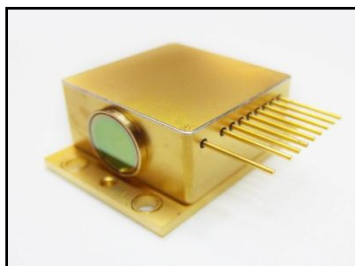


7.27 μm DISTRIBUTED FEEDBACK (DFB) QCL

PART NO: HHL-13-91



HIGH HEAT LOAD (HHL) PACKAGE

OVERVIEW

- Thermo-electrically cooled. External heat sink still required.
- Sealed in a nitrogen-purged atmosphere.
- Package dimensions (approx): 1.75 x 1.25 x 0.72 in (excluding pins).

HHL SPECIFICATIONS

Model No		HHL – xx – xx	HHL –xx – xxLP	HHL –xx – xxHP	Units
TEC Parameters (25 °C)	Max. Heat Capacity	65.0	67.0	100.0	W
	Max. Current	7.9	4.9	4.9	A
	Max. Voltage	14.4	15.2	34.0	V
	Typ. Resistance	3.0	3.0	6.0	Ω
Temperature Sensor	Type	10.0 kΩ Thermistor			----
	Thermistor Constant	A = 1.129 e ⁻³ , B = 2.341 e ⁻⁴ , C = 0.878 e ⁻⁷			----
Window	Material	ZnSe			----
	Thickness	1			mm
	Diameter	12.7			mm
	Transmission	> 95			%
Lens	Type	Aspheric			----
	Spectral Range	MWIR			----
Weight (approx.)		110.0			g

LASER SPECIFICATIONS

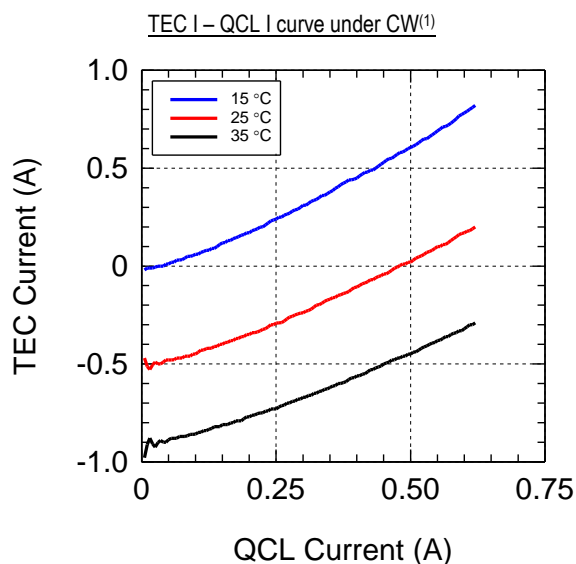
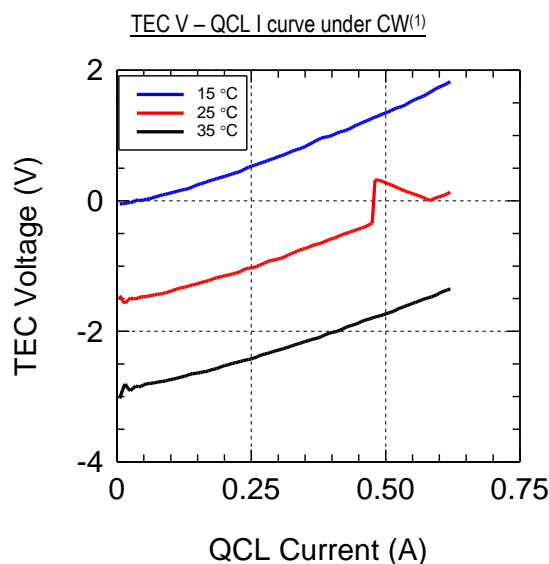
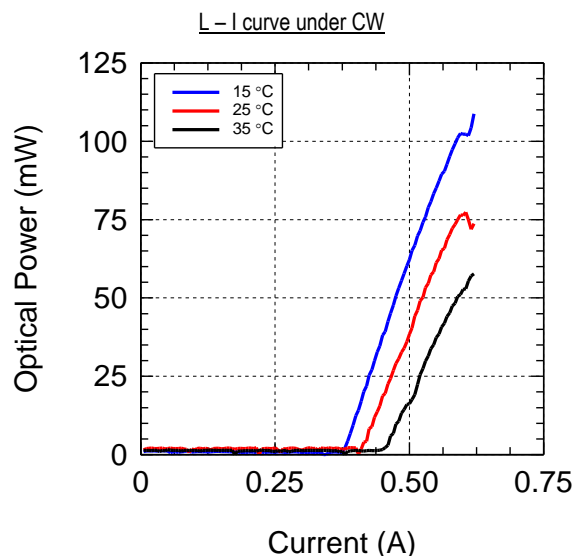
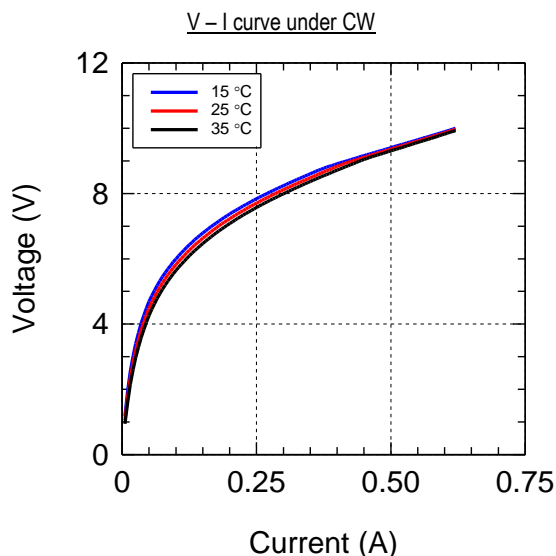
		Specs	Units
Process		DFB	----
Cavity Dimensions	Emitter Width	8	μm
	Cavity Length	2	mm
Typ. Thermal Resistance		10.0	K/W
Oper. Temperature		15 – 45	°C
Facet Coating	Front	AR	----
	Back	HR	----



7.27 μm DISTRIBUTED FEEDBACK (DFB) QCL PART NO: HHL-13-91

ELECTRO-OPTICAL CHARACTERIZATION ⁽¹⁾

		Specs			Units
Driving Conditions	Operation Mode	CW			--
	Temperature	15	25	35	$^{\circ}\text{C}$
Electrical	Thresh. Current	0.39	0.43	0.47	A
	Max. Current	0.62	0.61	0.62	A
	Thresh. Voltage	8.9	9.0	9.2	V
	Max. Voltage	10.0	9.9	9.9	V
	Laser Efficiency ⁽²⁾	1.7	1.3	0.9	%
Optical	Max. Power Output	108.7	77.3	57.7	mW
	Center Wavelength ⁽³⁾	7.27	7.27	7.28	μm

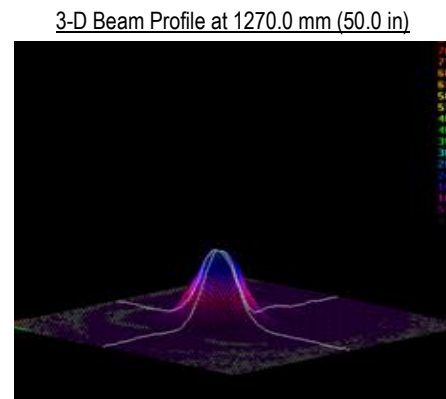
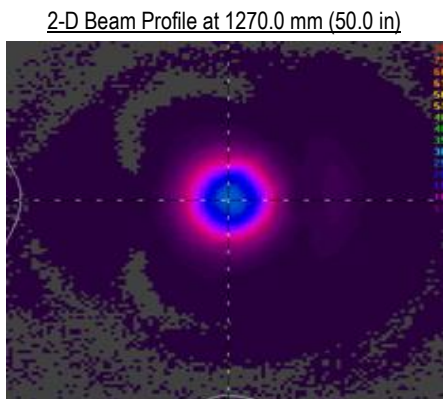
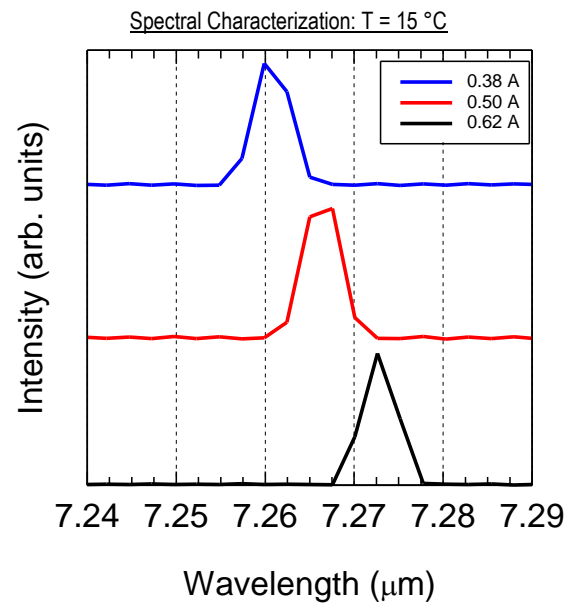
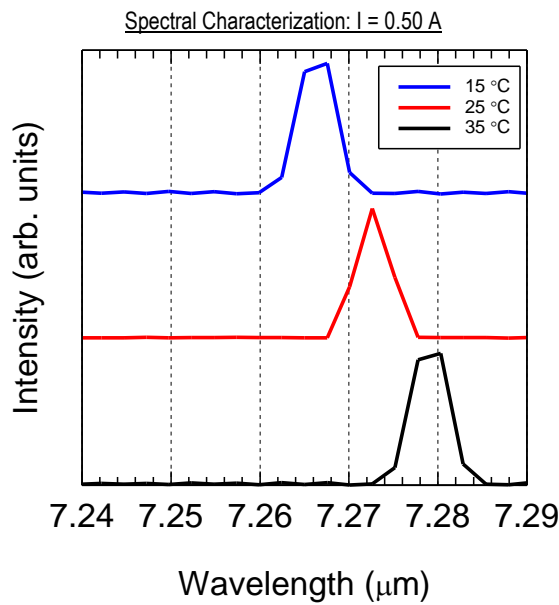


7.27 μm DISTRIBUTED FEEDBACK (DFB) QCL

PART NO: HHL-13-91

SPECTRAL CHARACTERIZATION AND BEAM QUALITY ⁽¹⁾

		Specs		Units
Driving Conditions	Operation Mode	CW		---
Wavelength Tuning ⁽⁴⁾	Temperature	0.65		nm/K
	Current	54.2		nm/A
SMSR		30		dB
Beam Profile ⁽⁵⁾	Optical Planes	Lateral	Vertical	---
	Full Beam Waist	3.37	3.84	mm
	Beam Waist Location	691.1	1034.7	mm
	Divergence Angle	1.37	1.21	mrad
	M ²	1.07	1.30	---

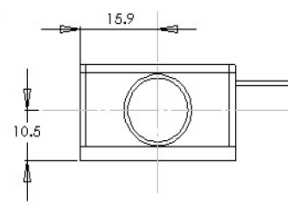
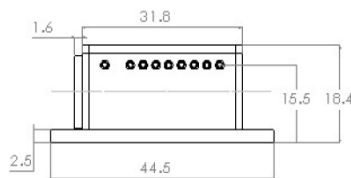
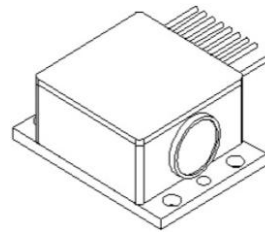
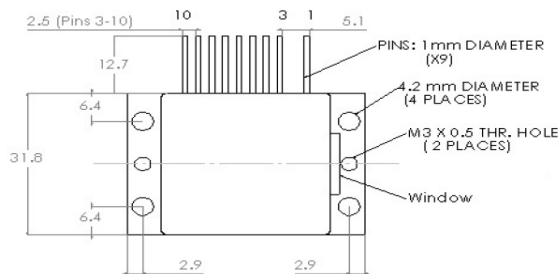


7.27 μm DISTRIBUTED FEEDBACK (DFB) QCL

PART NO: HHL-13-91

HHL DIMENSIONS

- Dimension: **mm**
- Linear Vertical Beam Polarization



- Pin 1 - TEC (-)
- Pin 2 - Not Installed
- Pin 3 -
- Pin 4 - Laser (+)
- Pin 5 - 10K Temperature Sensor
- Pin 6 - 10K Temperature Sensor
- Pin 7 - Laser (-)
- Pin 8 -
- Pin 9 -
- Pin 10 - TEC (+)

- (1) Device was secured to a water-cooled external heat sink set to $T = 15\text{ }^{\circ}\text{C}$
- (2) Not including TEC
- (3) Driving Current $I = 0.50\text{ A}$
- (4) Current tuning measurement taken from $I = 0.38\text{ A} - 0.62\text{ A}$.
- (5) $I = 0.45\text{ A}$, $V = 9.2\text{ V}$, $T = 15\text{ }^{\circ}\text{C}$, Measured at $1/e^2$

