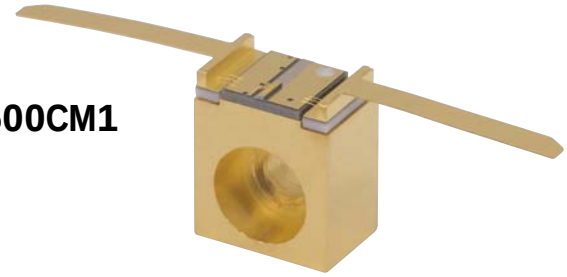
Quantum Cascade Laser, 40 mW, CWL between 10 and 11 µm

QD10500CM1



Description

The QD10500CM1 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 QD10500CM1 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

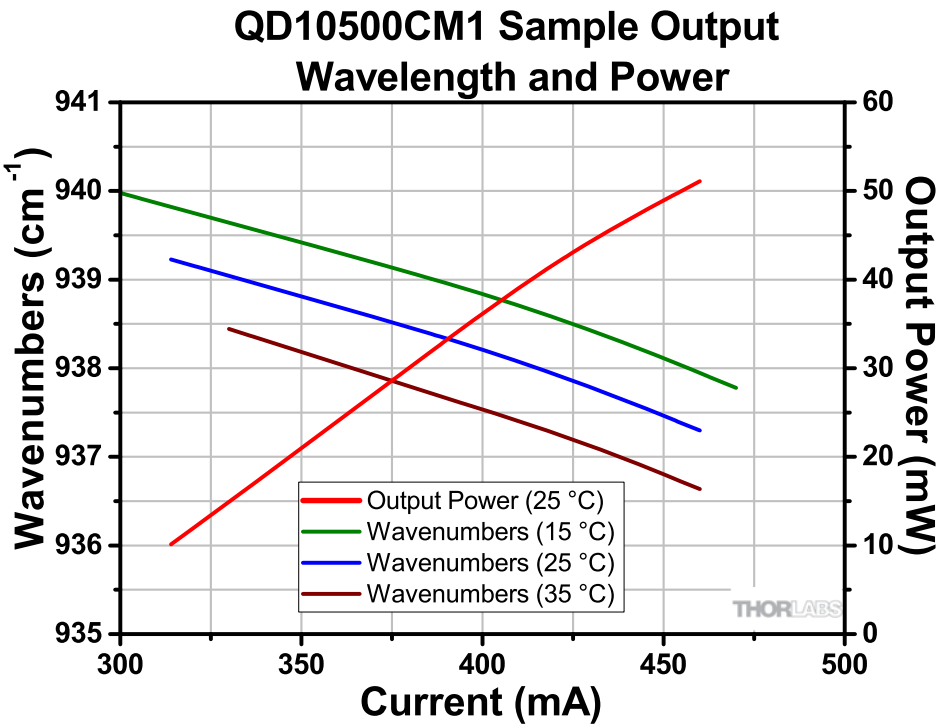
QD10500CM1	
LD Reverse Voltage (Max)	1 V
PD Reverse Voltage (Max)	N/A
Absolute Max Current	Varies Between Devices[a]
Absolute Max Power	200 mW
Operating Temperature[b]	15 to 50 °C
Storage Temperature[b]	-40 to 85 °C

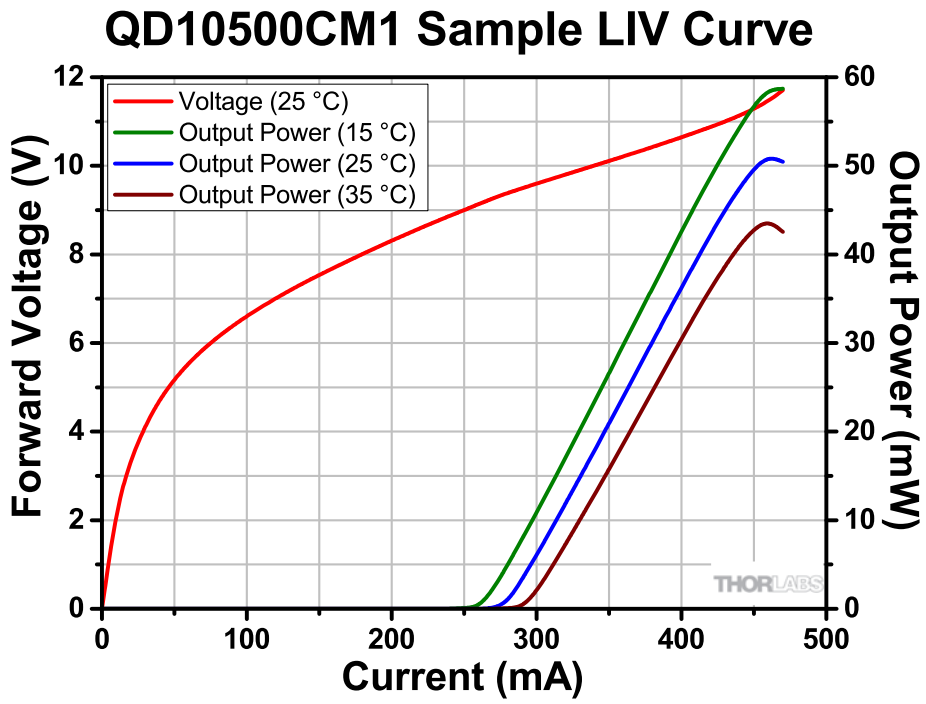
[a]The absolute maximum current is determined on a device-by-device basis and is listed on the device's data sheet.
[b]Non-Condensing Environment

T_{Case} = 25 °C, CW Current Operation

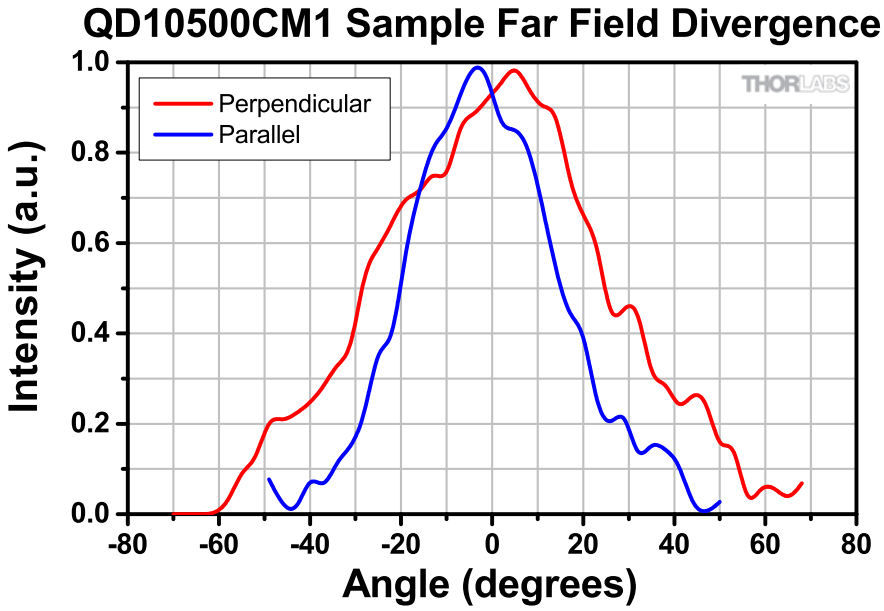
QD10500CM1				
	Symbol	**Min**	**Typical**	**Max**
Center Wavelength	λ_c	10.00 µm	-	11.00 µm
Tuning Range	TR	1 cm^{-1}	2 cm^{-1}	-
Temperature Tuning	$\Delta\bar{\nu}/\Delta T$	-	-0.07 cm^{-1}/°C	-
Side Mode Suppression	SMSR	20 dB	-	-
Output Power	P_{out}	10 mW	40 mW	-
Operating Current	I_{pp}	-	-	600 mA
Threshold Current	I_{TH}	-	300 mA	-
Forward Voltage	V_F	-	10.0 V	14.0 V
Slope Efficiency	$\Delta P/\Delta I$	-	0.3 W/A	-
Perpendicular Beam Divergence Angle (FWHM)	$\theta_\perp$	-	55°	-
Parallel Beam Divergence Angle (FWHM)	$\theta_\parallel$	-	40°	-

Sample Performance Plots





Sample Performance Plots (Cont.)



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°.

Drawing