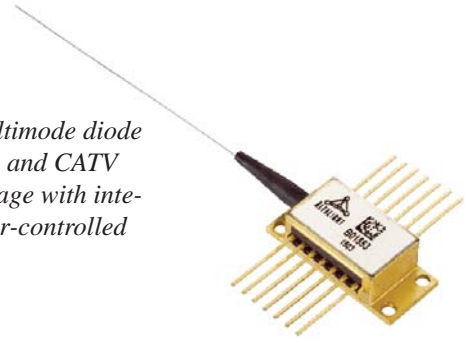




## 976 nm 14-Pin Cooled Laser

Alfalight's GR-468-CORE-qualified 976 nm high-power multimode diode lasers are ideal for highly reliable cladding-pumped EDFAs and CATV amplifiers. The hermetically-sealed, epoxy-free 14-pin package with integrated thermoelectric cooler allows ease of use through user-controlled temperature tuning.



- Qualified to GR-468-CORE standards
- Hermetically-sealed package with thermoelectric cooler
- Integrated monitor photodiode
- Up to 2.5 watts output power

### Device Characteristics\*

AM4-976D-10-253

Electro-Optical	Symbol	Min	Typ	Max	Units
Center wavelength	$\lambda_c$	976 ± 3			nm
Output power	$P_o$	2.5			W
Operating current	$I_o$	3.5	3.8		A
Forward voltage	$V_f$	1.6	1.6		V
Threshold current	$I_{th}$	0.3	0.45		A
Spectral width, FWHM	$\Delta\lambda$	2.2			nm

### Monitor Photodiode

Detector responsivity	$dI_{pd}/dP_o$	125	625	1400	$\mu A/W$
Detector reverse bias	$V_r$	0		5	V
Detector dark current	$I_{dc}$		0.1	50	nA

### Thermo-Electric Cooler

Thermistor value at 25°C	$R_{th}$	9.5	10	10.5	k $\Omega$
Thermistor constant, 0 - 50°C	$\beta$	3892			K
Spectral shift with submount temperature		0.35			nm/°C
TEC drive current, $\Delta T = 45^\circ C$	$I_{TEC}$	2.7	3.5		A
TEC drive voltage, $\Delta T = 45^\circ C$	$V_{TEC}$	3.0	3.3		V
Heating/cooling capacity	$\Delta T$	-65		45	°C

### Mechanical

Case operating temperature		-40		70	°C
Case storage temperature		-40		85	°C
Fiber core diameter		105			$\mu m$
Fiber numerical aperture	NA	0.15			
Fiber length		1.5			m
Fiber pull strength		1.0			kg-f

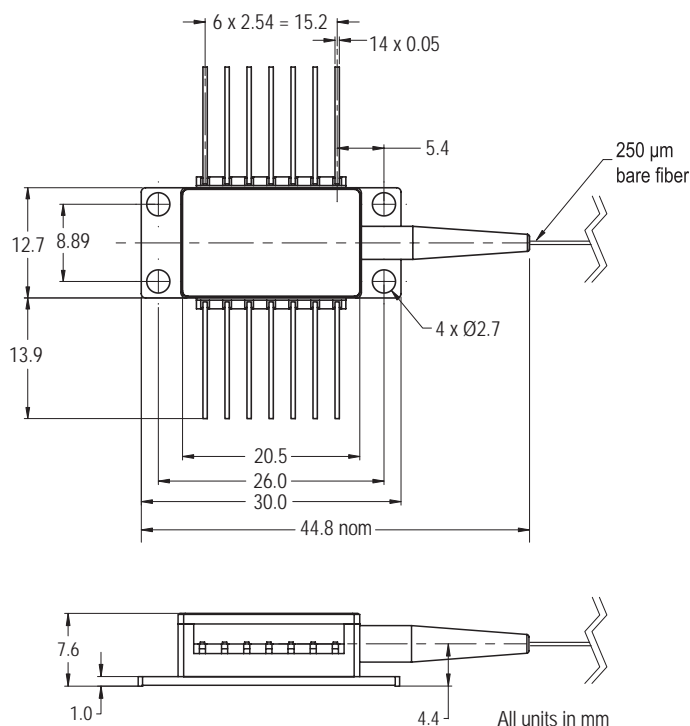
\* All conditions are at 25°C submount temperature and 2.5 W output power unless otherwise noted.

Absolute Maximum Ratings*	Min	Max	Units
Soldering temperature **		260	°C
Soldering duration**		10	s
Mounting torque		10	in-oz
Long term fiber bend radius	25		mm
LD reverse current		10	mA
LD current transient max		t = 100 ns 1000 mA	
LD ESD damage C=100 pF, R=1.5 kΩ		HBM > 1000 V	
MPD ESD damage C=100 pF, R=1.5 kΩ		HBM 500 V	
Detector reverse voltage		15	V
Detector forward current		100	mA
Thermistor voltage		5	V
Thermistor current		2	mA
Thermoelectric cooler current		4	A
Thermoelectric cooler voltage		4.5	V

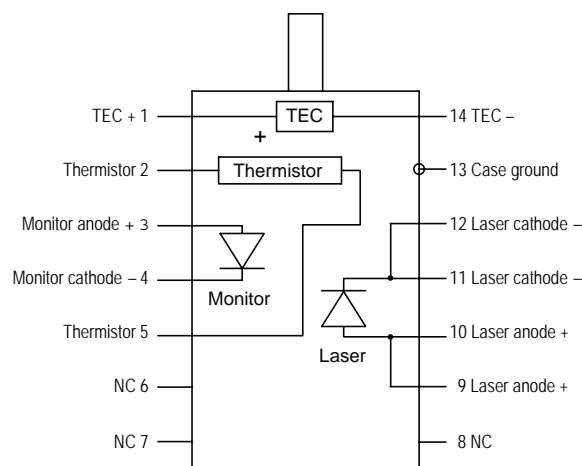
\* These are safe short-term exposure limits, non-operating. Prolonged exposure to conditions at the absolute maximum ratings will have a deleterious effect on reliability and could shorten diode lifetime.

\*\* No point on the package (other than the leads) should exceed the maximum case storage temperature during soldering.

### Package Dimensions



### Package Pinout



**NOTE: PIN PAIRS 9 & 10 AND 11 & 12 MUST BE CONNECTED FOR LOWEST OPERATING VOLTAGE AND POWER DISSIPATION**