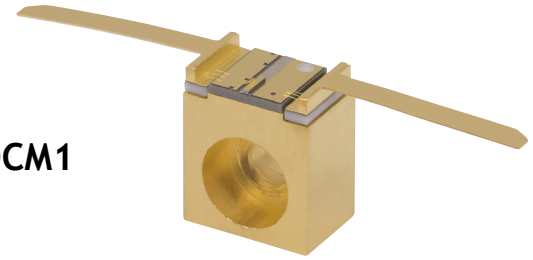
Quantum Cascade Laser, 60 mW, CWL Between 9 and 10 µm



QD9500CM1

Description

The QD9500CM1 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 QD9500CM1 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

QD9500CM1	
LD Reverse Voltage (Max)	1 V
PD Reverse Voltage (Max)	N/A
Absolute Max Current	Varies Between Devices[a]
Absolute Max Output Power	300 mW
Operating Temperature[b]	15 to 50 °C
Storage Temperature[b]	-40 to 85 °C

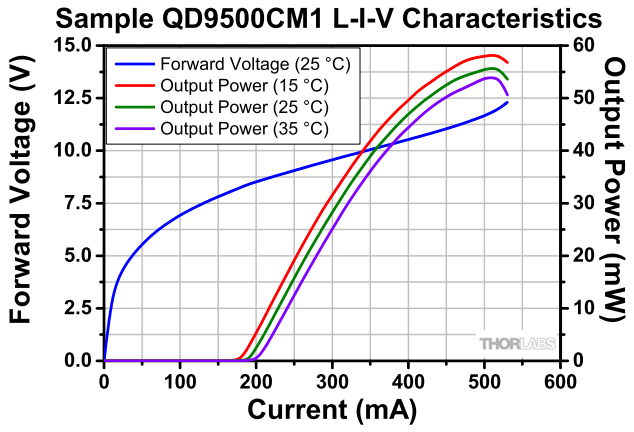
[a]The absolute maximum current is determined on a device-by-device basis and is listed on the device's data sheet.

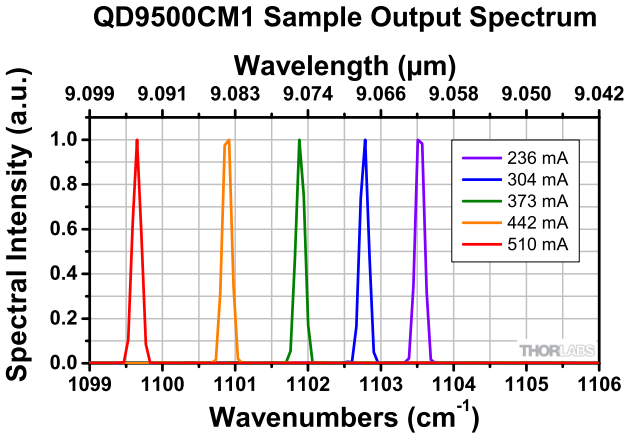
[b]Non-condensing environment. Single mode performance is tested and guaranteed at 25 °C.

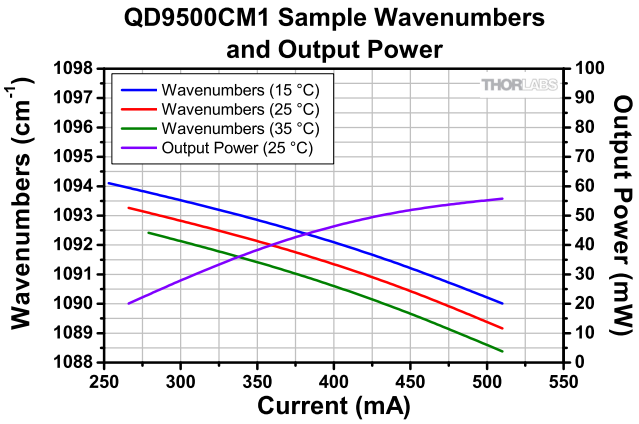
T_{Case} = 25 °C, CW Operation

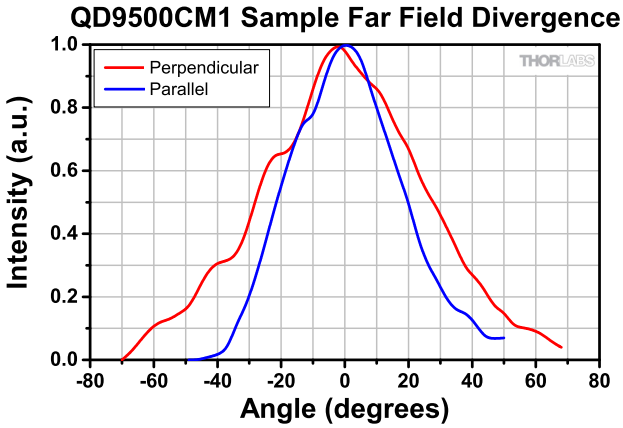
QD9500CM1				
	Symbol	**Min**	**Typical**	**Max**
Wavelength at Minimum Operating Current	λ_c	9.00 µm	-	10.00 µm
Tuning Range	TR	1.5 cm^{-1}	2.5 cm^{-1}	-
Temperature Tuning	$\Delta\bar{\nu}/\Delta T$	-	-0.08 cm^{-1}/ °C	-
Side Mode Suppression	SMSR	20 dB	-	-
Optical Output Power	P_{out}	10 mW	60 mW	-
Operating Current	I_{pp}	-	-	800 mA
Threshold Current	I_{TH}	-	300 mA	-
Forward Voltage	V_F	-	9.5 V	14.0 V
Perpendicular Beam Divergence Angle (FWHM)	$\theta_\perp$	-	55°	-
Parallel Beam Divergence Angle (FWHM)	$\theta_\parallel$	-	40°	-
Slope Efficiency, Front Facet	$\Delta P/\Delta I$	-	0.3 W/A	-

Sample Performance Plots









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 QD9500CM1