DT55B02 450 2W TO56

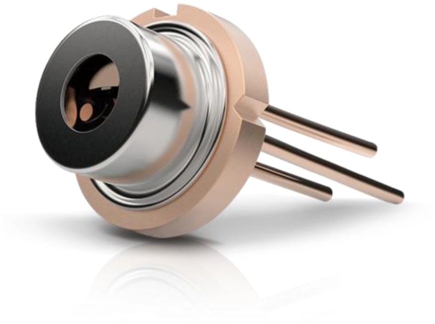
Data Sheet

Contents

DT55B02 series

450nm 2W TO56 Blue Laser Diode
Data Sheet

1.1 Applications



- Laser engrave & welding
- Stage Lighting
- Projection Professional Laser
- Laser Medical

1.2 Features

- Typical wavelength: 450nm
- Efficient radiation source for cw and pulsed operation Laser

2. Ordering Information

Part Number	Product Name	Type
B0204.000012	450nm 2W TO56	DT55B02

3. Absolute Maximum Ratings: Note: Tcase=25℃

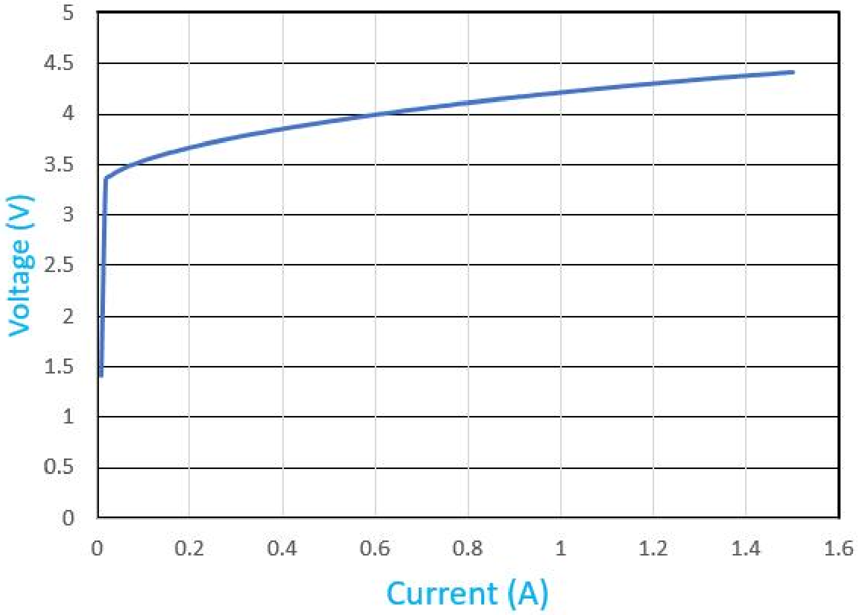
Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings will cause permanent damage and/or adversely affect device reliability.

Parameter	Conditions	Symbol	Min	Max	Unit
Operating temperature		Top	-20	75	℃
Storage temperature	CW	Tstg	-40	85	℃
Junction temperature	CW	Tj	—	135	℃
Laser Diode Reverse Voltage	CW	VRmax	—	2	V
Laser Diode Forward Current		Ifmax	—	2	A

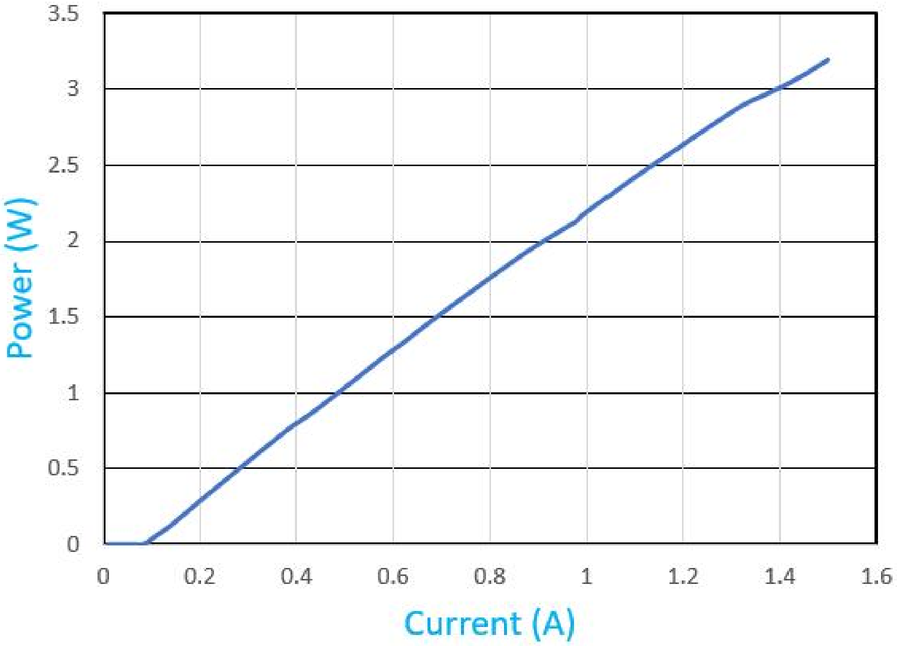
4. Initial Electrical/ Optical Characteristics Note: Tcase=25℃

Parameter	Conditions	Symbol	Min	Typical	Max	Unit
Optical Output Power	CW	Po		2		W
Threshold Current	CW	Ith			150	mA
Slope Efficiency	CW	η	1.6			W/A
Operating voltage	CW Iop :1A	Vop		4.3		V
Peak wavelength	CW Iop :1A	λpeak	440	450	465	nm
Spectral bandwidth	CW Iop :1A	Δλ		2		nm
Beam divergence parallel	CW Iop :1A	Θ//	6		11	°
Beam divergence perpendicular	CW Iop :1A	Θ⊥	41	47	53	°
Polarization	CW Iop :1A	PTE		100:1		
Thermal Resistance		RthJC		16		℃/W

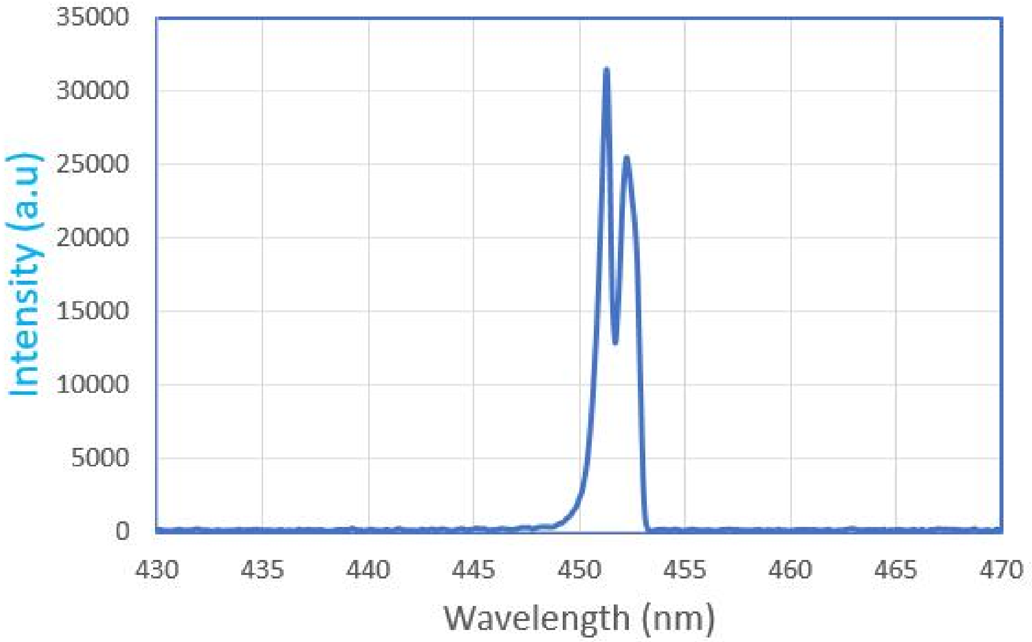
5.1 Current and Voltage Characteristics



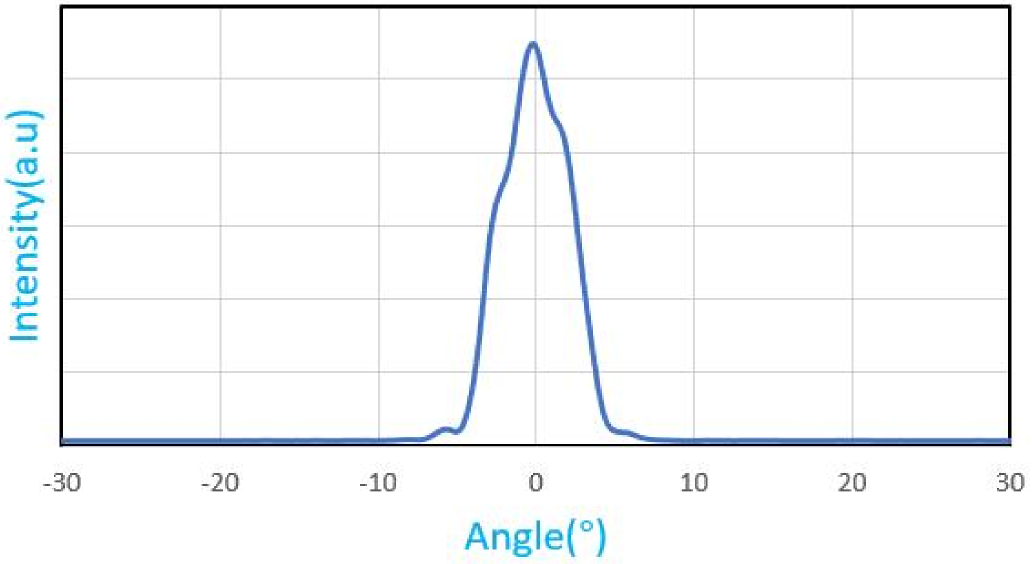
5.2 Current and Power Characteristics



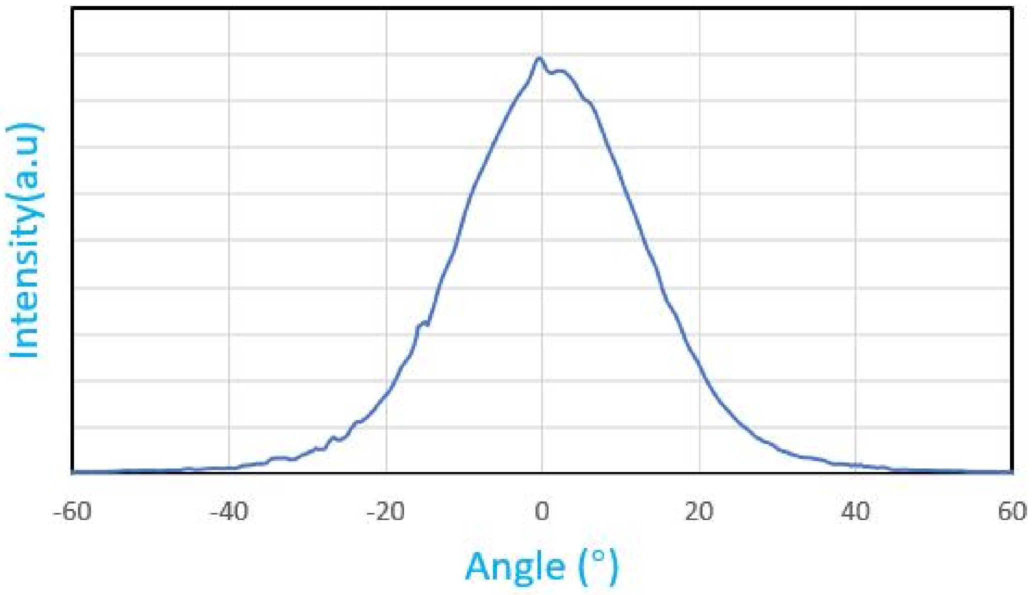
5.3 Spectrum



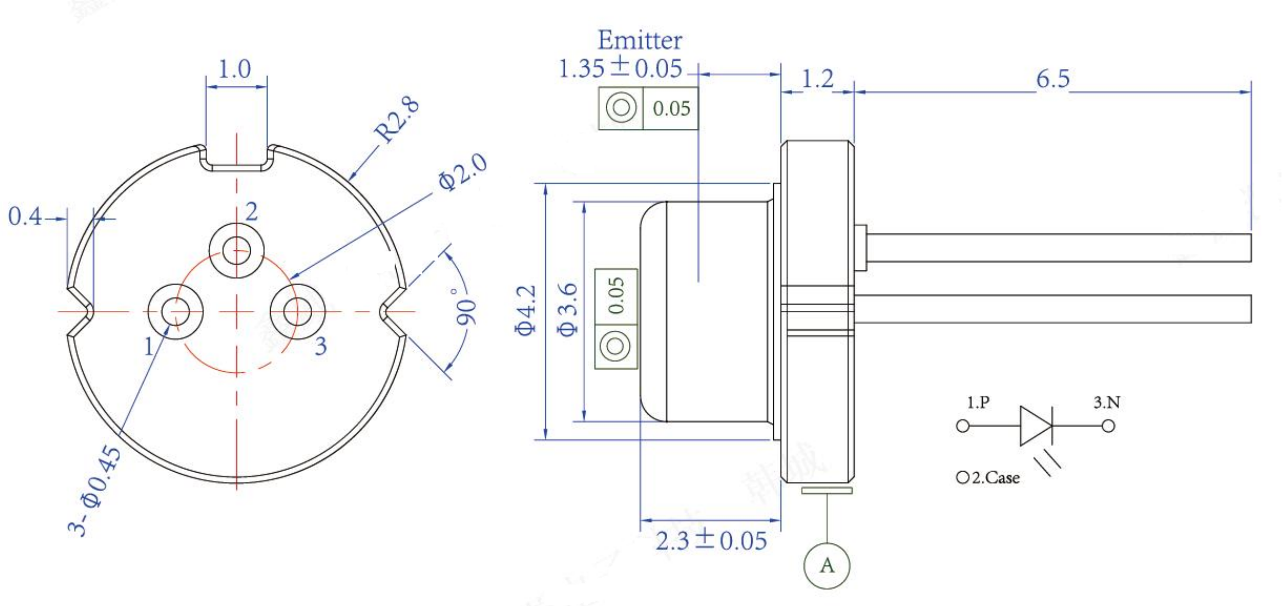
5.4 Parallel Divergence Angle



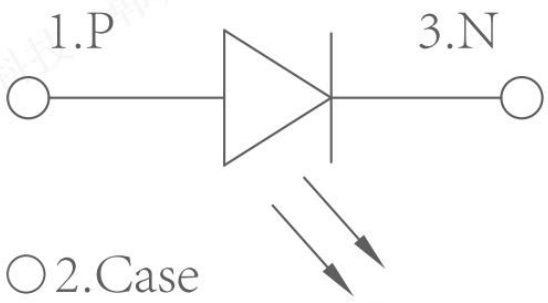
5.5 Vertical Divergence Angle



6. Outline Diagram and Pin Assignment：



7. Electrical Internal Circuit：



Pin	Description
1.P	Anode
3.N	Cathode
2.Case	N.C

8. Packaging & Storage Information：

To avoid condensation, the LDs must not be stored in areas where temperature and humidity fluctuate greatly both before and after opening the antistatic, moisture-proof bag. The LDs must be stored under an environment of 5-35ºC, 40-75% RH.

This LD has plated parts. If the LDs are exposed to a corrosive environment, it may cause the plated surface to tarnish causing issues(e.g. electric connection failures). Once the antistatic, moisture-proof bag is opened, ensure that the LDs are assembled into thechosen application/heatsink immediately; if they are not used immediately, they must be stored in a hermetically sealed container (e.g.the original antistatic, moisture-proof bag).

Do not expose the LDs to direct sunlight and/or an environment over a long period of time where the temperature is higher than normal room temperature.

9. Caution：Laser Safety:

Don’t look at the laser beam directly and or through optical lens. Wear the appropriate safety glasses to prevent the laser light.

The LDs are classified in ClassIV of IEC 60825-1 and 21 CFR part 1040.10 safety standards.

Caution：ESD:

This device is susceptible to damage as a result of electrostatic discharge. Take proper precautions during both handling and testing. Follow guidelines such as JEDEC Publication No. 108-A (Dec. 1988). Cyanopto Technologies employs a human-body model (HBM) for ESD-susceptibility testing and protection-design evaluation. ESD voltage thresholds are dependent on the critical parameters used to define the model. A standard HBM (resistance = 1.5 KΩ, capacitance = 100pF) is widely used and can be used for comparison purposes.

10.Revision History

Version	Date	Change
Preliminary	2025-08-20	Initial Version