

## T09

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

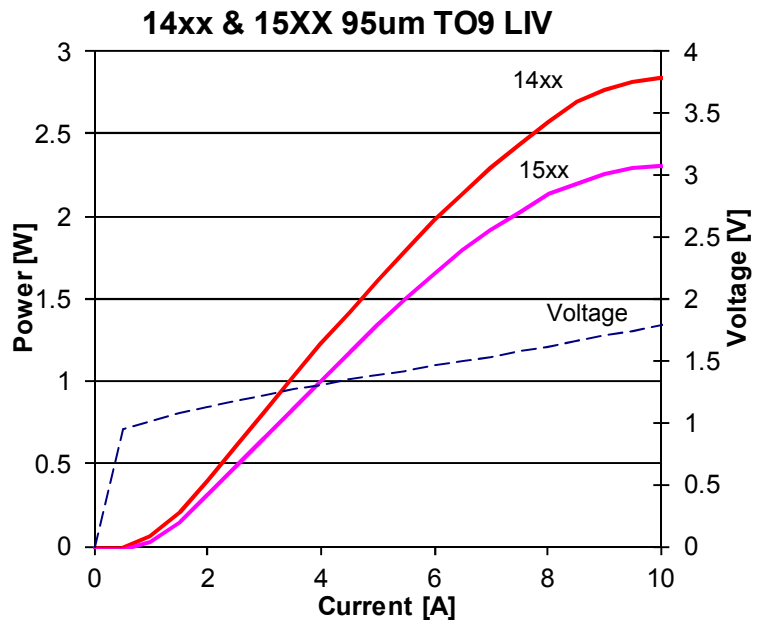
### Features

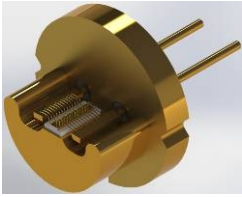
- High output power
- High dynamic power range
- High efficiency
- Standard low cost package

### 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



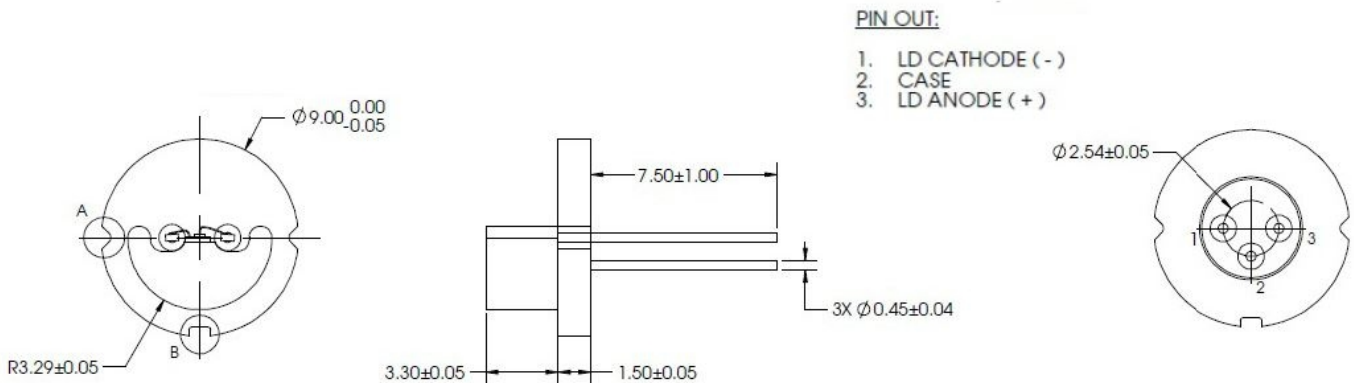


TO9—Uncapped



	Symbol	TO9-152	TO9-121	TO9-102	TO9-118	TO9-116	Units
<b>Optical</b>							
Wavelength	$\lambda_c$	1310	1465	1475	1550	1560	nm ( $\pm 20$ )
Output Power (Min.)	$P_o$	2	1.8	1.8	1.6	1.6	watts
Emitter Width	W	95	95	95	95	95	$\mu\text{m}$
Emitter Height	H	1	1	1	1	1	$\mu\text{m}$
Spectral Width	$\Delta\lambda$	10	20	10	10	10	nm 3dB
Slope Eff.	$\eta_o$	0.43	0.43	0.40	0.30	0.30	W/A
Fast Axis Div. (Max.)	$\theta_X$	30	30	30	30	30	deg FWHM
Slow Axis Div. (Max.)	$\theta_Y$	11	11	11	11	11	deg FWHM
<b>Electrical</b>							
Power Conversion Eff.	$\eta$	0.25	0.25	0.20	0.16	0.16	
Threshold Current	$I_{th}$	0.5	0.5	0.5	0.5	0.5	A
Operating Current	$I_{op}$	8	8	8	8	8	A
Operating Voltage (Max.)	$V_{op}$	2	2	2	2	2	V
Series Resistance	$R_s$	0.05	0.08	0.05	0.05	0.05	ohm
<b>Mechanical</b>							
Weight		1.3	1.3	1.3	1.3	1.3	g
Operating Temp.		10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	$^{\circ}\text{C}$
Storage Temp.		-20 to 80	-20 to 80	-20 to 80	-20 to 80	-20 to 80	$^{\circ}\text{C}$

Specified values are rated at a constant heat sink temperature of 20°C  
 Unless otherwise indicated all values are nominal.





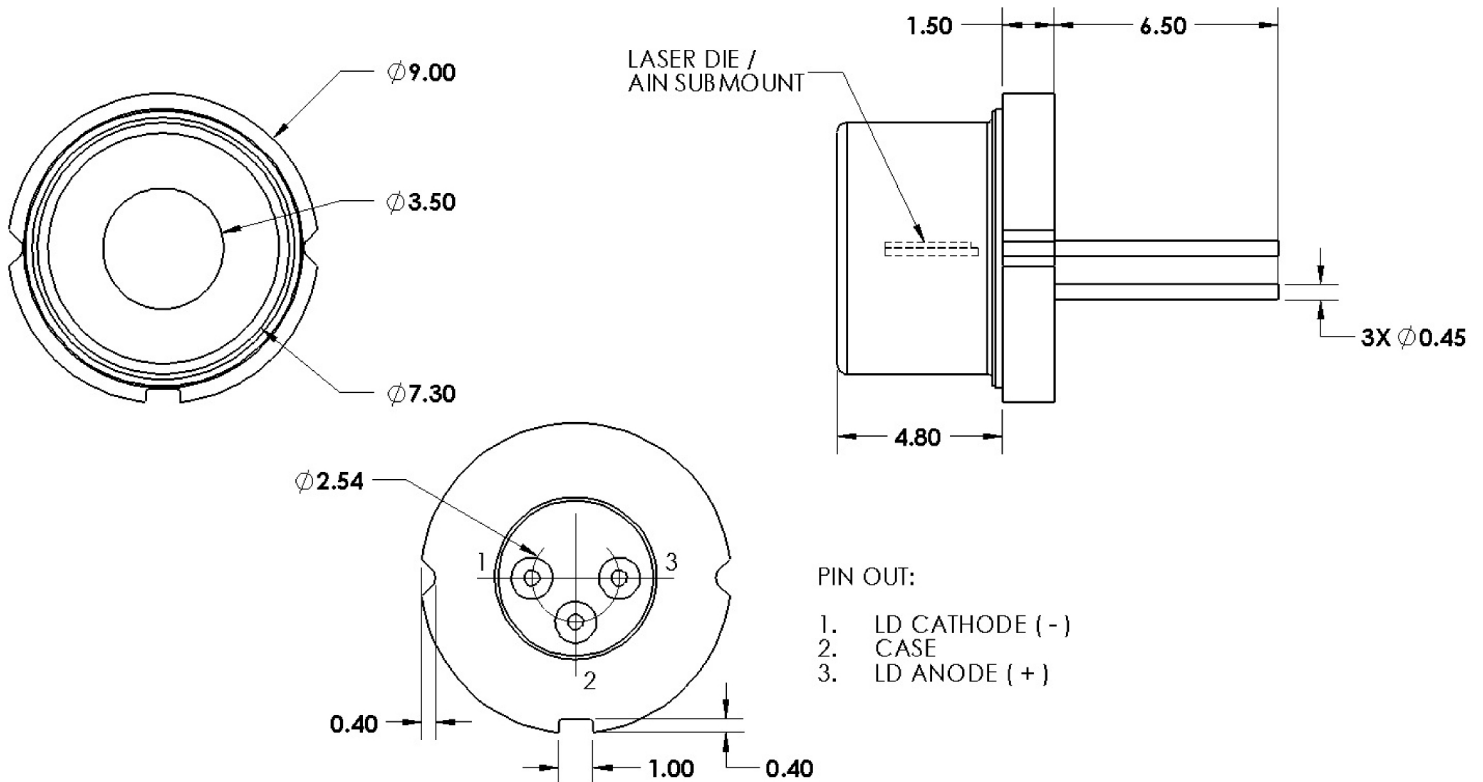
TO9—Capped



Symbol TO9-104 TO9-107 TO9-125 TO9-126 TO9-128 TO9-133-114 TO9-146-114 TO9-147-114 TO9-148-114 TO9-153 Units

Optical												
Wavelength	$\lambda_c$	1575	1585	1490	1500	1550	1525	1550	1550	1550	1380	nm ( $\pm 20$ )
Output Power (CW)	$P_o$	1.7	1.7	2.0	2.0	1.6	1.3	0.450	1.7	1.2	2.5	watts
Emitter Width	W	95	95	95	95	50	95	50	95	180	95	$\mu\text{m}$
Emitter Height	H	1	1	1	1	1	1	1	1	1	1	$\mu\text{m}$
Spectral Width	$\Delta\lambda$	10	10	10	10	10	10	10	10	10	10	nm 3dB
Slope Eff.	$\eta_o$	.30	.30	.36	.36	.20	.25	.20	.25	.25	.30	W/A
Fast Axis Div.	$\theta_X$	28	28	28	28	28	28	28	28	28	28	deg FWHM
Slow Axis Div.	$\theta_Y$	9	9	9	9	9	9	9	9	9	9	deg FWHM
Electrical												
Power Conversion Eff.	$\eta$	0.17	0.17	0.20	0.20	0.16	0.13	0.05	0.17	0.12	0.26	
Threshold Current	$I_{th}$	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	A
Operating Current	$I_{op}$	7	7	7	7	7	7	7	7	7	7	A
Operating Volt.	$V_{op}$	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	V
Series Resistance	$R_s$	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	ohm
Mechanical												
Weight		1.9	1.9	1.9	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	10 to 30	10 to 30	10 to 30	$^{\circ}\text{C}$
Storage Temp.		-20 to 80	-20 to 80	-20 to 80	-20 to 80	-20 to 80	-20 to 80	-20 to 80	-20 to 80	-20 to 80	-20 to 80	$^{\circ}\text{C}$

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





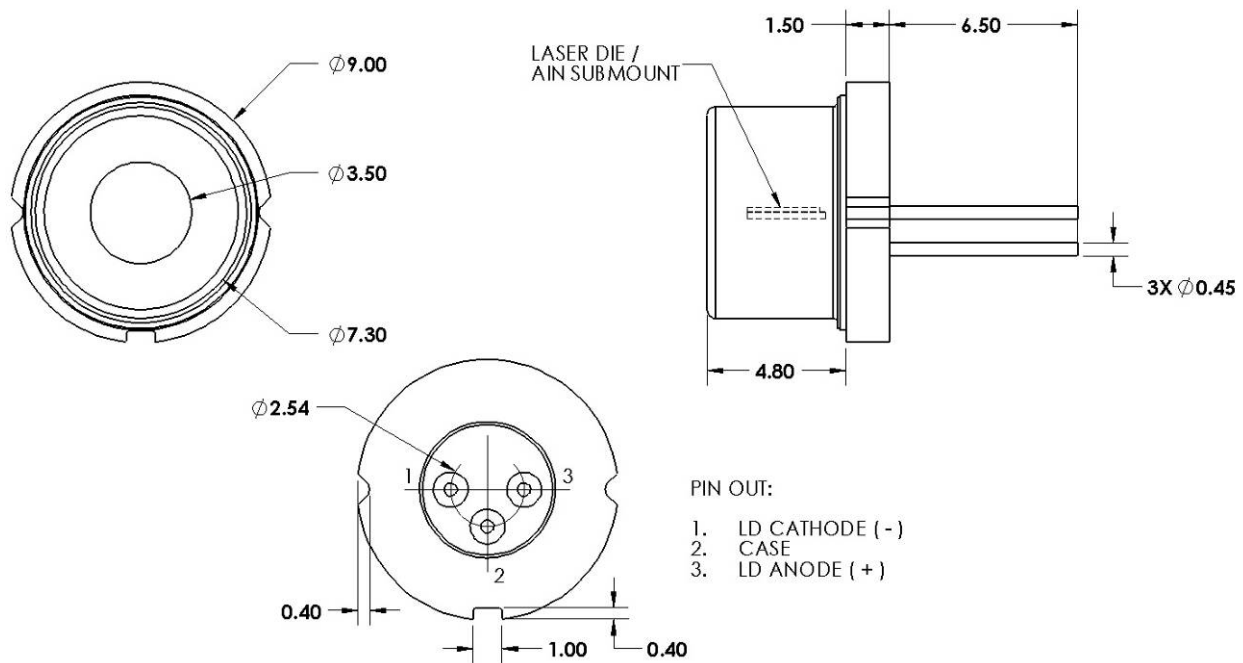
TO9—Single Mode



	Symbol	TO9-154	TO9-127	TO9-105	TO9-150*	TO9-108	TO9-140*	TO9-124	Units
<b>Optical</b>									
Wavelength	$\lambda_c$	1328	1550	1565	1565	1635	1650	1665	nm (+/- 20)
Output power (CW)	$P_o$	450	220	360	450	220	250	270	mW
Chip Cavity Length	CL	2500	1500	2500	2500	2500	1250	2500	$\mu$ m
Emitter Width	W	5	4	4	4	4	5	5	$\mu$ m
Emitter Height	H	1	1	1	1	1	1	1	$\mu$ m
Spectral Width	$\Delta\lambda$	10	10	10	10	10	10	10	nm 3dB
Slope Effi.	$\eta_o$	0.34	0.3	0.3	0.3	0.22	0.4	0.26	W/A
Fast Axis Divg.	$\theta_X$	30	30	30	30	30	30	30	deg FWHM
Slow Axis Divg.	$\theta_Y$	9	9	9	9	9	9	9	deg FWHM
<b>Electrical</b>									
Power Conversion Eff.	$\eta$	0.16	0.13	0.12	0.12	0.1	0.17	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	1.2	1	0.65	1.1	A
Operating Voltage	$V_{op}$	2.6	2.6	2.5	2.5	2.3	2.2	2.3	V
Series Resistance	$R_s$	1.3	1.3	1.3	1.3	1.3	2	1.3	ohm
<b>Mechanical</b>									
Weight					1.9				g
Operating Temp.					10 to 30				$^{\circ}$ C
Storage Temp.					-20 to 80				$^{\circ}$ C

\* Uncapped

Specified values are rated at a constant heat sink temperature of 20 $^{\circ}$ C





TO9—Lensed

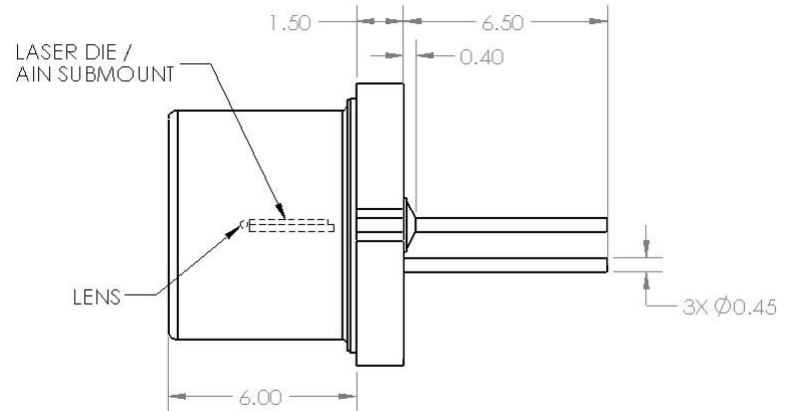
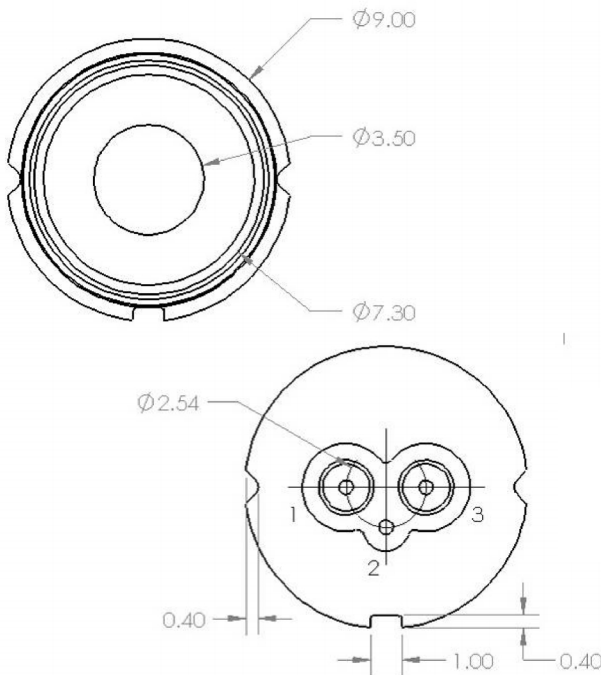


Symbol TO9-128-126 TO9-146-115 TO9-146-116 TO9-147-115 TO9-148-116 TO9-149-116 TO9-150-108 Units

Optical										
Wavelength	$\lambda_c$	1550	1550	1550	1550	1550	1550	1565	nm ( $\pm 20$ )	
Output Power (CW)	$P_o$	0.800	1.3	1.6	1.7	1.2	1.6	0.425	watts	
Emitter Width	W	50	50	50	95	180	350	4	$\mu\text{m}$	
Emitter Height	H	1	1	1	1	1	1	1	$\mu\text{m}$	
Spectral Width	$\Delta\lambda$	10	10	10	10	10	10	10	nm 3dB	
Slope Eff.	$\eta_o$	.20	.20	.20	.25	.25	.20	.32	W/A	
Fast Axis Div.	$\theta_X$	9*	<5	<5	<5	<5	<5	<5	mrاد	
Slow Axis Div.	$\theta_Y$	9*	175	175	175	175	175	175	mrاد	
Electrical										
Power Conversion Eff.	$\eta$	0.08	0.13	0.16	0.17	0.12	0.16	0.04		
Threshold Current	$I_{th}$	0.5	0.5	0.5	0.5	0.5	0.5	0.5	A	
Operating Current	$I_{op}$	7	7	7	7	7	7	7	A	
Operating Volt.	$V_{op}$	1.4	1.4	1.4	1.4	1.4	1.4	1.4	V	
Series Resistance	$R_s$	0.05	0.05	0.05	0.05	0.05	0.05	0.05	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	$^{\circ}\text{C}$	
Storage Temp.		-20 to 80	-20 to 80	-20 to 80	-20 to 80	-20 to 80	-20 to 80	-20 to 80	$^{\circ}\text{C}$	
Cap		Yes	No	Yes	No	Yes	Yes	No		
Lens		FA=SA	Collimated Fast Axis							

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

\*Fast and Slow axis matched - Units are deg FWHM



PIN OUT:

1. LD CATHODE (-)
2. CASE
3. LD ANODE (+)

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