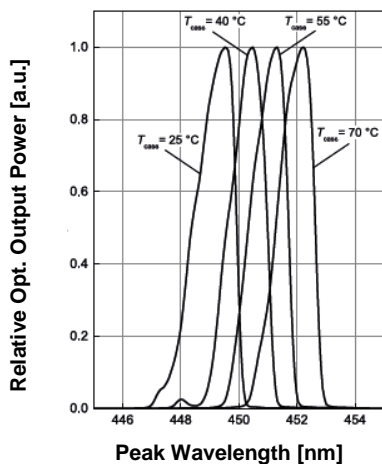
Threshold Current vs. Case Temperature



Max. Output Power vs. Case Temperature



Spectral Emission



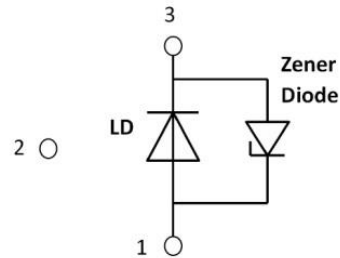
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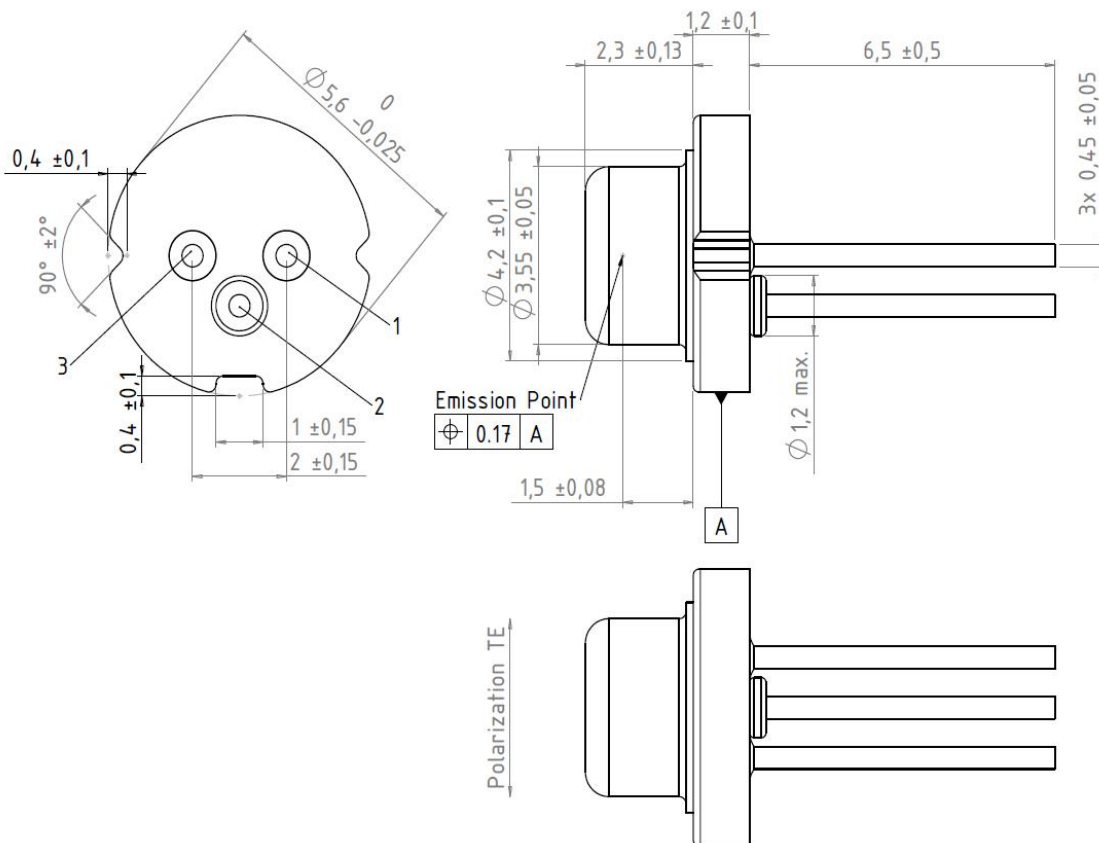
Electrical Connection

Lead	Function
Pin 1	LD anode
Pin 2	Case
Pin 3	LD Cathode



Outline Dimensions

TO-56



all dimensions in mm



Precautions

Static Electricity

Always do handle laser diodes with extreme caution to prevent electrostatic discharge, the primary cause of unexpected diode failure. ESD failures can be prevented by always wearing wrist straps, only using a grounding workplace, and following strict anti-static guidelines when handling the laser diode



Safety Advice

This laser diode emits highly concentrated blue light which can be **hazardous to the human eye and skin**. This diode is classified as **CLASS 4 laser product** according to **IEC 60825-1** and **21 CFR Part 1040.10 Safety Standards**



Operating Considerations

Operating the laser diode outside of its maximum ratings may cause failure or a safety hazard. The diode may be damaged by excessive drive currents or switching transients. If the laser diode is operated using a power supply, it is strongly recommended to connect the diode with the output voltage set to zero. The voltage should then be increased slowly and with great caution, while at the same time carefully monitoring the laser diodes output power and drive current. The laser diode will show accelerated degradation with increased temperature, and it is advised to keep the case temperature low therefor, by means of heat sinking the device.

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

Revision History

Revision	Release Date	Note
A1	2021-03	Initial Release