830nm single mode diode laser

SM830-350-TO56-R01

The II-VI Laser Enterprise's SM830-350-TO-R01 is a high efficiency, high power reliable single mode laser diode in TO-56 package with emission wavelength around 830 nm and output power of 350 mW.

The SM830-xxx-TO is a product line 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 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 Oclaro 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: 350 mW
- High Efficiency: 1 W/A
- Lateral Single Mode
- Wavelength: 830 ± 10nm
- High Reliability

Applications:

- Motion Sensor
- Gesture Recognition
- Illumination
- Printing

Optical Characteristics

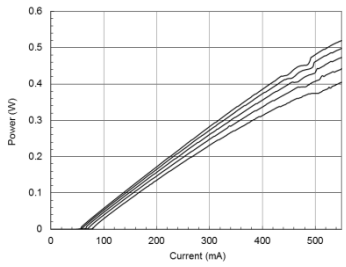
Parameter	Smybol	Min	Typ	Max	Unit	Conditions
Central wavelength	λ_0	820	830	840	nm	at 25°C, 350mW CW
Optical power (single lateral mode)	P_0	350			mW	
Threshold current	I_{th}		50	80	mA	
FWHM beam divergence – parallel	$\theta_{//}$	5		9	° FWHM	350mW
FWHM beam divergence – perpendicular	$\theta_{\perp}$	15	18	22	° FWHM	350mW
Spectral Bandwidth (90% power)	$\Delta\lambda_{90}$		0.3	0.5	nm	Integration time of 33ms
WL stability	$\delta\lambda$			0.25	nm	Integration time of 33ms
Wavelength shift with temperature	$d\lambda/dT$	0.21	0.28	0.35	nm/°C	
Operating current	I_{op}		400	450	mA	CW, 35°C, 350mW
Operating voltage	V_{op}		2.1	2.4	V	CW, 35°C, 350mW
Power Conversion efficiency	PCE	35	40		%	350mW, 35°C
LD facet location accuracy		-80	0	80	μm	X, Y, Z
Off axis angle		-3	0	3	°	parallel and perpendicular

Notes: Photodiode optional

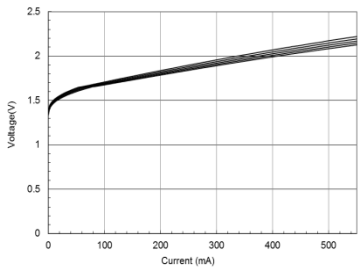
Absolute Maximum Ratings

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

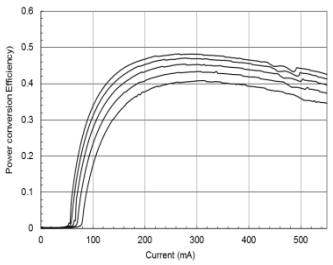
Typical characteristics (CW measurements)



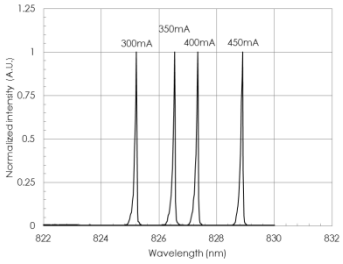
Power versus current curves from 20-60°C



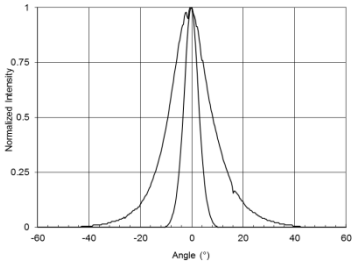
Voltage versus current curves from 20-60°C



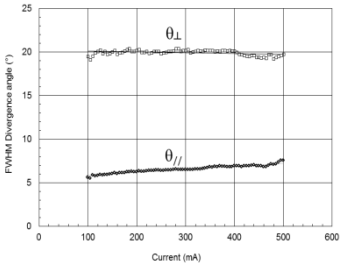
PCE curves versus current curves from 20-60°C



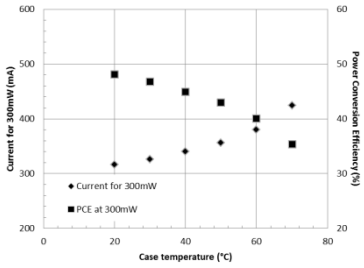
Spectra versus current. Case at 37°C



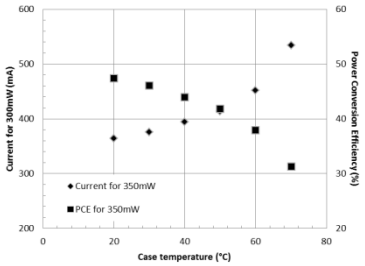
Typical vertical and lateral divergences. Case at 37°C



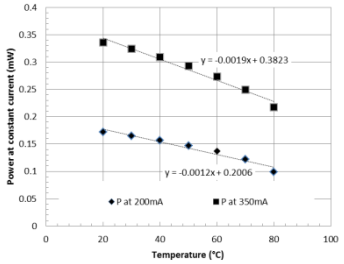
FWHM divergence versus current. Case at 37°C



Current and PCE at 300mW versus case temperature

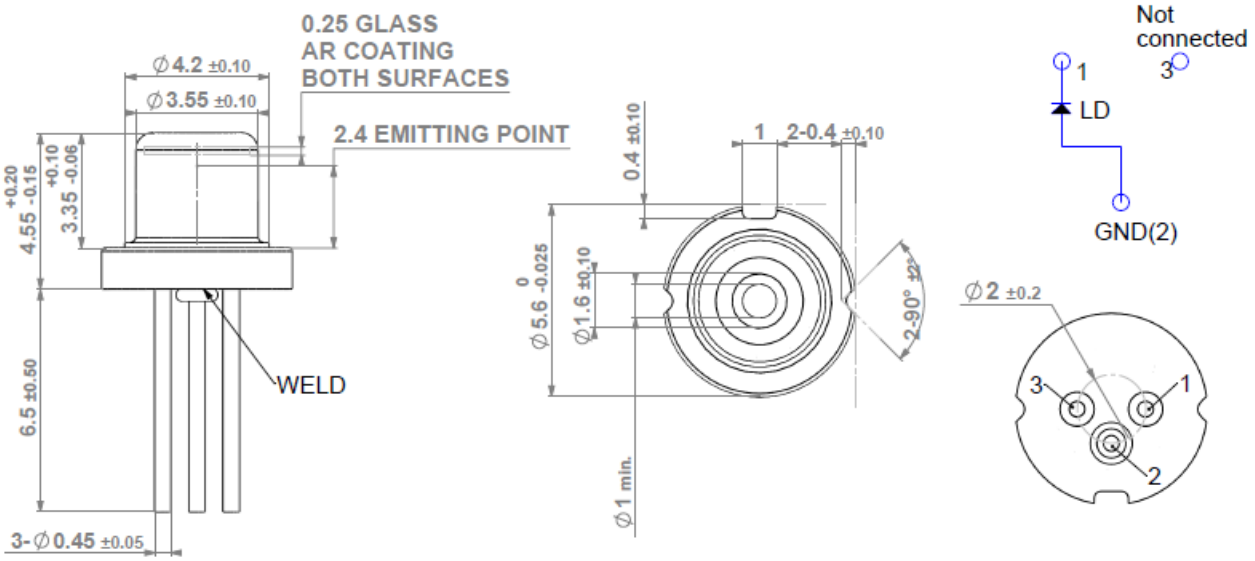


Current and PCE at 350mW versus case temperature



Drop of power at constant current (200mA and 350mA) versus case temperature

Dimensions (in mm)



Ordering Information:

SM830-350-TO56-R01

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 II-VI Laser Enterprise policy of continuous improvement specifications may change without notice. Further details are available from any II-VI Laser Enterprise sales representative.