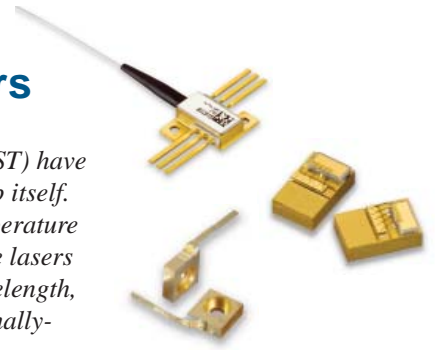




976 nm Wavelength-Stabilized Lasers

Alfalight diode lasers with Wavelength Stabilization Technology (WST) have a monolithic grating integrated directly onto the semiconductor chip itself. The grating-defined wavelength is stable relative to changes in temperature and drive current while maintaining a narrow spectral width. These lasers do not require any cooling or external components to maintain wavelength, reducing their energy consumption by up to three times over a thermally-controlled pump laser.



- On-die integrated semiconductor grating
- Narrow linewidth (0.5nm)
- Wide locking range ($\Delta T > 30^\circ\text{C}$)
- 6-pin, C-mount and Q-mount packages
- Fiber laser pumping
- Yb:YAG and Yb:KGW pumping
- Alkali pumping
- Spectroscopy

Device Characteristics*

Electro-Optical	Symbol	Fiber-coupled 6-pin package AM6-976CW-10-251			Chips on carrier AMC-976CW-02-251 AMQ-976CW-02-251			Units	
		Min	Typ	Max	Min	Typ	Max		
Center wavelength ($T = 35^\circ\text{C}$)	λ_c	976 \pm 1.5			976 \pm 1.5			nm	
Output power, CW	P_o	2.5			2.5			W	
Operating current	I_o		3.6	4.2		3.6	4.2	A	
Forward voltage	V_f		1.7	2.0		1.7	2.0	V	
Threshold current	I_{th}		0.27	0.4		0.27	0.4	A	
Power conversion efficiency	PCE		44%			47%			
Spectral width (FWHM)	$\Delta\lambda$		0.4			0.4			nm
Spectral shift over temperature	$d\lambda/dT$		0.07			0.07			nm/ $^\circ\text{C}$
Spectral shift over power	$d\lambda/dP$		0.4			0.4			nm/W
Locking range over temperature**	T_c	15		45	15		45	$^\circ\text{C}$	
Locking range over power	P_o	0.5		2.5	0.5		2.5	W	

Temperature

Thermistor value at 25 $^\circ\text{C}$	R_{th}	9.5	10	10.5		n/a	k Ω
Thermistor constant, 0 - 50 $^\circ\text{C}$	β		3892			n/a	K

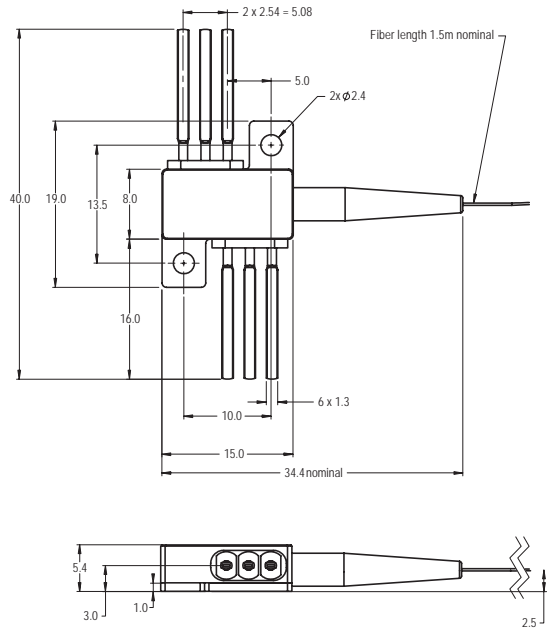
Mechanical

Case operating temperature	T_c	0		50	0		50	$^\circ\text{C}$
Case storage temperature	T_c	-40		85	-40		85	$^\circ\text{C}$
Fiber core diameter			105			n/a		μm
Emitter stripe width			n/a			94		μm
Beam divergence			n/a			8 $^\circ \times$ 39 $^\circ$		
Fiber NA	NA		0.15			n/a		

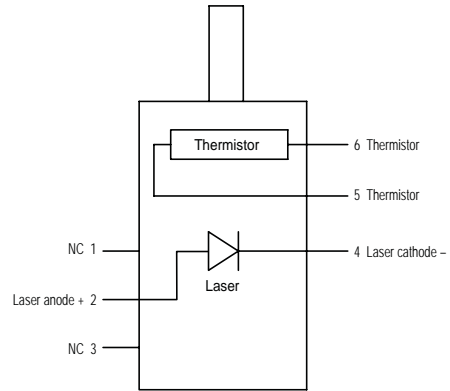
* All conditions are at 25 $^\circ\text{C}$ case temperature unless otherwise noted.

** Power outside of 804-812nm range is less than 10% of the total power.

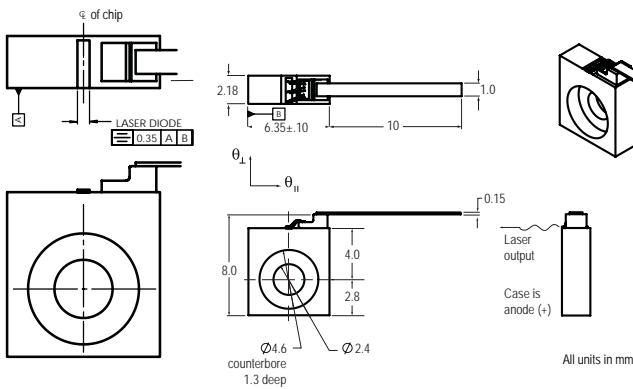
6-pin Package Dimensions



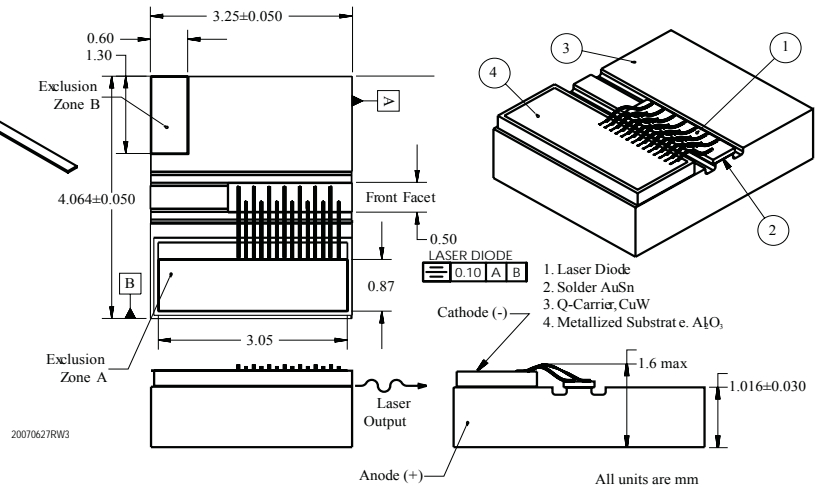
6-pin Package Pinout



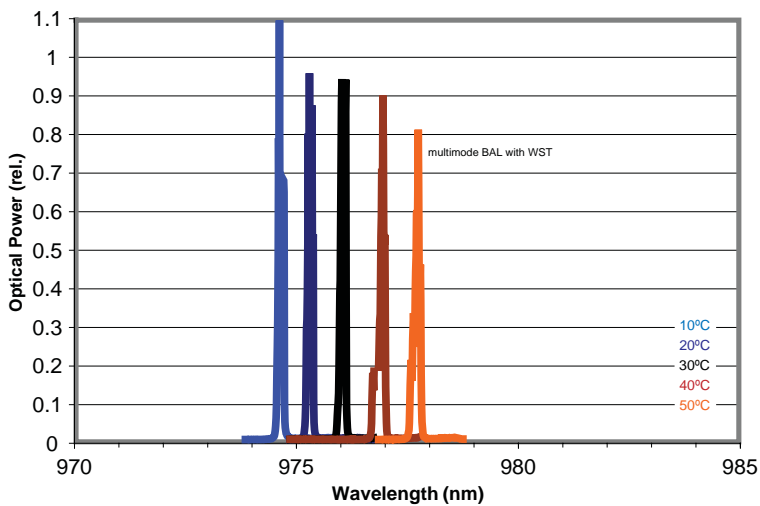
C-mount Package Dimensions



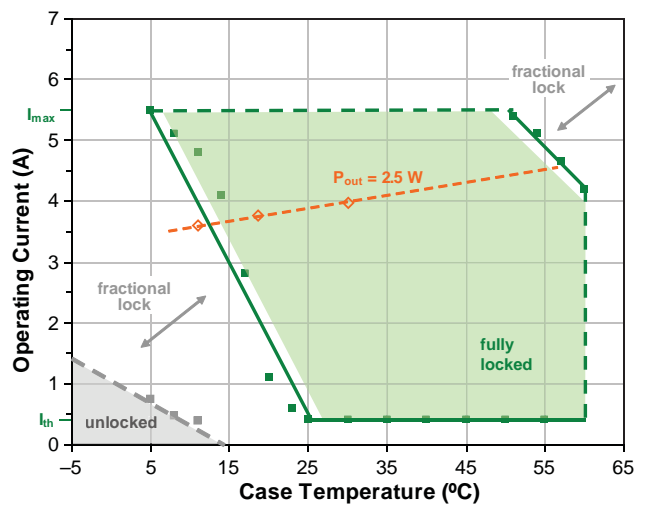
Q-mount Package Dimensions



Spectrum



Locking Range



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