Quantum Cascade Laser, 60 mW, CWL Between 9.5 and 9.6 µm

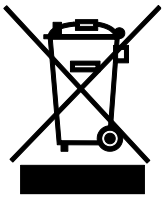
QD9550C2

Description

The QD9550C2 is a single spatial mode, single longitudinal mode, Distributed Feedback Quantum Cascade Laser designed and manufactured by Thorlabs. This laser operates in Continuous Wave (CW) mode at room temperature. The QD9550C2 is mounted on an open heatsink C-mount package with both the cathode and the anode isolated from the heatsink base. This discrete semiconductor laser is a compact light source suited to many applications. There is no monitor photodiode.

Specifications

QD9550C2	
LD Reverse Voltage (Max)	1 V
PD Reverse Voltage (Max)	N/A
Absolute Max Current	Varies Between Devices[a]
Absolute Max Output Power	600 mW
Operating Temperature[b]	15 to 50 °C
Storage Temperature[b]	-40 to 85 °C



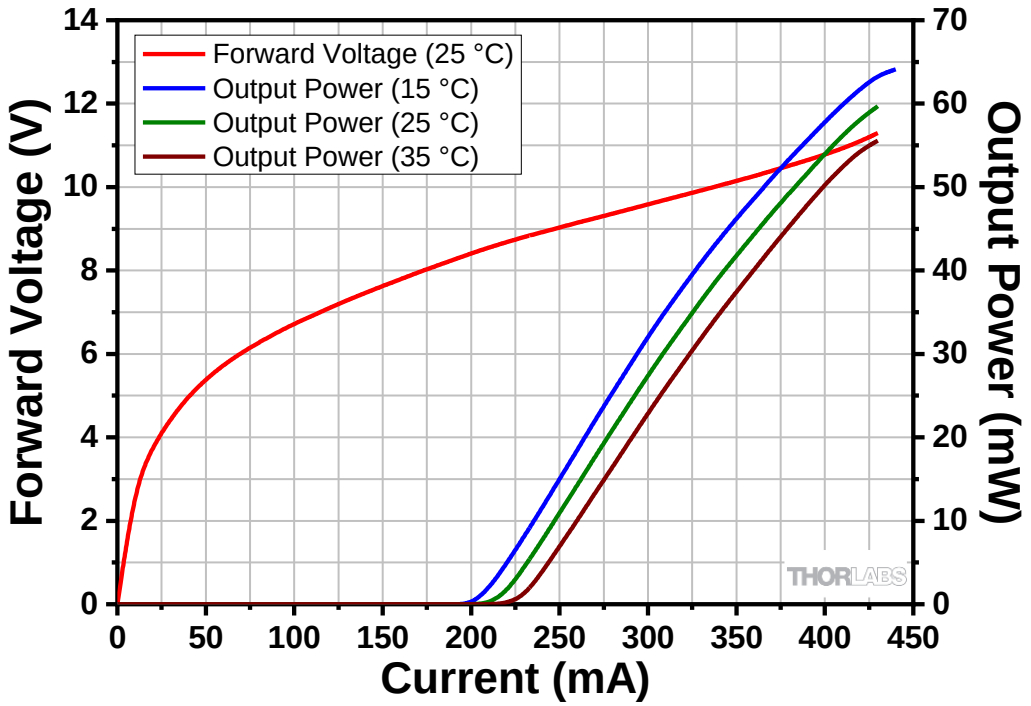
[a]The absolute maximum current is determined on a device-by-device basis and is listed on the device's data sheet.

[b]Non-condensing environment. Single mode performance is tested and guaranteed at 25 °C.

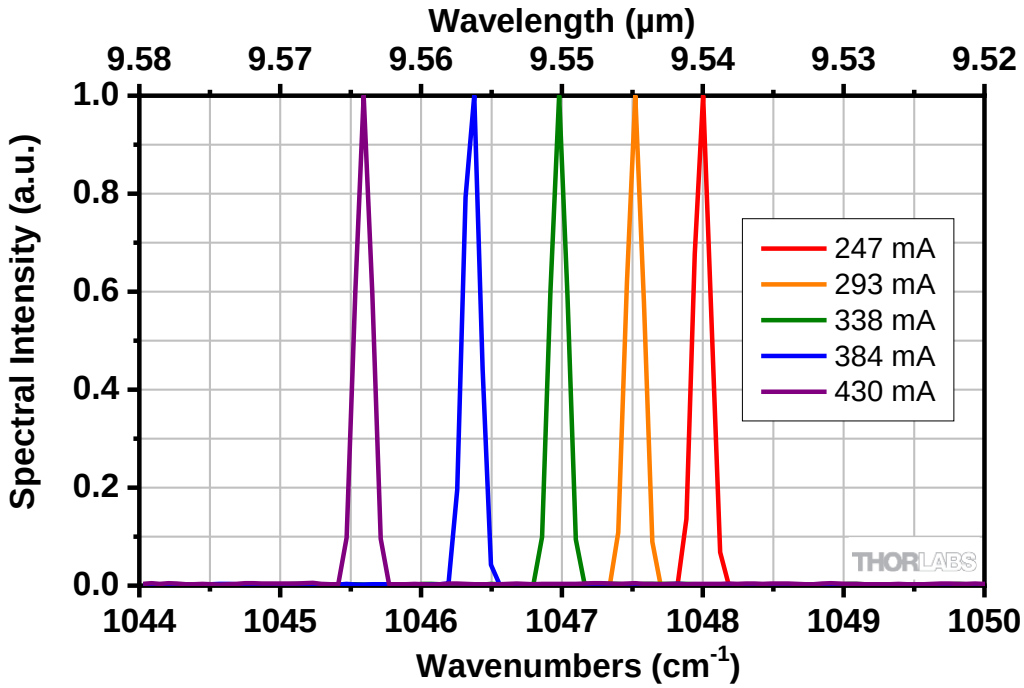
QD9550C2 Specifications, T_{case} = 25 °C, CW Current Operation				
	Symbol	**Min**	**Typical**	**Max**
Center Wavelength	λ_C	9.50 µm	-	9.60 µm
Tuning Range	TR	1.5 cm^{-1}	2.5 cm^{-1}	-
Temperature Tuning	$\Delta\bar{\nu}/\Delta T$	-	-0.08 cm^{-1}/ °C	-
Side Mode Suppression	SMSR	20 dB	-	-
Optical Output Power	P_{out}	10 mW	60 mW	-
Operating Current	I_{op}	-	-	800 mA
Threshold Current	I_{TH}	-	250 mA	-
Forward Voltage	V_F	-	9.5 V	14 V
Slope Efficiency	$\Delta P/\Delta I$	-	0.5 W/A	-
Divergence Angle, Perpendicular (FWHM)	$\theta_\perp$	-	55°	-
Divergence Angle, Parallel (FWHM)	$\Theta_\parallel$	-	40°	-

Sample Performance Plots

QD9550C2 Sample L-I-V Characteristics

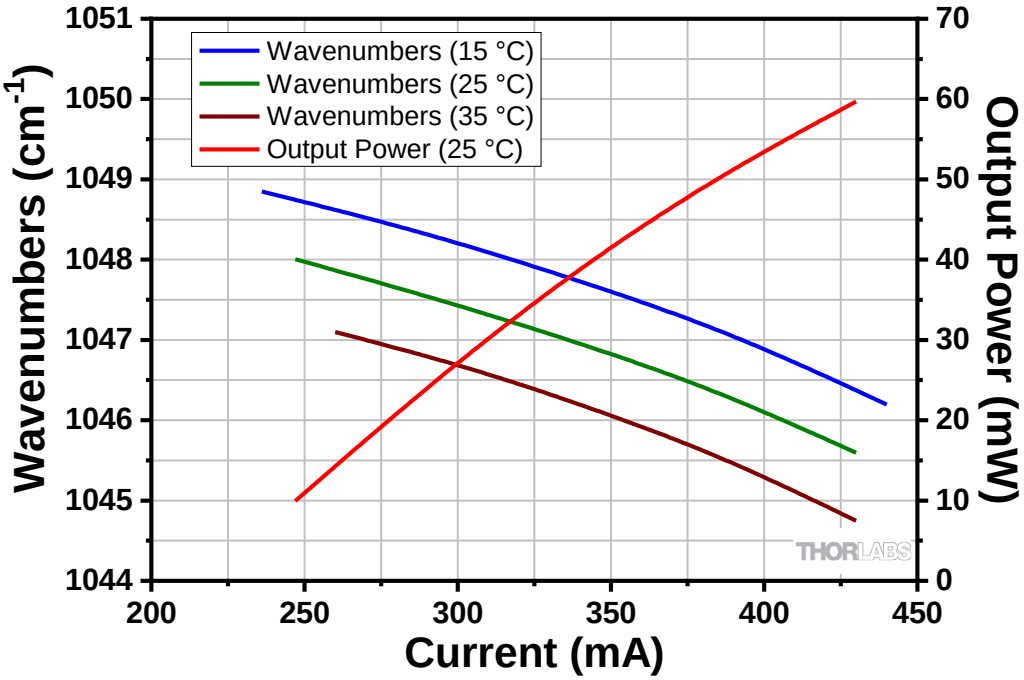


QD9550C2 Sample Output Spectrum

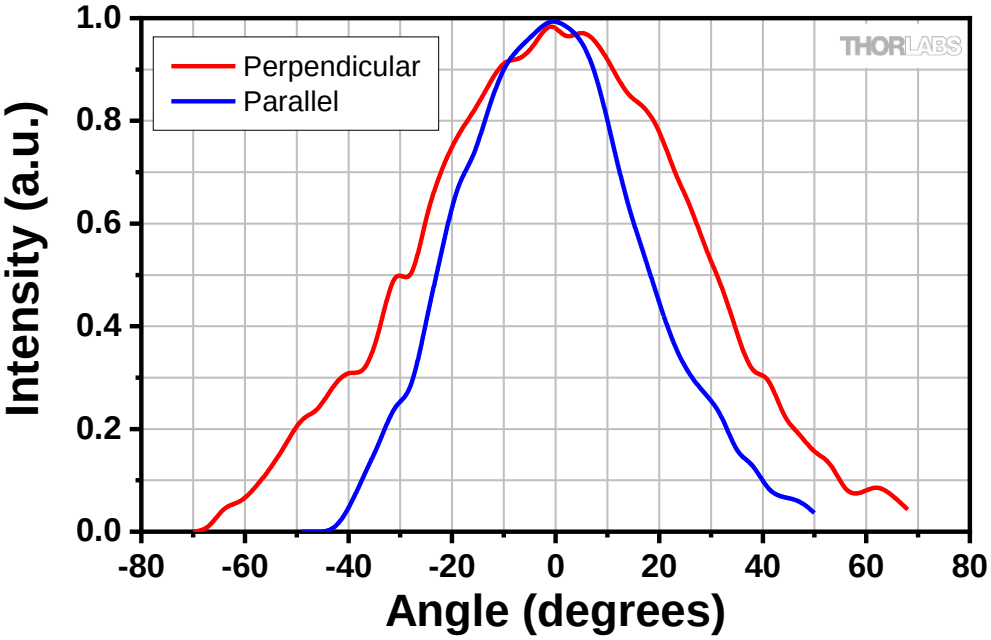


Performance Plots (Cont.)

QD9550C2 Sample Output Wavelength and Power



QD9550C2 Sample Far Field Divergence



Far field divergence values are measured at 25 °C and at a distance of 89.4 mm from the laser. The detector's aperture is Ø10 mm, and the sampling step size is 3°. The angle subtended by the detector is 6.4°.

Drawings for QD9550C2