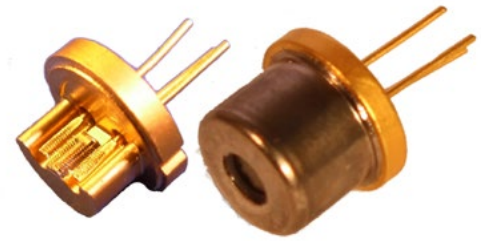
Laser Diodes

TO9

High Power Multimode and Singlemode Lasers
Up to 2.5 Watts CW
1310, 1450, 1550, 1635, 1670 nm standard
Custom Wavelengths Available



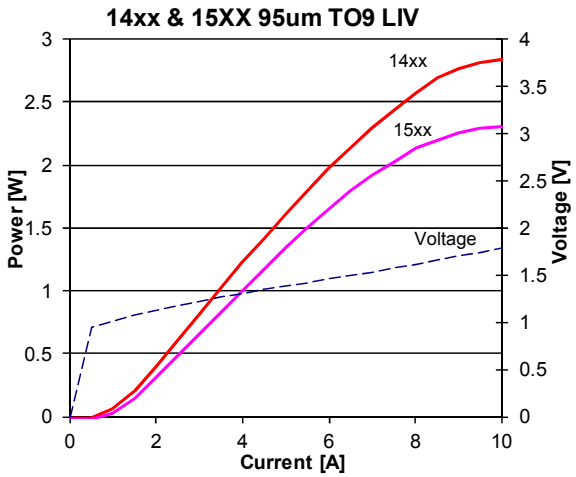
Features

- High output power
- High dynamic power range
- High efficiency
- Standard low cost package

Applications

- Medical laser equipment
- LIDAR
- Free space optical communication
- DPSS pump lasers
- Military / Aerospace

SemiNex delivers the highest available power at infrared wavelengths between 13xx and 17xx nm. When necessary we will further optimize the design of our InP laser chips to meet our customers' specific optical and electrical performance needs. Diodes, bars and packages are tested to meet customer and market performance demands. Typical results and packaging options are shown. Contact SemiNex for additional details or to discuss your specific requirements



701-910-006 Rev. 3

08/21 / V02 / MaHIF / diverse-laser-diodes/lcx/to9-laser-diode

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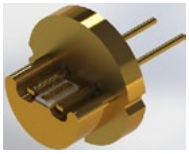
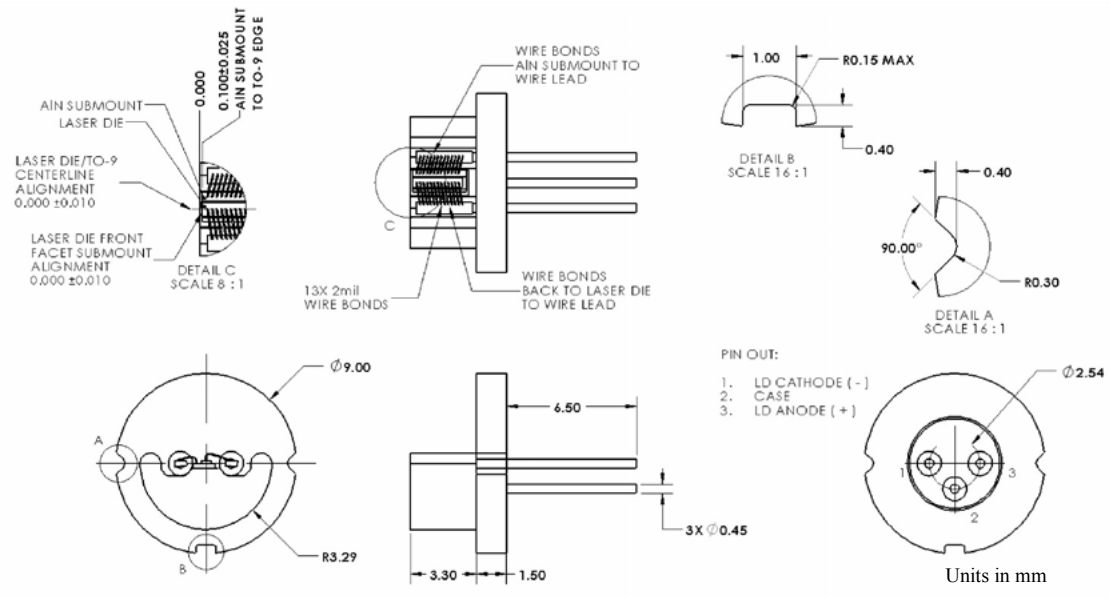
LASER COMPONENTS



TO9—Uncapped

	Symbol	TO9-110	TO9-102	TO9-118	TO9-116	Units
Optical						
Center Wavelength	λ_c	1455	1475	1540	1555	nm (±20)
Output power (CW)	P_o	2.5	2.5	2.0	2.0	watts
Emitter Width	W	95	95	95	95	µm
Emitter Height	H	1	1	1	1	µm
Spectral Width	Δλ	10	10	10	10	nm 3dB
Slope Efficiency	η_o	0.4	0.4	0.3	0.3	W/A
Fast Axis Divergence	θ_X	28	28	28	28	deg FWHM
Slow Axis Divergence	θ_Y	9	9	9	9	deg FWHM
Electrical						
Power conversion Efficiency	η	0.2	0.2	0.16	0.16	
Threshold Current	I_{th}	0.5	0.5	0.5	0.5	A
Operating Current	I_{op}	8	8	8	8	A
Operating Voltage	V_{op}	1.6	1.6	1.6	1.6	V
Series Resistance	R_s	0.05	0.05	0.05	0.05	ohm
Mechanical						
Weight		1.3	1.3	1.3	1.3	g
Operating Temperature		10 to 30	10 to 30	10 to 30	10 to 30	°C
Storage Temperature		-20 to 80	-20 to 80	-20 to 80	-20 to 80	°C



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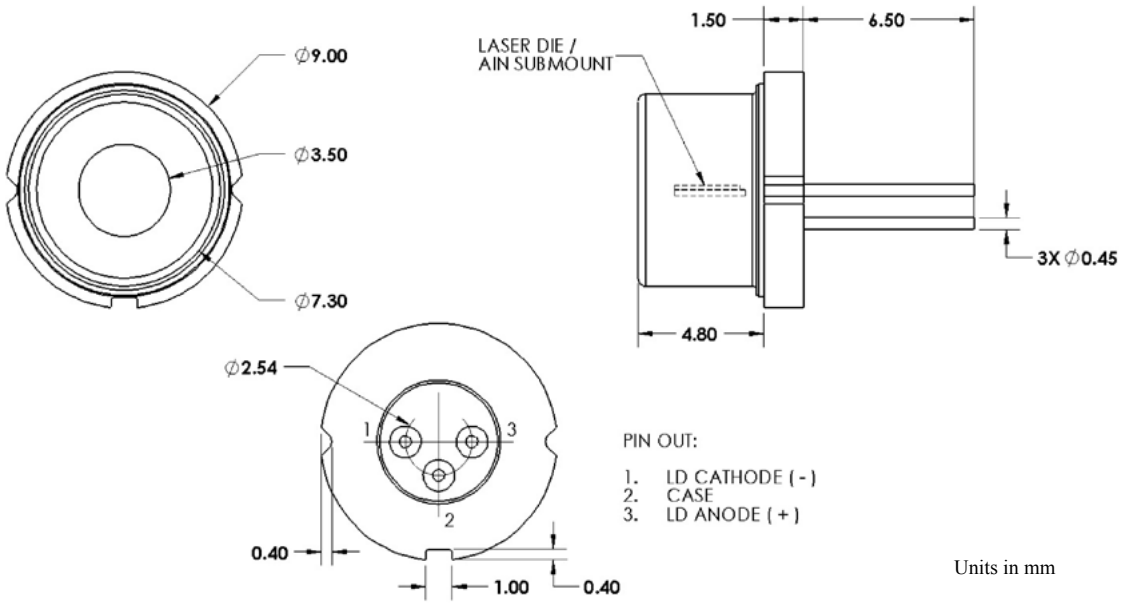
LASER COMPONENTS

TO9—Capped

	Symbol	TO9-125	TO9-126	TO9-104	TO9-107	Units
Optical						
Center Wavelength	λ_c	1490	1500	1575	1585	nm (±20)
Output power (CW)	P_o	2	2	1.7	1.7	watts
Emitter Width	W	95	95	95	95	µm
Emitter Height	H	1	1	1	1	µm
Spectral Width	Δλ	10	10	10	10	nm 3dB
Slope Efficiency	η_o	0.36	0.36	0.3	0.3	W/A
Fast Axis Divergence	θ_X	28	28	28	28	deg FWHM
Slow Axis Divergence	θ_Y	9	9	9	9	deg FWHM
Electrical						
Power conversion Efficiency	η	0.2	0.2	0.17	0.17	
Threshold Current	I_{th}	0.5	0.5	0.5	0.5	A
Operating Current	I_{op}	7	7	7	7	A
Operating Voltage	V_{op}	1.4	1.4	1.4	1.4	V
Series Resistance	R_s	0.05	0.05	0.05	0.05	ohm
Mechanical						
Weight		1.9	1.9	1.9	1.9	g
Operating Temperature		10 to 30	10 to 30	10 to 30	10 to 30	°C
Storage Temperature		-20 to 80	-20 to 80	-20 to 80	-20 to 80	°C



Units in mm

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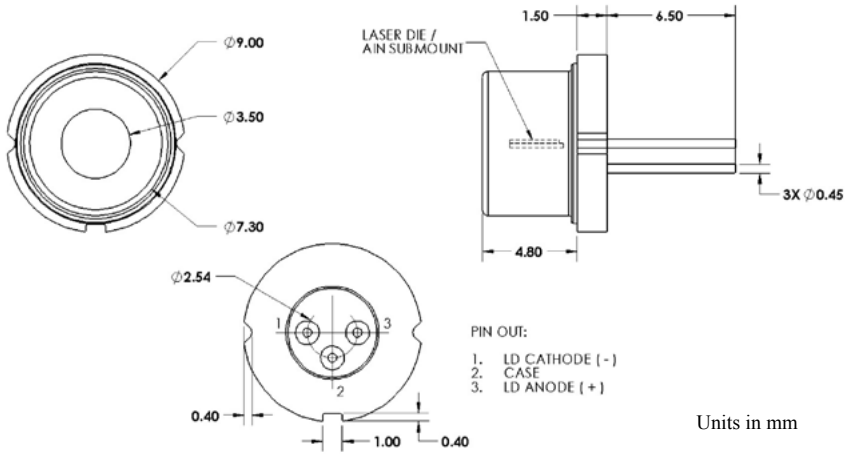
LASER COMPONENTS

TO9—Single Mode

	Symbol	TO9-154	TO9-127	TO9-105	TO9-108	TO9-122	TO9-140	TO9-124	Units
Optical									
Wavelength	λ_c	1328	1550	1565	1635	1645	1650	1670	nm (+/- 20)
Output power (CW)	P_o	500	220	360	360	220	200	220	mW
Chip Cavity Length	CL	2500	1500	2500	2500	2500	1250	2500	µm
Emitter Width	W	5	4	4	4	4	4	4	µm
Emitter Height	H	1	1	1	1	1	1	1	µm
Spectral Width	Δλ	10	10	10	10	10	10	10	nm 3dB
Slope Effi.	η_o	0.34	0.3	0.3	0.18	0.22	0.3	0.22	W/A
Fast Axis Divg.	θ_X	30	30	30	30	30	30	30	deg FWHM
Slow Axis Divg.	θ_Y	9	9	9	9	9	9	9	deg FWHM
Electrical									
Power Conversion Eff.	η	0.16	0.13	0.12	0.12	0.1	0.12	0.1	
Threshold Current	I_{th}	0.05	0.05	0.05	0.05	0.05	0.05	0.05	A
Operating Current	I_{op}	1.2	1.3	1.2	1	1	1.2	1	A
Operating Voltage	V_{op}	2.6	2.6	2.5	2.3	2.3	2.5	2.3	V
Series Resistance	R_s	1.3	1.3	1.3	1.3	1.3	1.3	1.3	ohm
Mechanical									
Weight		1.9	1.9	1.9	1.9	1.9	1.9	1.9	g
Operating Temp.		10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	°C
Storage Temp.		-20 to 80	-20 to 80	-20 to 80	-20 to 80	-20 to 80	-20 to 80	-20 to 80	°C

Specified values are rated at a constant heat sink temperature of 20°C



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