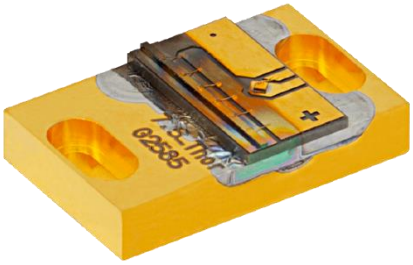
4600 nm FP Quantum Cascade Laser, 3.0 W



QF4600D3

Description

The QF4600D3 is a single spatial mode, Fabry-Perot Quantum Cascade Laser designed and manufactured by Thorlabs. This laser operates in continuous wave (CW) mode at room temperature. The QF4600D3 is mounted on an open heatsink D-mount package with both the cathode and anode isolated from the heatsink base. This discrete semiconductor laser is a compact light source suited to many applications. A thermistor is integrated for temperature monitoring. There is no monitor photodiode.

Specifications

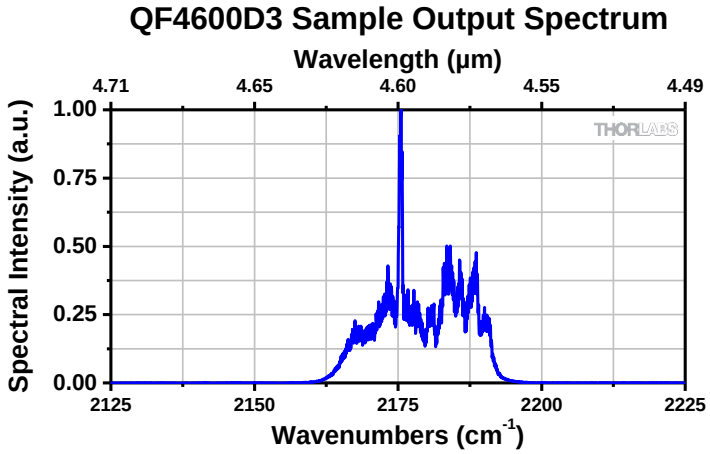
Absolute Maximum Ratings	
LD Reverse Voltage (Max)	1 V
PD Reverse Voltage (Max)	N/A
Absolute Max Current	Varies Between Devices[a]
Absolute Max Power	4000 mW
Operating Temperature	15 to 50 °C[b]
Storage Temperature	-40 to 85 °C[b]

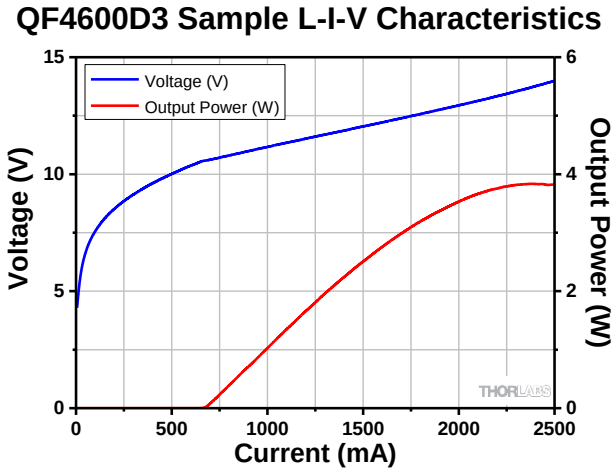
a. The absolute maximum current is determined on a device-by-device basis and is listed on the device's data sheet.
b. Non-condensing environment. Single spatial mode performance is tested and guaranteed at 25 °C.

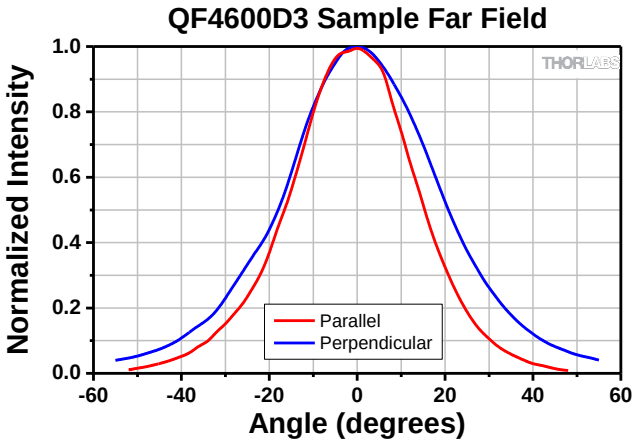
Optical/Electrical Specifications[c]				
	Symbol	**Min**	**Typical**	**Max**
Center Wavelength	λ_C	4.45 µm	4.60 µm	4.75 µm
Spectral Bandwidth (5 - 95% Integrated Power)	$\Delta\lambda$	-	60 nm	-
Output Power	P_{out}	3.0 W	-	-
Operating Current	I_{op}	-	1700 mA	2500 mA
Threshold Current	I_{TH}	-	600 mA	-
Forward Voltage	V_F	-	12.5 V	15 V
Slope Efficiency	$\Delta P/\Delta I$	-	3.0 W/A	-
Perpendicular Beam Divergence Angle (FWHM)	$\theta_\perp$	-	40°	-
Parallel Beam Divergence Angle (FWHM)	$\theta_\parallel$	-	30°	-
Thermistor Resistance[d]	R_T	-	10 kΩ	-
Steinhart-Hart Coefficients	A	-	1.129×10^{-3}	-
	B	-	2.341×10^{-4}	-
	C	-	0.878×10^{-7}	-

c. T=25°C, CW Current Operation
d. Thermistor Resistance follows the Steinhart-Hart Equation: $\frac{1}{T} = A + B\ln(R_{TH}) + C(\ln R_{TH})^3$

Performance Plots







Drawings for QF4600D3