4.05 µm Quantum Cascade Laser, 70 mW

QF4050T2

Description

The QF4050T2 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 QF4050T2 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 sapphire window, and the output beam is divergent. This semiconductor laser is a compact light source suited to many applications.

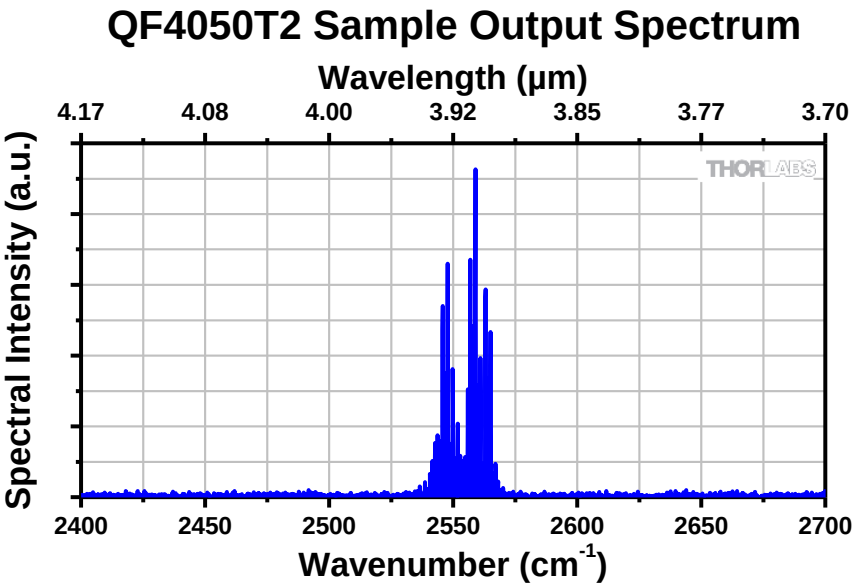
Specifications

QF4050T2	
LD Reverse Voltage (Max)	1 V
PD Reverse Voltage (Max)	N/A
Absolute Max Current	1 A[a]
Absolute Max Power	400 mW
Operating Temperature	15 to 50 °C[b]
Storage Temperature	-40 to 85 °C[b]

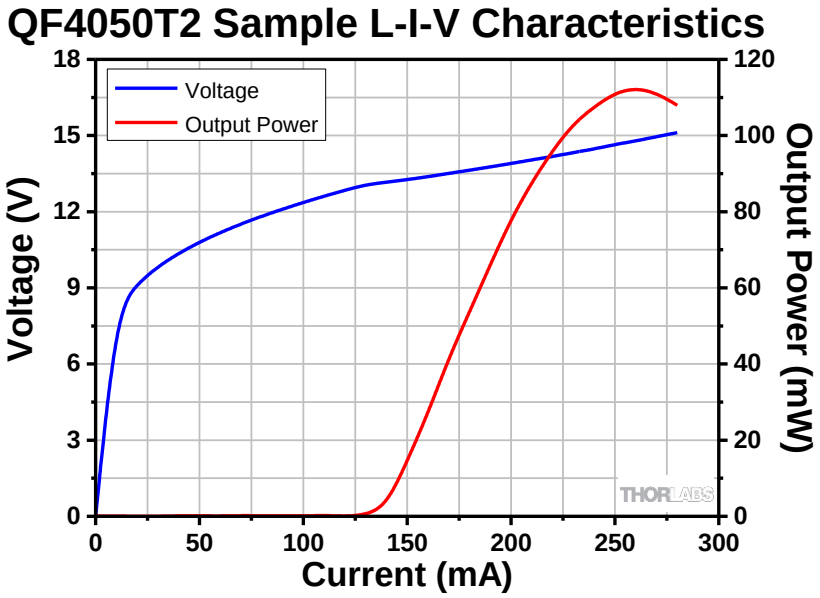
a. The maximum current for each device may be lower than this value and is specified on a device-by-device basis.
b. Non-Condensing Environment

QF4050T2, T = 25 °C, CW Current Operation				
	Symbol	**Min**	**Typical**	**Max**
Wavelength at Operating Power	λ	3.9 µm	4.05 µm	4.2 µm
Output/Operating Power	P_{out}	70 mW	-	-
Operating Current	I_{op}	-	250 mA	400 mA
Threshold Current	I_{TH}	-	150 mA	-
Forward Voltage	V_F	-	12 V	15 V
Perpendicular Beam Divergence Angle (FWHM)	$\theta_{\perp}$	-	40°	-
Parallel Beam Divergence Angle (FWHM)	$\theta_{\parallel}$	-	30°	-

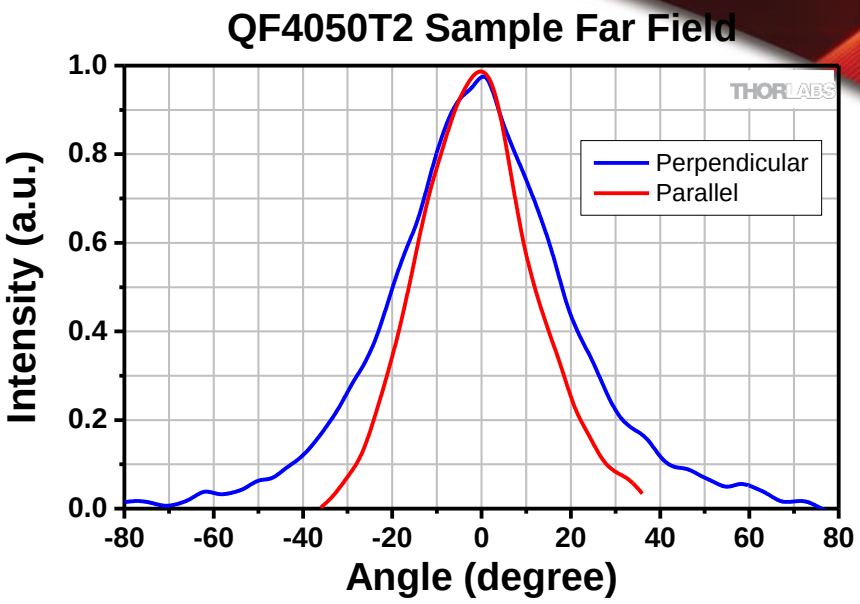
Sample Performance Plots



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^{-1} (3.75 GHz).



All values are measured at 25 °C.



All values are measured at 25 °C.

Drawings