830nm single mode diode laser

SM830-200-TO56-R0x

The II-VI Laser Enterprise's SM830-200-TO56-R0x is a high efficiency, high power reliable single mode laser diode in TO-56 package with emission wavelength around 830nm and 200mW output power.

The product belongs to a product line named SM830-xxx-TO addressing applications such as 3D sensing, printing, range finding.

The lasers are single transverse mode within the operating condition outlined in the datasheet. This allows the combination with optical elements such as diffractive optical elements (DOE).

The diodes exhibit high power conversion efficiency across a wide temperature range enabling longer battery life when operated in mobile applications. The lasers are fabricated with the well-established recipes used at The II-VI Laser Enterprise to fabricate extreme high reliability telecommunication products. Hence, the SM830-xxx-TO series provides a powerful, low power consumption and dependable light source for your demanding systems. The diodes are packaged in TO packages to enable easy handling and drop-in replacement in various setups.

Features:

- High output power: 200 mW
- High Efficiency: 1 W/A
- Lateral Single Mode
- Wavelength: 824 ± 6nm
- High Reliability

Applications:

- Motion Sensor
- Gesture Recognition
- Illumination
- Printing

Electro-Optical Characteristics

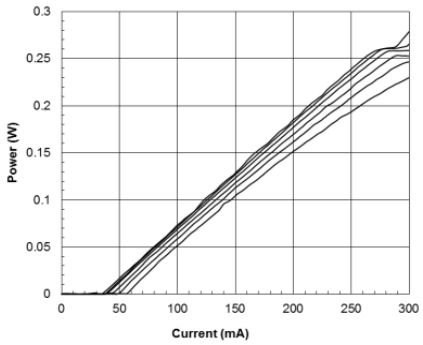
All parameters are at 25°C case temperature, measured in CW unless otherwise noted

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Central wavelength	λ_0	818	824	830	nm	200 mW
Optical power	P_0			200	mW	Up to 60°C
Kink free Power	P_{kink}	230			mW	
Threshold current	I_{th}		40	55	mA	
FWHM beam divergence – parallel	$\theta_{//}$	5.5		8.5	°	200 mW
FWHM beam divergence – perpendicular	$\theta_{\perp}$	16		21	°	200 mW
Spectral Bandwidth (90% power)	$\Delta\lambda_{90}$			0.5	nm	
Wavelength shift with temperature	$d\lambda/dT$		0.25		nm/°C	
Operating current	I_{op}		210	230	mA	200 mW
Operating voltage	V_{op}		2.1	2.2	V	200 mW
Power Conversion efficiency	PCE	35	40		%	200 mW
LD facet location accuracy	BC	-80		80	µm	X, Y, Z (ref to header)
Off axis beam tilt	BP	0	0	2	°	parallel and perpendicular

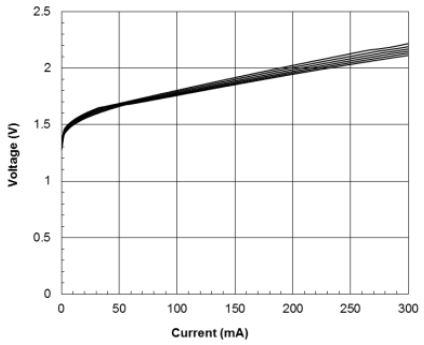
Absolute Maximum Ratings

Parameter	Min	Typ	Max	Unit	Conditions
Operating temperature	0		60	°C	
Storage/transportation temperature	-40		85	°C	
Lead soldering temperature			260	°C	10s

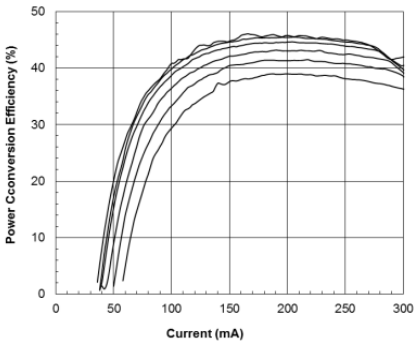
Typical E/O characteristics (CW measurements)



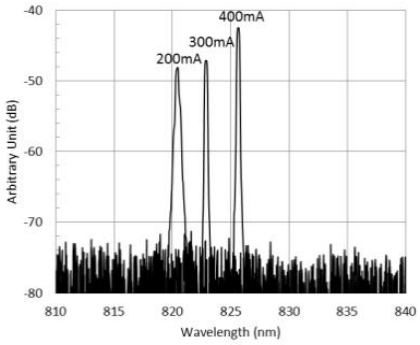
Power versus current from 10 to 60˚C (10˚C step)



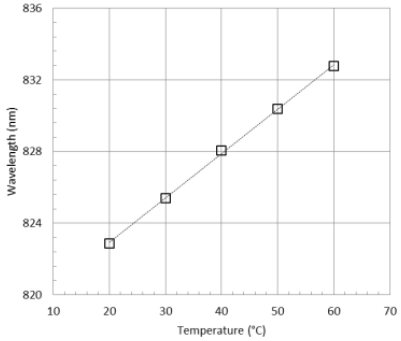
Voltage versus current from 10 to 60˚C (10˚C step)



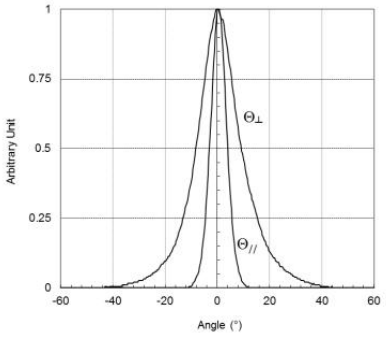
PCE versus current from 10 to 60˚C (10˚C step)



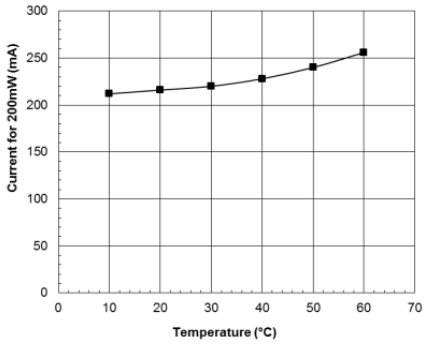
Spectra versus current at 25˚C



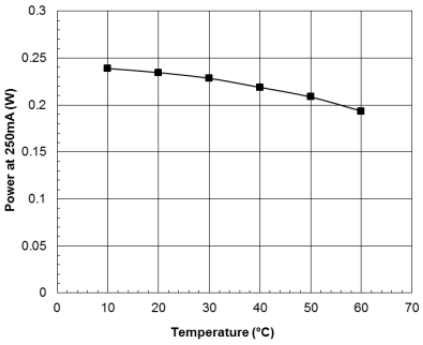
Wavelength versus temperature at constant current 250mA (nm)



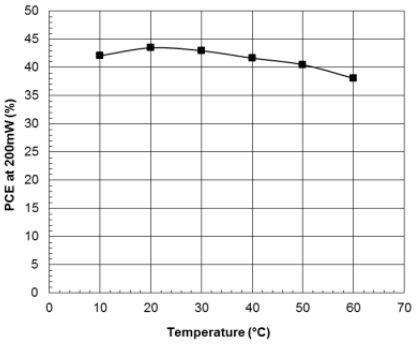
Vertical and lateral far fields at 250mA, 25˚C



Current to maintain 200mW (mA)

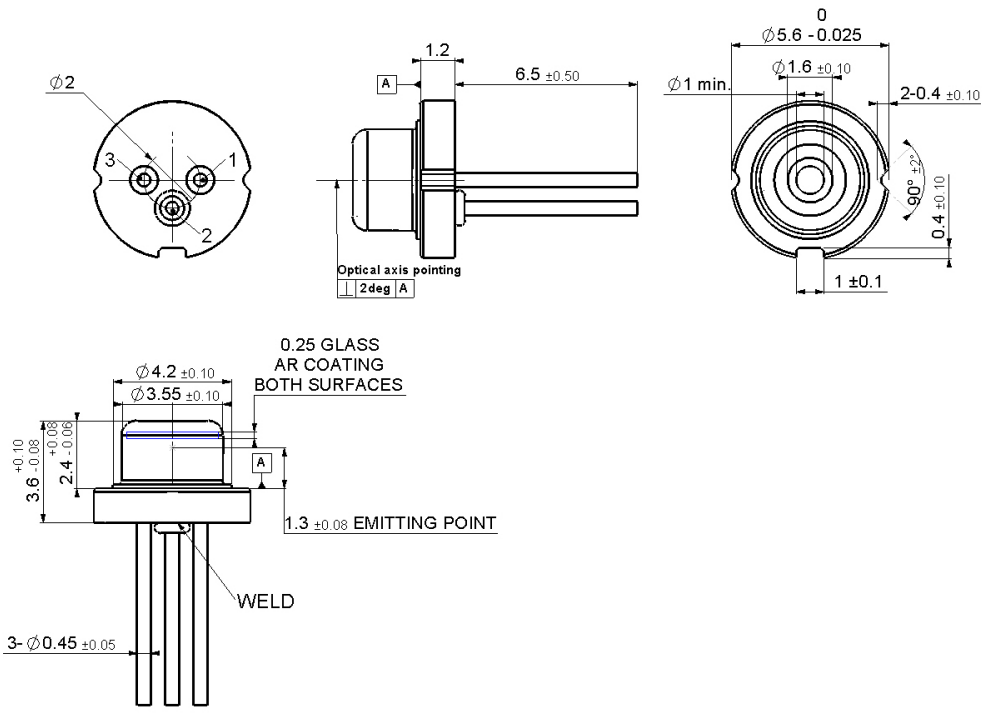


Power at constant current 250mA (W)

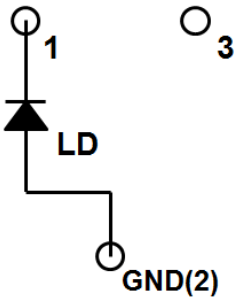
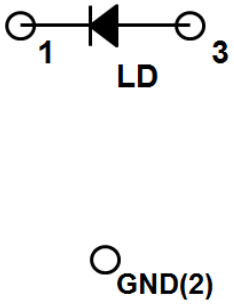


PCE at constant power 200mW (%)

Dimensions (in mm)



Pin-out

Pin-out 1	Pin-out 2
	
Pin 1: Laser cathode **Pin 2:** Laser anode, case ground **Pin 3:** not connected	**Pin 1**: Laser cathode **Pin 2:** case ground **Pin 3:** Laser anode

RoHS Compliance

The II-VI Laser Enterprise is fully committed to environment protection and sustainable development and has set in place a comprehensive program for removing polluting and hazardous substances from all of its products. The relevant evidence of RoHS compliance is held as part of our controlled documentation for each of our compliant products. RoHS compliance parts are available to order, please refer to the ordering information section for further details.

Ordering Information:

SM830-200-TO56-R01: for pin-out 1 option (see above)

SM830-200-TO56-R02: for pin-out 2 option (see above)

Contact Information

www.laserenterprise.com

Important Notice

Performance figures, data and any illustrative material provided in this data sheet are typical and must be specifically confirmed in writing by II-VI Laser Enterprise before they become applicable to any particular order or contract. In accordance with the The II-VI Laser Enterprise policy of continuous improvement specifications may change without notice. Further details are available from any The II-VI Laser Enterprise sales representative.

THIS PRODUCT COMPLIES WITH 21CFR 1040.10

REFERENCE IEC 60825-1 Edition 2.0

D00501-PB Issue 02 August 2013

Caution - use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.