

**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 – xxHP	Units
TEC Parameters (25 °C)	Max. Heat Capacity	65.0	100.0	W
	Max. Current	7.9	4.9	A
	Max. Voltage	14.4	34.0	V
	Typ. Resistance	3.0	6.0	$\Omega$
Temperature Sensor	Type	10.0 k $\Omega$ Thermistor	RTD 100	---
	Constant	A = 1.12924 e <sup>-3</sup> B = 2.34108 e <sup>-4</sup> C = 0.87755 e <sup>-7</sup>	A = 3.9848 e-3 B = -0.5870 e-6 C = 4.0000 e-12	---
Window	Material	ZnSe		---
	Thickness	1		mm
	Diameter	12.7		mm
	Transmission	> 95		%
Lens	Type	Aspheric		---
	Spectral Range	MWIR		---
Weight (approx.)		110.0		g

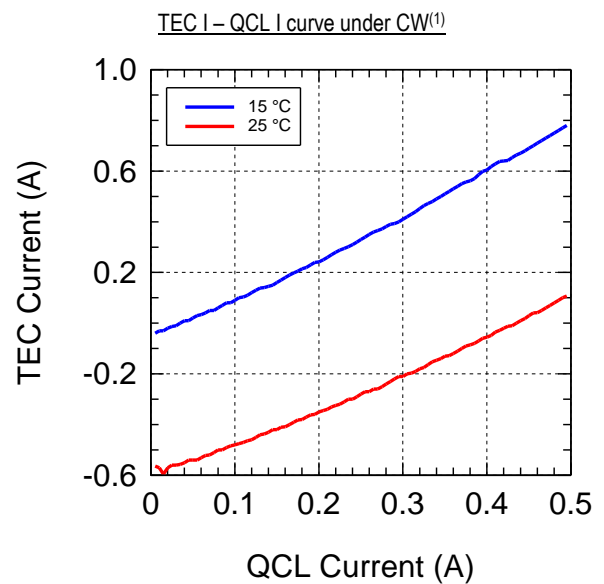
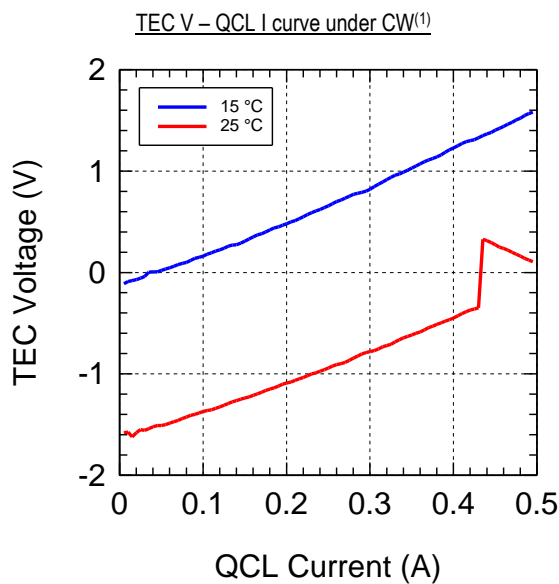
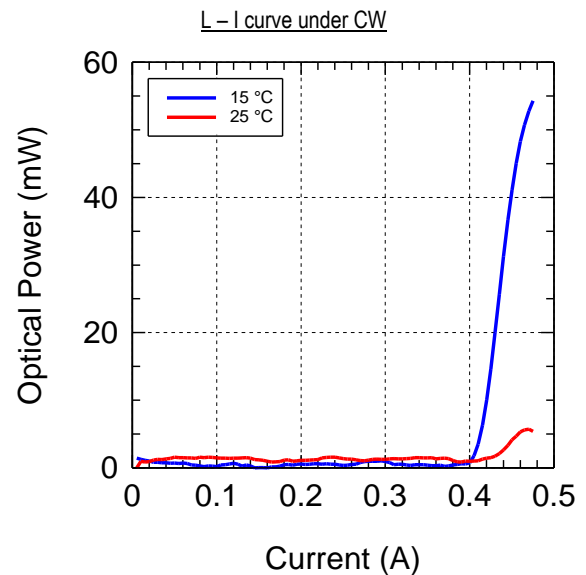
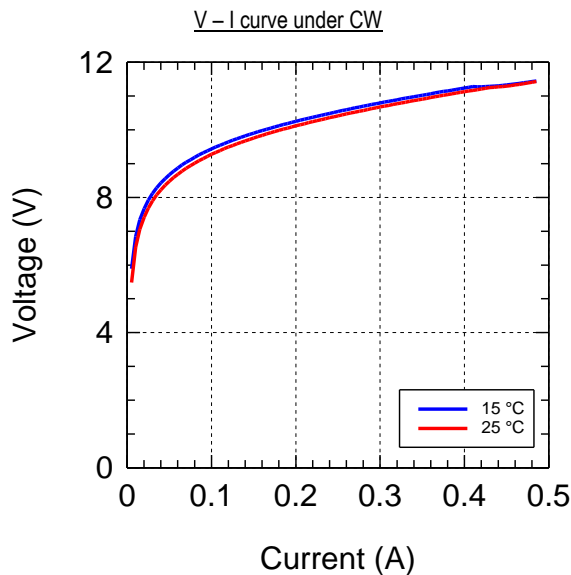
**LASER SPECIFICATIONS**

		Specs	Units
Process		DFB	---
Cavity Dimensions	Emitter Width	7	$\mu\text{m}$
	Cavity Length	2	mm
Typ. Thermal Resistance		10.0	K/W
Oper. Temperature		15 – 25	°C
Facet Coating	Front	AR	---
	Back	HR	---



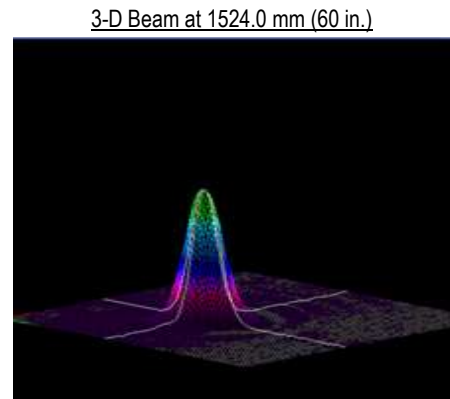
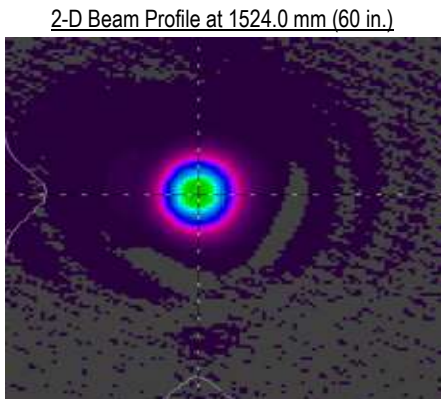
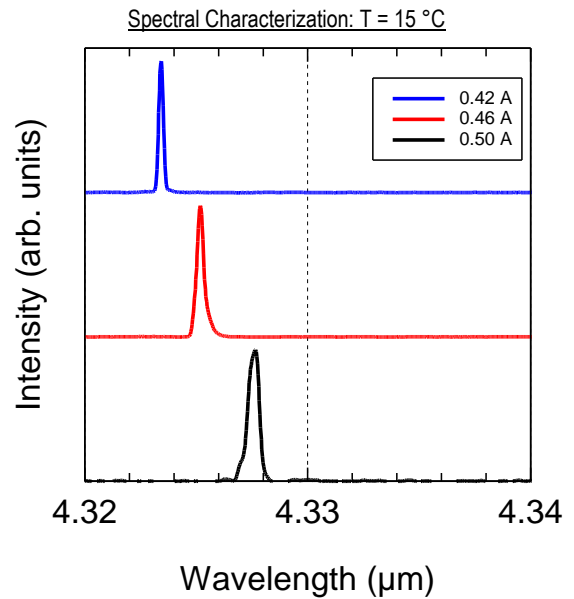
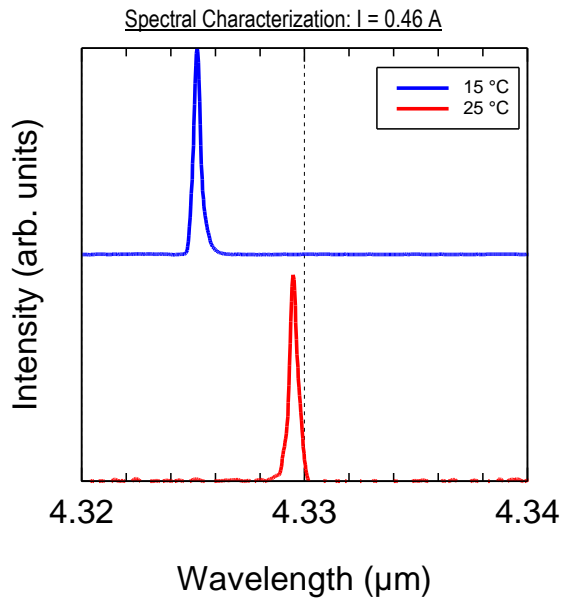
ELECTRO-OPTICAL CHARACTERIZATION <sup>(1)</sup>

		Specs		Units
Driving Conditions	Operation Mode	CW		--
	Temperature	15	25	$^{\circ}\text{C}$
Electrical	Thresh. Current	0.41	0.42	A
	Max. Current	0.48	0.47	A
	Thresh. Voltage	11.3	11.3	V
	Max. Voltage	11.4	11.3	V
	Laser Efficiency <sup>(2)</sup>	1.0	0.5	%
Optical	Max. Power Output	56.7	7.2	mW
	Center Wavelength <sup>(3)</sup>	4.325	4.329	$\mu\text{m}$



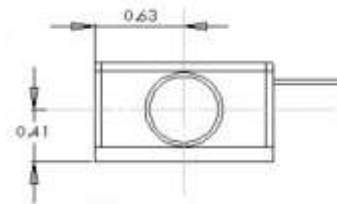
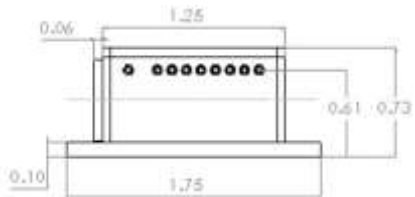
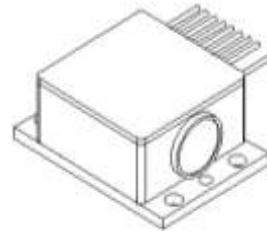
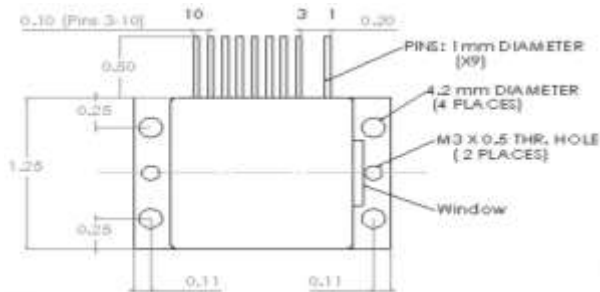
SPECTRAL CHARACTERIZATION AND BEAM QUALITY <sup>(1)</sup>

		Specs		Units
Driving Conditions	Operation Mode	CW		---
Wavelength Tuning <sup>(4)</sup>	Temperature	0.44		nm/K
	Current	57.5		nm/A
SMSR		30		dB
Beam Profile <sup>(5)</sup>	Optical Planes	Lateral	Vertical	---
	Full Beam Waist	2.60	2.51	mm
	Beam Waist Location	1037.7	1555.8	mm
	Divergence Angle	1.10	1.06	mrad
	M <sup>2</sup>	1.15	1.03	---



HHL DIMENSIONS

- Dimension: inches
- Linear Vertical Beam Polarization



- Pin 1 - TEC (-)
- Pin 2 - Not Installed
- Pin 3 -
- Pin 4 - Laser (+)
- Pin 5 - Thermistor (+)
- Pin 6 - Thermistor (-)
- 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  $I = 0.46\text{ A}$
- (4) Current tuning measurement taken from  $I = 0.42\text{ A} - 0.50\text{ A}$   
Temperature tuning measurement taken from  $15\text{ }^{\circ}\text{C} - 25\text{ }^{\circ}\text{C}$
- (5)  $I = 0.46\text{ A}$ ,  $V = 11.4\text{ V}$ ,  $T = 15\text{ }^{\circ}\text{C}$ , Measured at  $1/e^2$

