

## 9.5 $\mu\text{m}$ Quantum Cascade Laser, 300 mW



### Description

**QF9500T1**

The QF9500T1 is a single-spatial-mode, Fabry-Perot quantum cascade laser (QCL) contained in a TO-9 package, designed and manufactured by Thorlabs. This laser operates in continuous wave (CW) mode at room temperature. The QF9500T1 is an environmentally-sealed module with three pins for electrical connection. The TO can does not contain a monitor photodiode. The emitting surface is protected by an AR-coated ZnSe window, and the output beam is divergent. This semiconductor laser is a compact light source suited to many applications.

### Specifications

QF9500T1	
LD Reverse Voltage (Max)	1 V
PD Reverse Voltage (Max)	N/A
Absolute Max Current	0.8 A <sup>a</sup>
Absolute Max Power	800 mW
Operating Temperature	15 to 50 °C <sup>b</sup>
Storage Temperature	-40 to 85 °C <sup>b</sup>

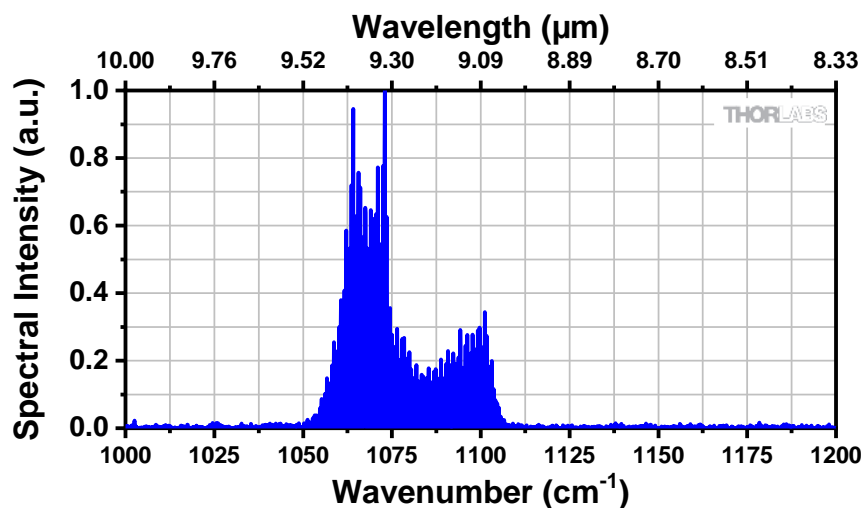


- a. The maximum current for each device may be lower than this value and is specified on a device-by-device basis.
- b. Non-Condensing Environment

QF9500T1, T = 25 °C, CW Current Operation				
	Symbol	Min	Typical	Max
Center Wavelength at Operating Power	$\lambda$	9 $\mu\text{m}$	9.5 $\mu\text{m}$	10 $\mu\text{m}$
Output/Operating Power	$P_{\text{out}}$	300 mW	-	-
Operating Current	$I_{\text{op}}$	-	550 mA	800 mA
Threshold Current	$I_{\text{TH}}$	-	300 mA	-
Forward Voltage	$V_F$	-	12 V	15 V
Perpendicular Beam Divergence Angle (FWHM)	$\theta_{\perp}$	-	55°	-
Parallel Beam Divergence Angle (FWHM)	$\theta_{\parallel}$	-	40°	-

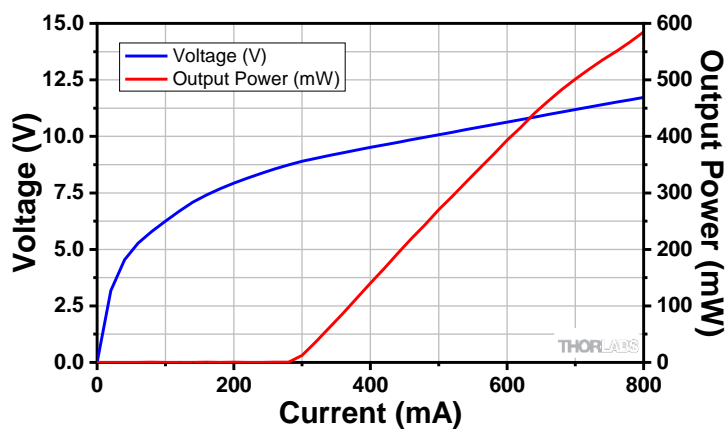
## Sample Performance Plots

### QF9500T1 Sample Output Spectrum

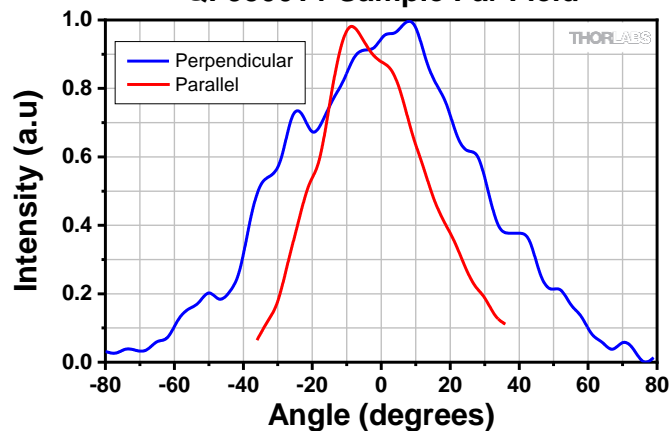


All values are measured at 25 °C. The spectrum above shows the fine structure of the Fabry-Perot modes. Please note that the resolution bandwidth of this measurement is 0.125 cm<sup>-1</sup> (3.75 GHz).

### QF9500T1 Sample L-I-V Characteristics

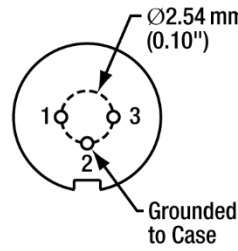
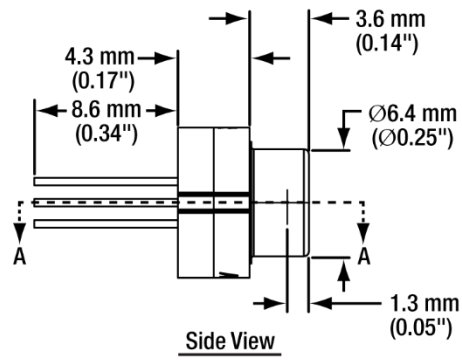


### QF9500T1 Sample Far Field

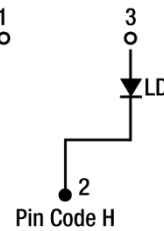


All values are measured at 25 °C.

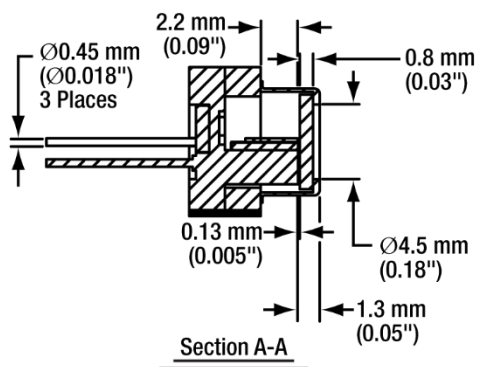
## Drawings



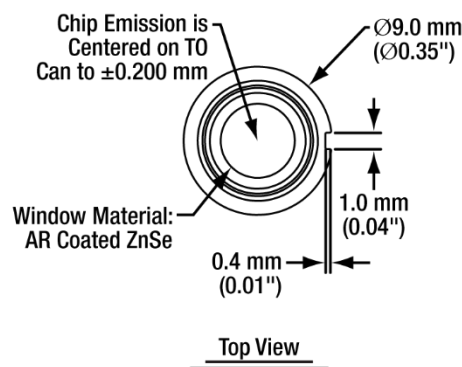
Bottom View



Pin Diagram



Section A-A



Top View