

High Power Pulsed Laser Diodes 905-Series

Features

- Single and stacked devices up to 130 Watts
- Proven AlGaAs high reliability structure
- 1 W/A efficiency with 25° beam divergence
- Excellent temperature stability
- Hermetic and custom designed package

Applications

- Range finding
- Surveying equipment
- Weapons simulation
- Laser radar
- Security barrier
- Optical trigger



Optical Characteristics at $t_{RT} = 21^{\circ}\text{C}$

	Min	Typ	Max	Units
Wavelength of peak radiant intensity λ_m	895	905	915	nm
Spectral bandwidth $\Delta\lambda$ at 50% intensity points		5		nm
Wavelength temperature coefficient		0.27		nm/°C
Beam spread (50% peak intensity) Parallel to junction plane \parallel		12		Degrees
Perpendicular to junction plane \perp				
Single element		25		Degrees
Stacks		30		Degrees

SINGLE CHIPSSingle Chip Characteristics at $t_{RT} = 21^\circ\text{C}$, $t_w = 150\text{ ns}$, $P_{rr} = 6.66\text{ kHz}$

Parameter	905D1S1.5X	905D1S03X	905D1S06X	905D1S09X	905D1S12X	905D1S16X
P_O at I_{FM} (min)	3.0 W	6.0 W	13.0 W	19.0 W	26.0 W	34.0 W
Emitting area	37.5 x 1 μm	75 x 1 μm	150 x 1 μm	230 x 1 μm	300 x 1 μm	400 x 1 μm
Max peak forward current I_{FM}	3.5 A	7 A	15 A	22 A	30 A	40 A
I_{th} typ	100 mA	200 mA	400 mA	600 mA	800 mA	1200 mA

STACKED ARRAYSStacked Chip Characteristics at $t_{RT} = 21^\circ\text{C}$, $t_w = 150\text{ ns}$, $P_{rr} = 6.66\text{ kHz}$

Parameter	905D2S06X	905D3S09X	905D3S12X	905D4S12X	905D4S16X
Number of elements	2	3	3	4	4
P_O at i_{FM} (min)	25 W	55 W	70 W	90 W	130 W
Emitting area	150 x 125 μm	230 x 225 μm	300 x 225 μm	300 x 340 μm	400 x 340 μm
Max peak forward current i_{FM}	15 A	22 A	30 A	30 A	40 A
I_{th} typ	400 mA	600 mA	800 mA	800 mA	1200 mA

Absolute Maximum Ratings

Maximum ratings	Limiting values
Peak reverse voltage	6 V
Pulse duration	
Single element	1 μs
Stacks	200 ns
Duty factor	0.1%
Temperature	
- Storage	-55 °C to + 100 °C
- Operating	-45 °C to + 85 °C
Lead soldering	
- 5 seconds max at	200 °C

Figure 1:
Optical output power vs. forward current

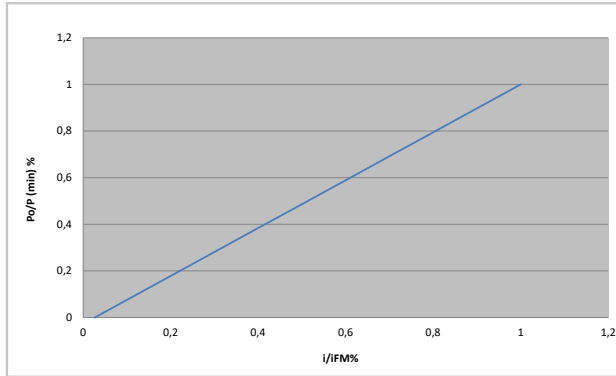


Figure 2:
Optical output power vs. temperature

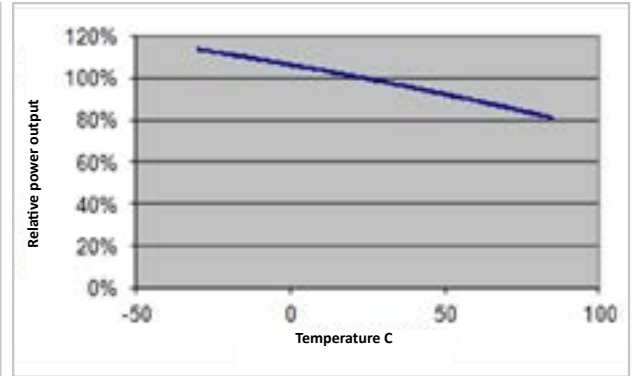


Figure 3:
Optical output power vs. half angle

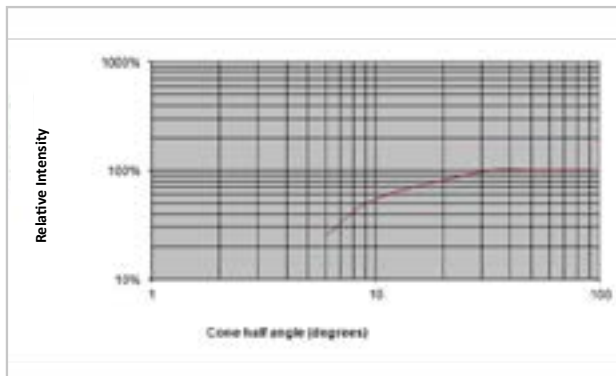


Figure 4:
Wavelength vs. temperature

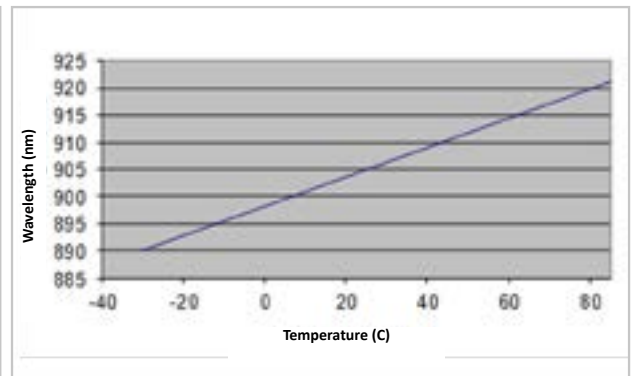


Figure 5:
Spectral plot distribution

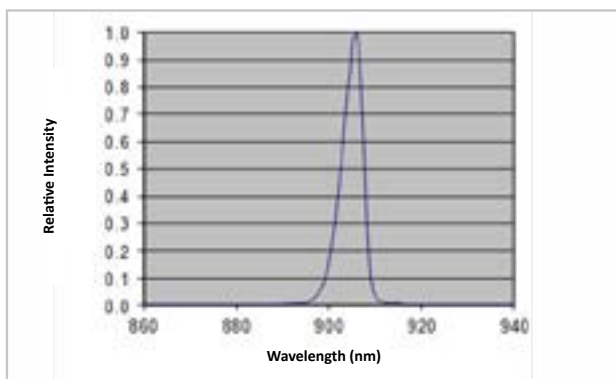


Figure 6:
Far field emission pattern parallel and perpendicular to junction plane

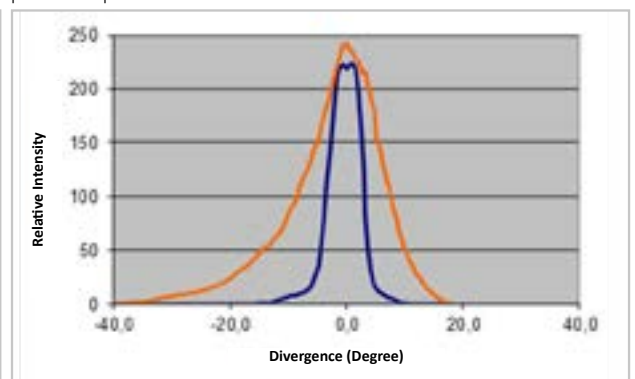
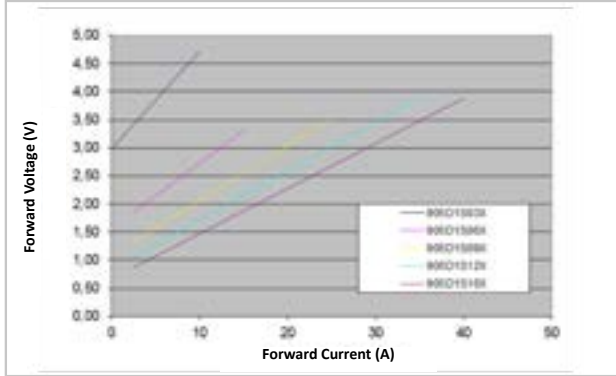
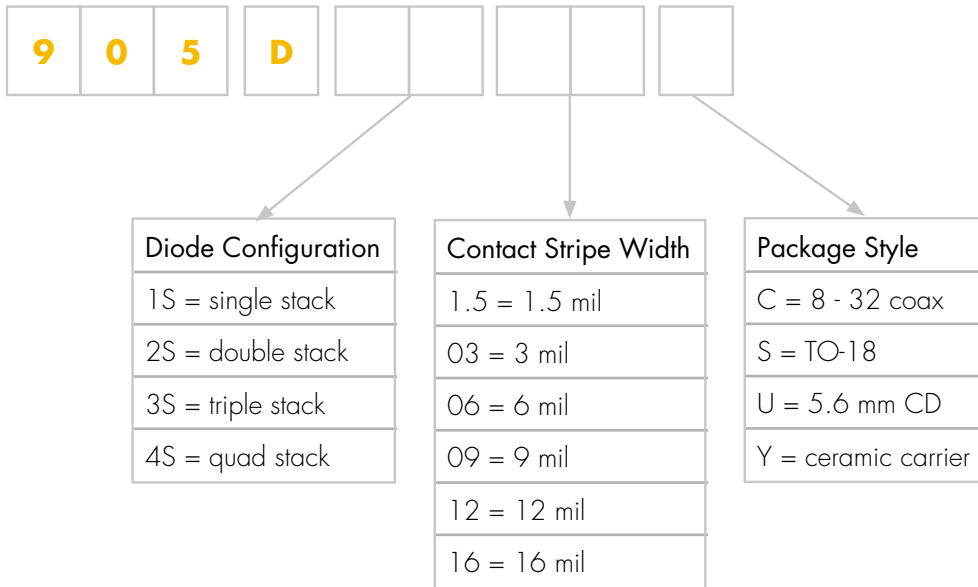


Figure 7:
905D1S series, static Vf

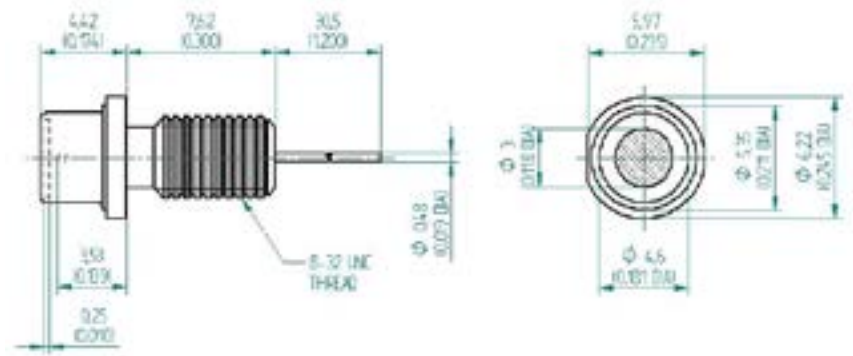


Product Number Designations



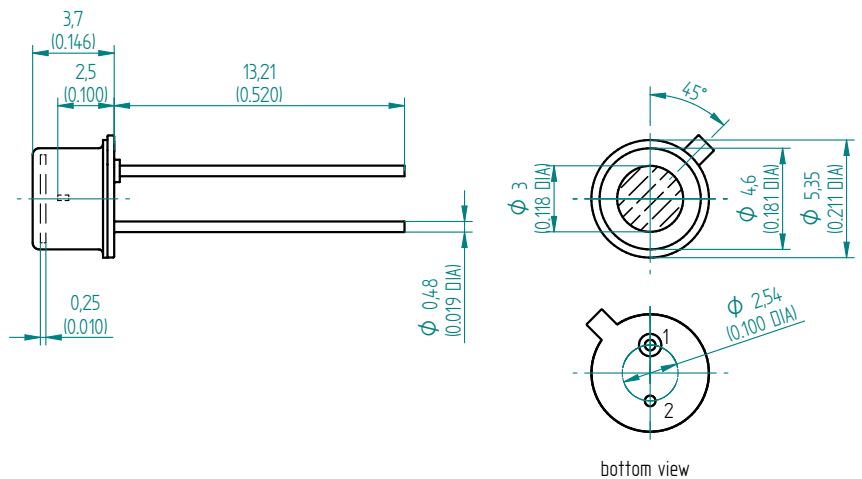
Package Drawings

Package C 8 - 32 coax



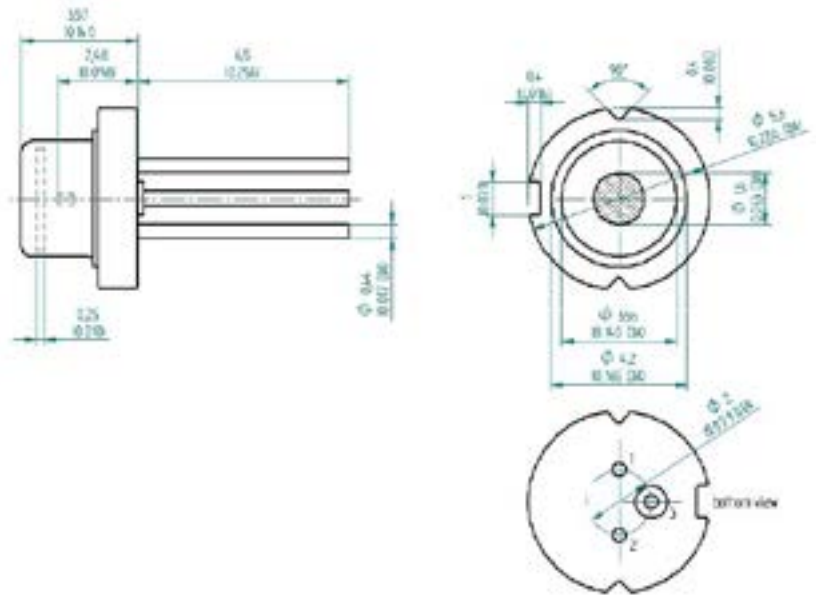
Package C: Pin Out: Case (-), Pin (+), Inductance 12 nH

Package S TO-18



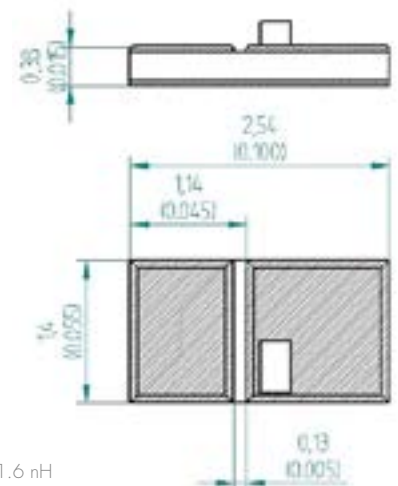
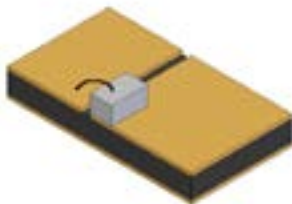
Package S: Pin Out: 1. LD Anode (+), 2. LD Cathode (-) Case, Inductance 5.2 nH

Package U 5.6 mm CD



Package U: Pin Out: 1. LD Anode (+),
2. NC,
3. LD Cathode (-) Case, Inductance 5.0 nH

Package Y ceramic carrier



Package Y: Pin Out: 1. LD Anode (+),
2. LD Cathode (-) Case, Inductance 1.6 nH

Product Changes

LASER COMPONENTS reserves the right to make changes to the product(s) or information contained herein without notice. No liability is assumed as a result of their use or application.

Ordering Information

Products can be ordered directly from LASER COMPONENTS or its representatives. For a complete listing of representatives, visit our website at www.lasercomponents.com

Custom designed products are available on request.

Laser Safety

Personal Hazard:

Depending on the mode of operation, these devices emit highly concentrated non visible infrared light which can be hazardous to the human eye. Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1 "Safety of laser products".

Handling Precautions:

Products are subject to the risks normally associated with sensitive electronic devices including static discharge, transients, and overload.



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