4.6 µm Quantum Cascade Laser, 200 mW

QF4600T2

Description

The QF4600T2 laser is a single-spatial-mode, Fabry-Perot quantum cascade laser (QCL) contained in a TO-9 package. The laser is designed and manufactured by Thorlabs. This laser operates in continuous wave (CW) mode at room temperature. The laser package 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

Absolute Maximum Ratings	
LD Reverse Voltage (Max)	1 V
Absolute Max Current	0.5 A[a]
Absolute Max Power	500 mW
Operating Temperature	15 to 50 °C[b]
Storage Temperature	-40 to 85 °C[b]

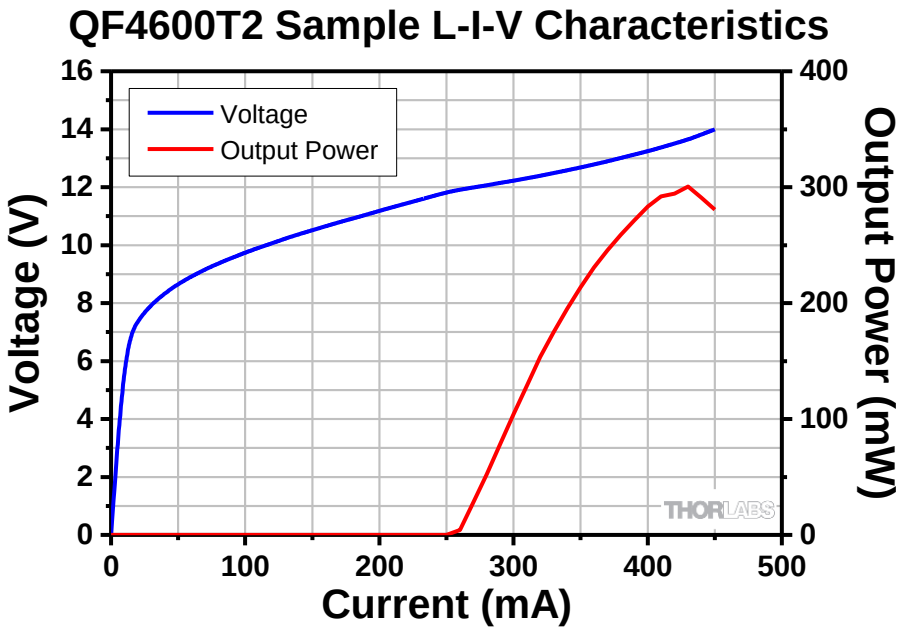
a. The maximum current for each device may be lower than this value and is specified on a device-by-device basis in the individual datasheets.

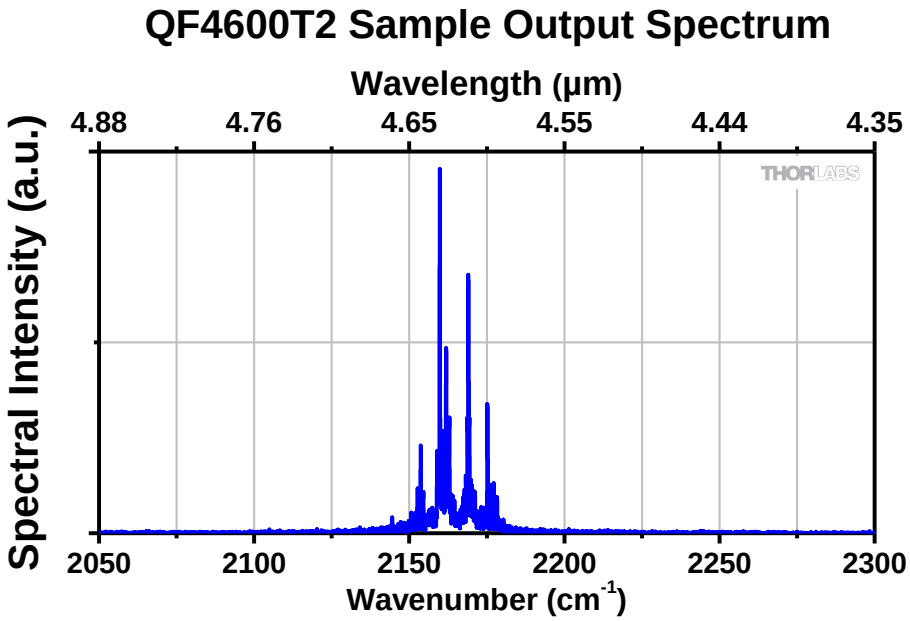
b. Non-Condensing Environment

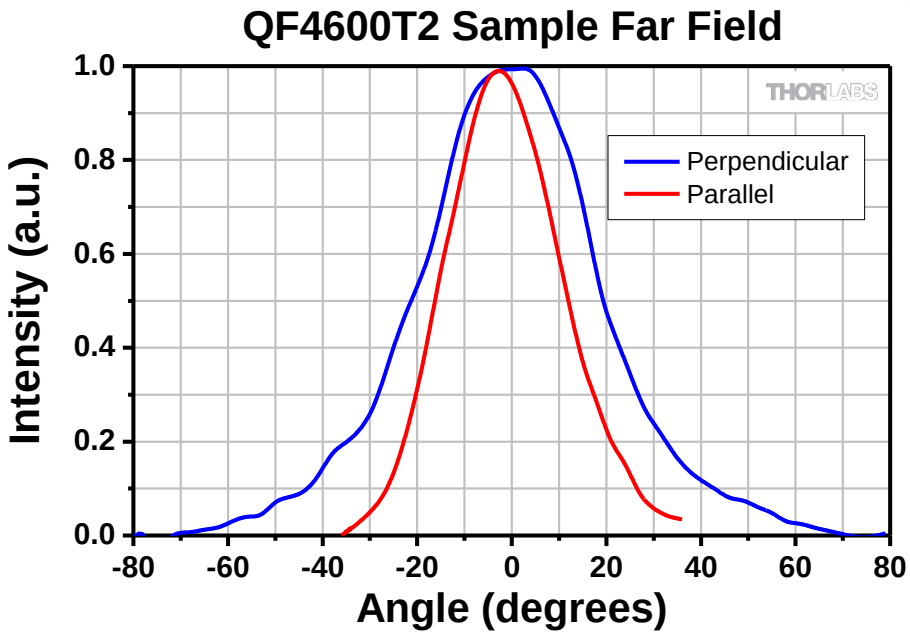
QF4600T2 Specifications[a]				
	Symbol	**Min**	**Typical**	**Max**
Center Wavelength	λ_C	4.45 µm	4.6 µm	4.75 µm
Output Power	P_{out}	200 mW	-	-
Operating Current	I_{pp}	-	-	500 mA
Threshold Current	I_{TH}	-	250 mA	-
Forward Voltage	V_F	-	13.0 V	14.0 V
Parallel Beam Divergence Angle (FWHM)	$\theta_{\parallel}$	-	30°	-
Perpendicular Beam Divergence Angle (FWHM)	$\theta_{\perp}$	-	40°	-

a. All values are specified at T_{case} = 25 °C, CW current operation.

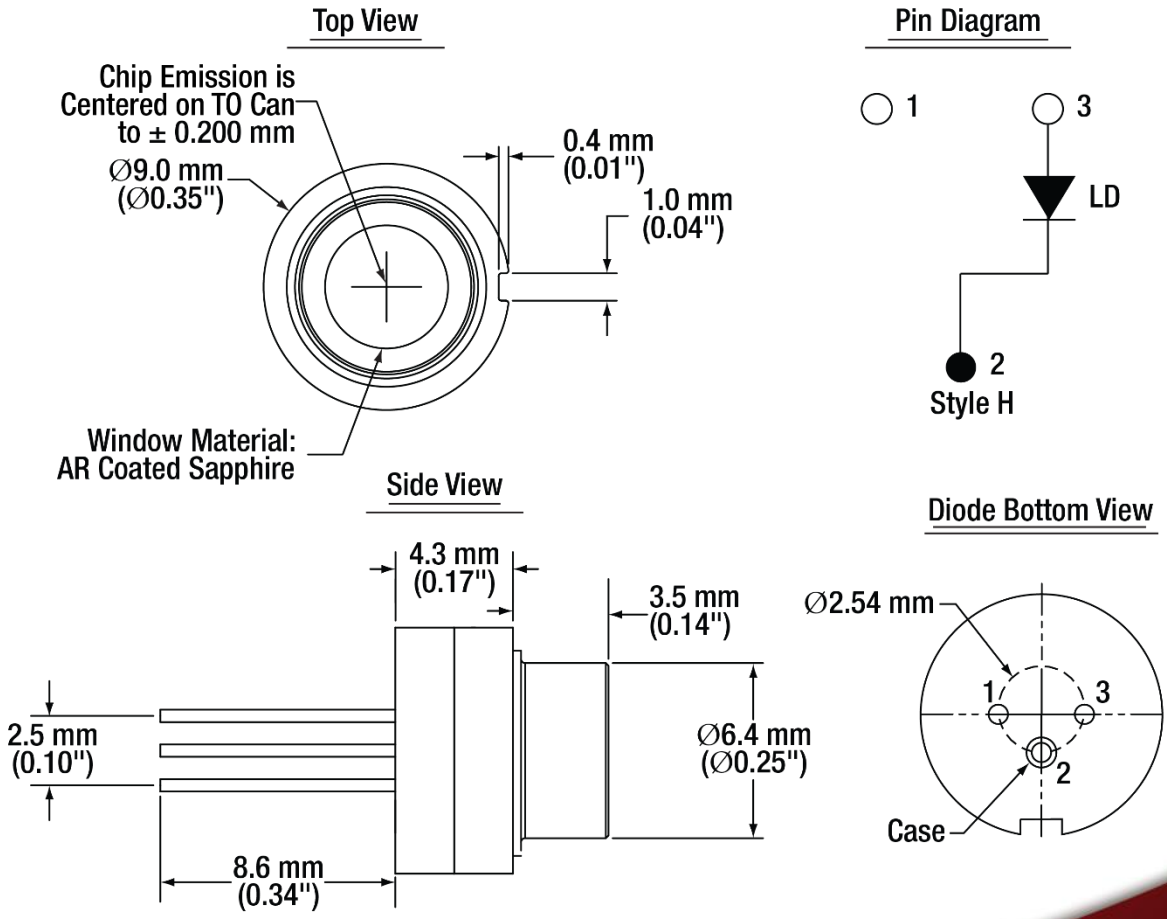
Sample Performance Plots






QF4600T2 Sample Far Field
Intensity (a.u.)
Angle (degrees)
Perpendicular
Parallel
1.0
0.8
0.6
0.4
0.2
0.0
-80
-60
-40
-20
0
20
40
60
80

Drawings


Top View
Chip Emission is Centered on TO Can to ± 0.200 mm
Ø9.0 mm (Ø0.35")
0.4 mm (0.01")
1.0 mm (0.04")
Window Material: AR Coated Sapphire
Pin Diagram
1
3
LD
2
Style H
Side View
4.3 mm (0.17")
3.5 mm (0.14")
2.5 mm (0.10")
Ø6.4 mm (Ø0.25")
8.6 mm (0.34")
Diode Bottom View
Ø2.54 mm
1
3
2
Case