



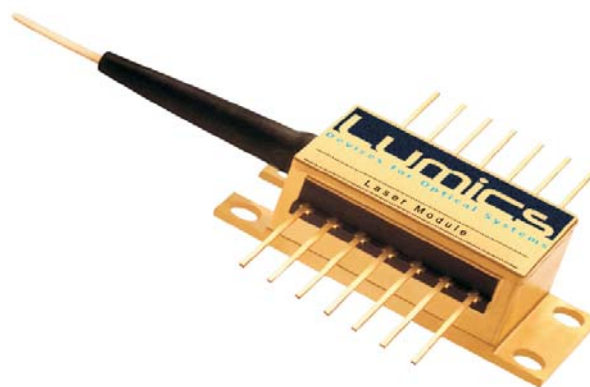
LU976M150

Narrow Linewidth Laser Module

Single frequency 976nm Laser Module

Features:

- Wavelength selection range 976+/-1nm
- External cavity laser
- Proven reliability for high power operation
- Cooled 14-pin package
- Very powerful chip design
- Single mode fiber pigtail
- Single frequency (fwhm 30 MHz)
- Linear polarized TEM00



Description / Applications:

The Lumics LU0976M150 laser diode module contains an optimized GaAs/AlGaAs/InGaAs quantum well high power laser. It has been specifically designed for narrow linewidth applications. High reliability requirements are achieved through our patented innovative technology, which includes a special facet passivation process. The ISO9001 conform production is based on careful design, exactly defined manufacturing and extensive testing. The qualification contains a set of optoelectronic, thermal and mechanical tests. Each laser diode module is individually serialized for traceability and is shipped with a specified set of test data.



Characteristics:

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Operating Power (1)	spec.	P_{op}	150			mW
Operating Current		I_{op}		300	400	mA
Threshold Current		I_{th}		60	80	mA
Forward Voltage	at I_{op}, T_{op}	V_{op}		1.5	1.65	V
Peak Wavelength	at I_{op}, T_{op}	λ_{peak}	975	976	977	nm
Spectral Width (2)	at I_{op}, T_{op}	λ_{rms}		30		MHz
Monitor Responsivity		I_{resp}	0.1	0.7	5.0	$\mu A/mW$
Monitor Dark Current		I_d	5		40	nA
TEC Current	chip 25°C, case 70°C	I_c		0.12	0.9	A
TEC Voltage	chip 25°C, case 70°C	V_c			2.1	V
Thermistor Resistance	at T=25°C	R_{th}	9.5	10	10.5	Kohm
Wavelength shift with LD current	at T=25°C			1 E-3	1 E-2	nm/mA
Wavelength shift with case temp.					0.02	nm/K
Current range free of mode hopping (1)			10	30	40	mA

(1) operating power shows jumps approx. every 10mA - 40mA in defined power range due to single longitudinal laser mode hopping

(2) λ_{rms} is defined as 95% power is in the central peak defined as $\pm rms$ in the current free of mode hopping

Absolute Maximum Ratings:

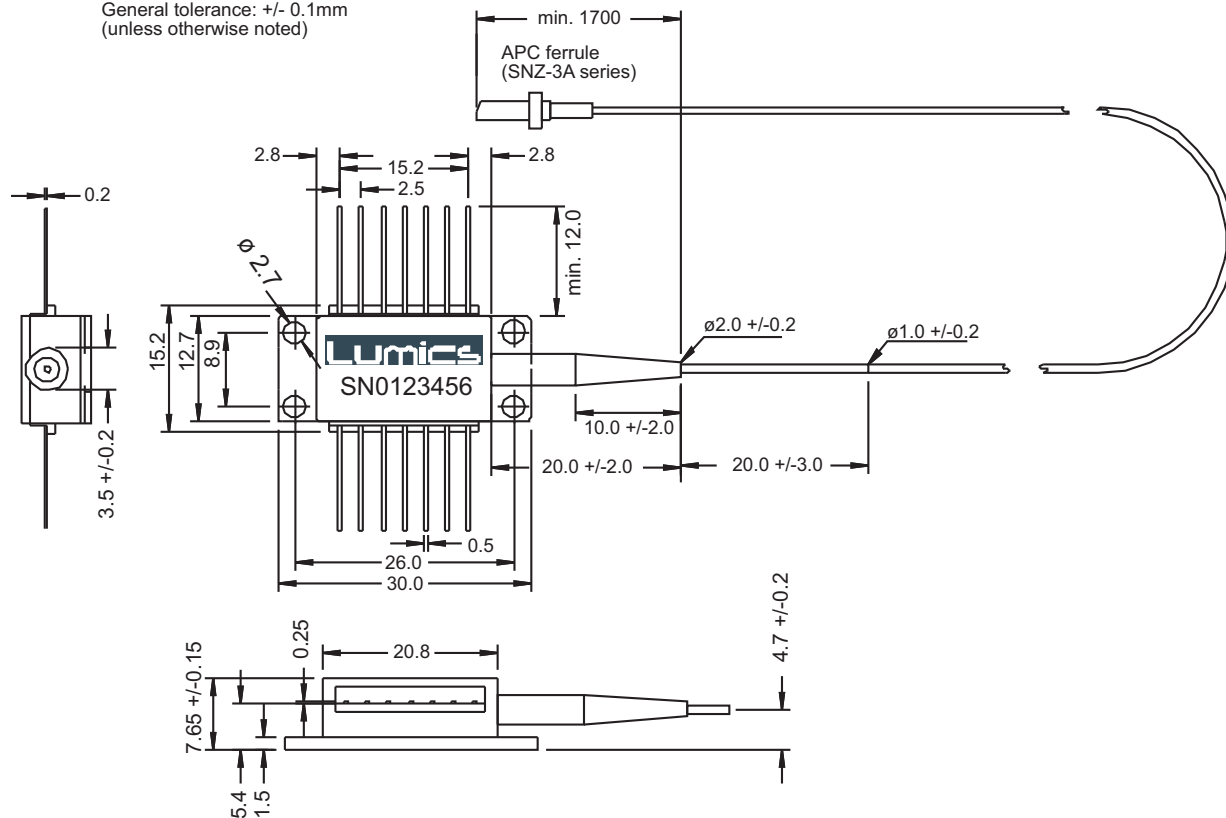
Parameter	Symbol	Min	Max	Unit
Storage Temp.	T_{max}	-40	85	°C
Operating Case Temp.	$T_{op, case}$	-20	70	°C
Operating Chip Temp.	$T_{op, chip}$	20	30	°C
Soldering Temp. (max. 10sec)			260	°C
LD Forward Current	I_{max}		500	mA
LD Forward Current	I_P (Pulse 200ns/Period 30 μ sec)		1.5	A
LD Reverse Voltage	$V_{R,max}$		2	V
Monitor Forward Current	$I_{F, PD}$		5	mA
Monitor Reverse Voltage	$V_{R, PD}$		20	V
TEC Current	I_{TEC}		1.8	A
TEC Voltage	V_{TEC}		3.2	V
ESD Damage ⁽³⁾			500	V
Fiber Pigtail Bend Radius	PM980	25		mm
Maximum transient (<3 μ s) forward current			1.2	A

(3) A standard human body model (1.5kOhm, 1000pF) is used for ESD thresholds

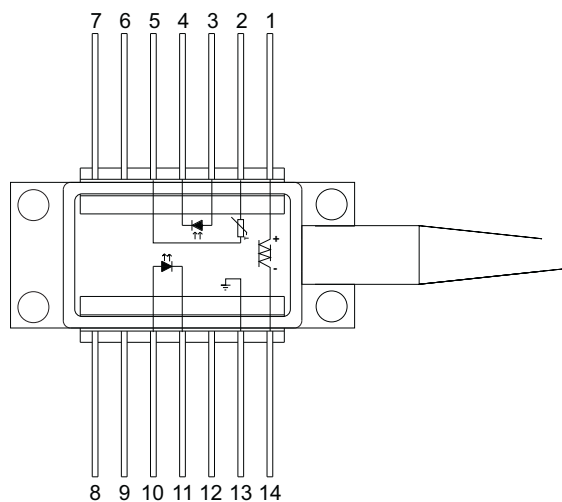


Module Drawing (dimensions in mm):

Dimensions in mm
General tolerance: +/- 0.1mm
(unless otherwise noted)



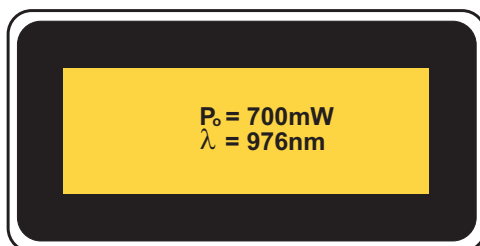
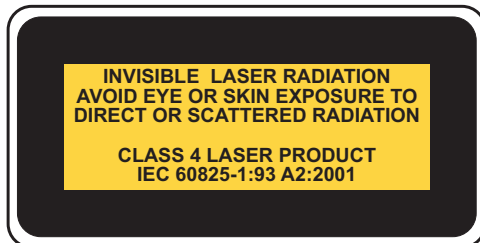
Pin Connections:



Pin	Function	Pin	Function
1	Cooler (+)	8	nc
2	Thermistor	9	nc
3	PD anode (-)	10	LD anode (+)
4	PD cathode (+)	11	LD cathode (-)
5	Thermistor	12	nc
6	nc	13	Case ground
7	nc	14	Cooler (-)



User Safety:



Complies with 21 CFR1040.10

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