670 nm, 1 mW, VCSEL Laser

L670VH1

Description

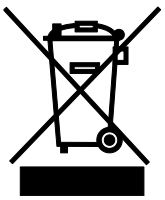
The 670 nm, 1 mW AlGaAs VCSEL diode is a compact light source suited for a variety of applications. It comes in a TO-46 package with an H pin configuration. This VCSEL diode outputs a circular Gaussian beam, which is linearly polarized. Its spectral profile is not strictly single mode and it is not recommended for single frequency applications.

This laser diode emits red light, which can be hazardous to the human eye. Products which incorporate these devices have to follow the safety precautions found in IEC 60825-1 "Safety of laser products."

Specifications

Absolute Maximum Ratings[a]		
	Symbol	**Maximum**
Operating Current	I_F	3 mA
Optical Power	P_o	1.2 mW
LD Reverse Voltage	V_R	5 V
Operating Case Temperature	T_{op}	-20 to 50 °C
Storage Temperature	T_{stor}	-40 to 125 °C

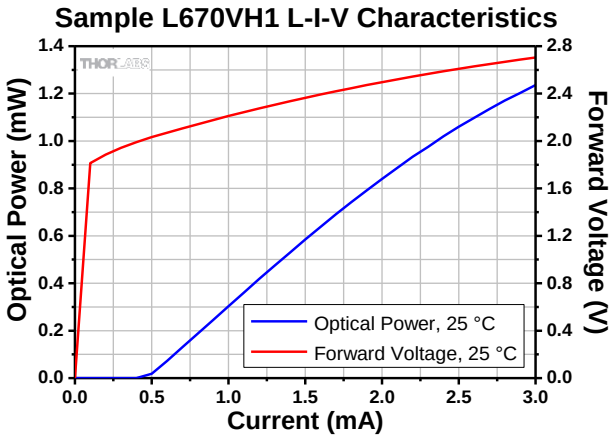
a. Absolute maximum rating specifications should never be exceeded. Operating at or beyond these conditions can permanently damage the laser.

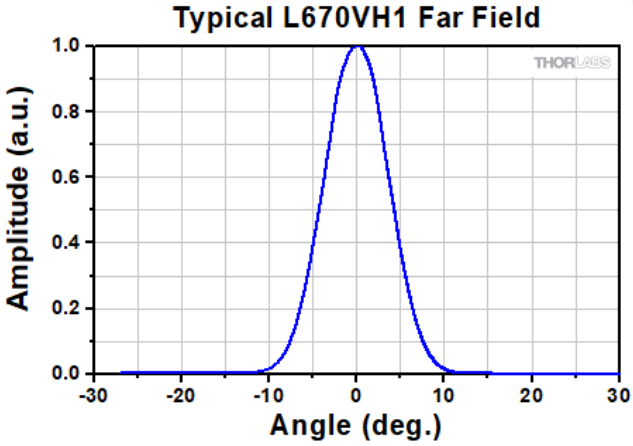


L670VH1 Specifications[b]				
Specification	**Symbol**	**Min**	**Typical**	**Max**
Center Wavelength @ P_{op}	λ_o	660 nm	670 nm	690 nm
Output Power, CW	P_{op}	-	1 mW	-
Threshold Current	I_{TH}	-	0.6 mA	-
Operating Current CW @ P_{op}	I_{op}	-	2.5 mA	2.8 mA
Operating Voltage @ P_{op}	V_{op}	-	2.6 V	3.0 V
Slope Efficiency	η	-	0.5 mW/mA	-
Wavelength Current Coefficient	dλ/dT	-	0.045 nm/°C	
Beam Divergence ($1/e^2$) @ P_{op}	Θ_1	-	16°	-
Beam Divergence (FWHM) @ P_{op}	Θ_2	-	10°	-

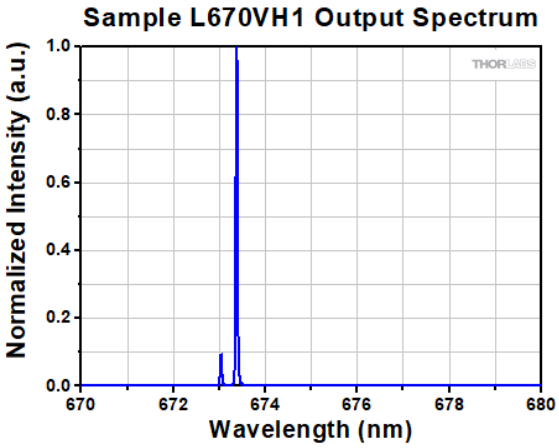
b. T_{CASE} = 25 °C, CW Current Operation

Performance Plots





Because this diode outputs a circular Gaussian beam, the far field shown is taken from an arbitrary azimuth direction.



Drawing