4.60 µm Quantum Cascade Laser, 1000 mW

QF4600T3

Description

The QF4600T3 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 QF4600T3 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 a ZnSe window, and the output beam is divergent. This semiconductor laser is a compact light source suited to many applications.

Specifications

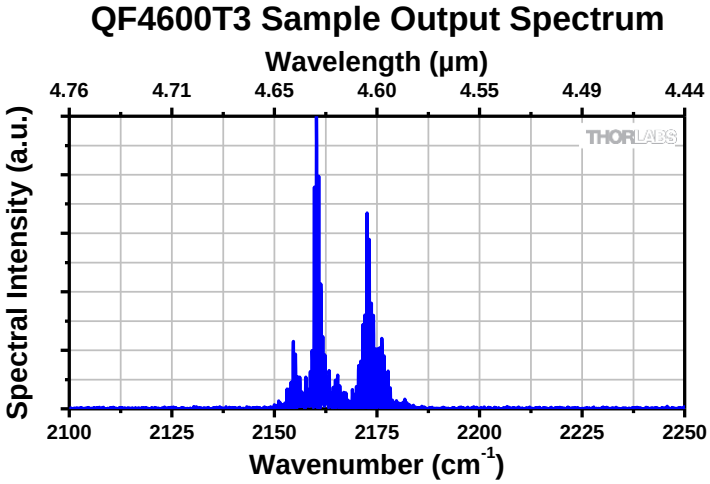
Absolute Maximum Ratings	
LD Reverse Voltage (Max)	1 V
PD Reverse Voltage (Max)	N/A
Absolute Max Current	1 A[a]
Absolute Max Power	2 W
Operating Temperature	15 to 50 °C[b]
Storage Temperature	-40 to 85 °C[b]

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

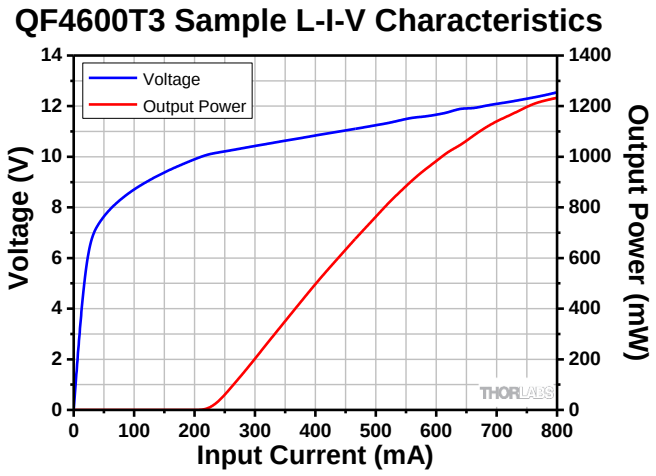
QF4600T3 (T = 25 °C, CW Current Operation)				
	Symbol	**Min**	**Typical**	**Max**
Center Wavelength	λ	4.5 µm	4.60 µm	4.7 µm
Output Power	P_{out}	1 W	-	-
Operating Current	I_{op}	-	600 mA	800 mA
Threshold Current	I_{TH}	-	250 mA	-
Forward Voltage	V_F	-	13 V	15 V
Perpendicular[a] Beam Divergence Angle (FWHM)	$\theta_\perp$	-	40°	-
Parallel[a] Beam Divergence Angle (FWHM)	$\theta_\parallel$	-	30°	-

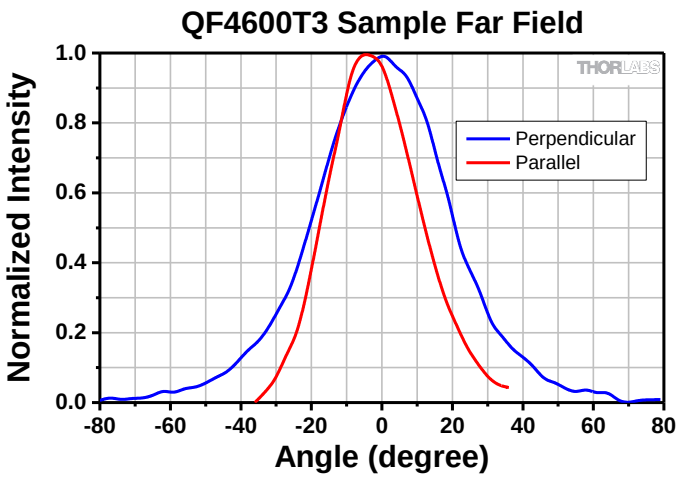
a. The parallel and perpendicular are relative to the submount surface in the TO-9 header. The submount surface is parallel to pins 1 and 3.

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.

Drawing for QF4600T3