

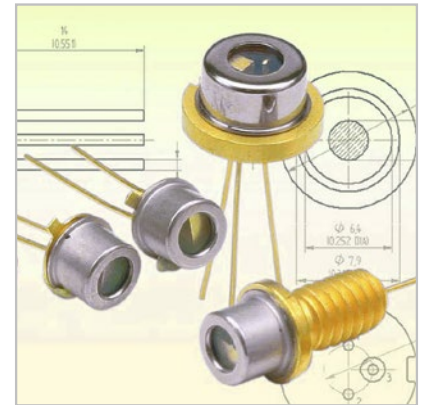
## High Power Multi-Junction Pulsed Laser Diodes 905D1S3J0XX

### Features

- Multi-junction devices up to 75 W
- 75  $\mu\text{m}$ , 150  $\mu\text{m}$  and 225  $\mu\text{m}$  source size
- 2.6 W/A efficiency
- Proven InGaAs / GaAs high reliability structure
- High power multi-junction structure for narrow far field
- Excellent temperature stability
- Hermetic and custom designed package

### Applications

- Range finding
- Surveying equipment
- Weapons simulation
- Laser radar
- Obstacle detection
- Medical



### Optical Characteristics at $t_{RT} = 21^\circ\text{C}$ , $I_{FM}$

	Min	Typ	Max	Units
Wavelength of peak radiant intensity $\lambda$	895	905	915	nm
Spectral bandwidth $\Delta\lambda$ at 50% intensity points		8		nm
Wavelength temperature coefficient		0.27		nm/ $^\circ\text{C}$
Beam spread (50% peak intensity)				
Parallel to junction plane $\parallel$		12		Degrees
Perpendicular to junction plane $\perp$		20		Degrees

Optical Characteristics at  $t_{RT} = 21^{\circ}\text{C}$ ,  $t_w = 150\text{ ns}$ ,  $P_{rr} = 3.33\text{ kHz}$ 

Parameter	905D1S3J03X	905D1S3J06X	905D1S3J09X
$P_O$ at $I_{FM}$ (typ.)	25 W	50 W	75 W
Emitting area	85 x 10 $\mu\text{m}$	160 x 10 $\mu\text{m}$	235 x 10 $\mu\text{m}$
$I_{TH}$ typ	300 mA	500 mA	800 mA
$I_{MAX}$ at 100 ns	11 A	22 A	30 A
Forward voltage at $I_{MAX}$	12 V	11 V	11 V

## Absolute Maximum Ratings

Maximum ratings	Limiting values
Peak reverse voltage	6 V
Pulse duration	150 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:  
Output power vs. forward current (905D1S3J0XX)

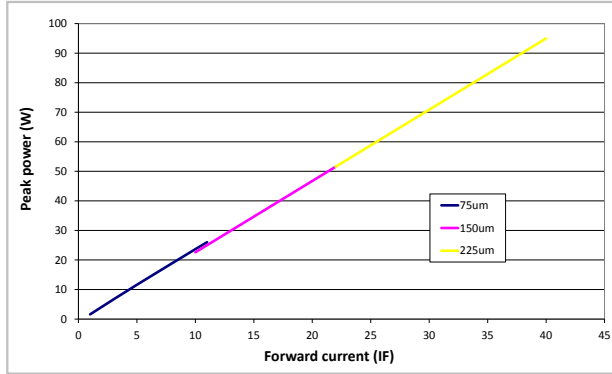


Figure 2:  
Optical output power vs. temperature

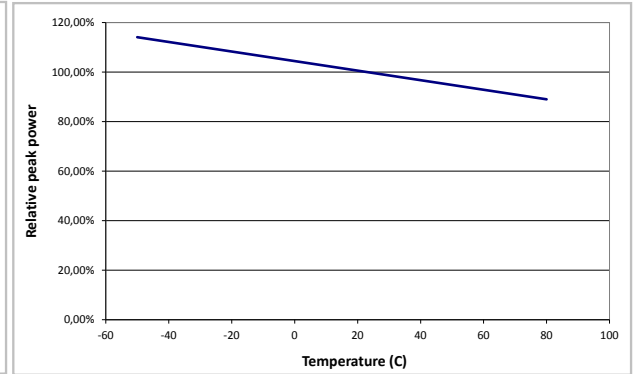


Figure 3:  
Wavelength vs. temperature

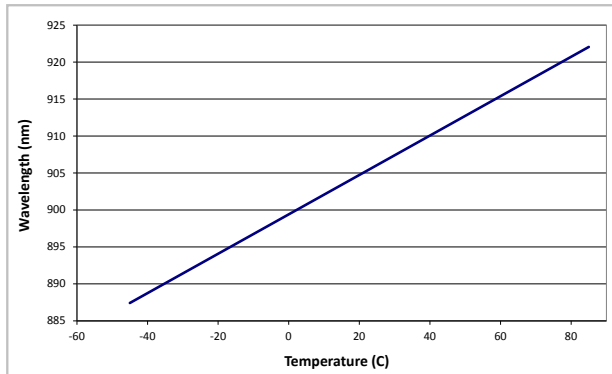


Figure 4:  
Output power vs. cone half angle

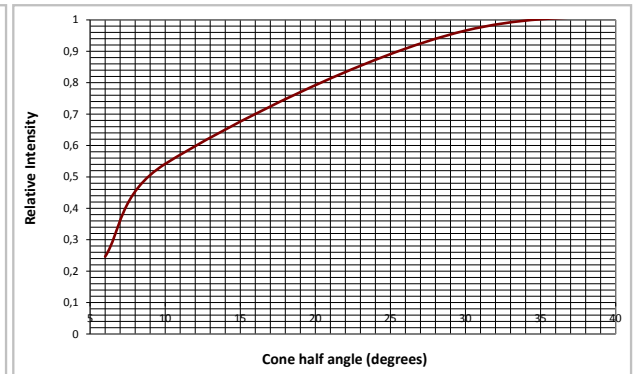


Figure 5:  
Spectral intensity distribution

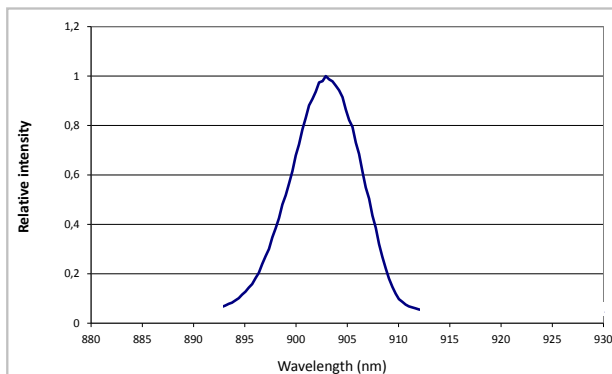


Figure 6:  
Far field emission parallel and perpendicular to junction plane

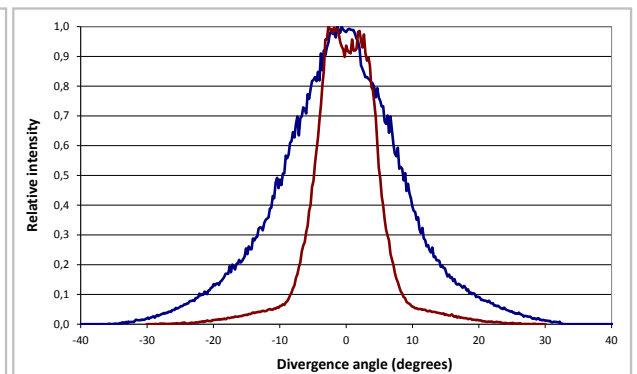


Figure 7:  
905D1S3J series static Vf

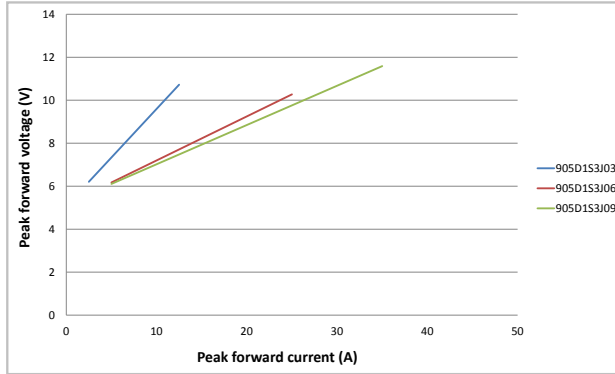
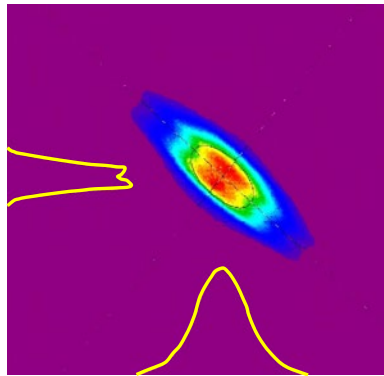


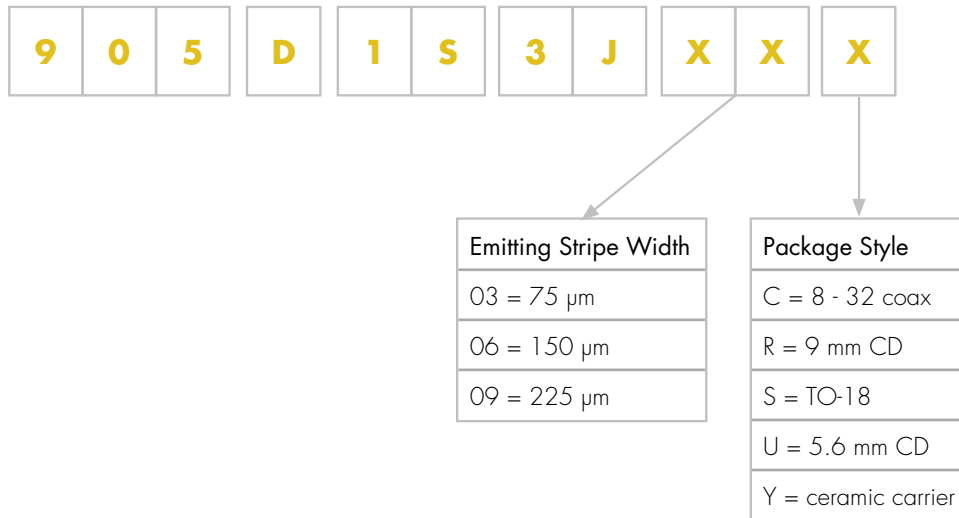
Figure 8:  
Typical near field scan of triple junction lasers



Figure 9:  
Typical far field beam scan

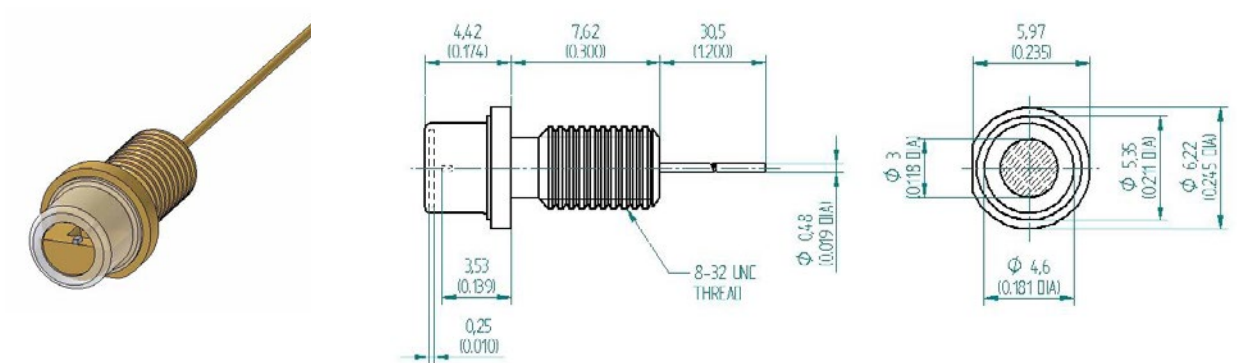


Product Number Designations



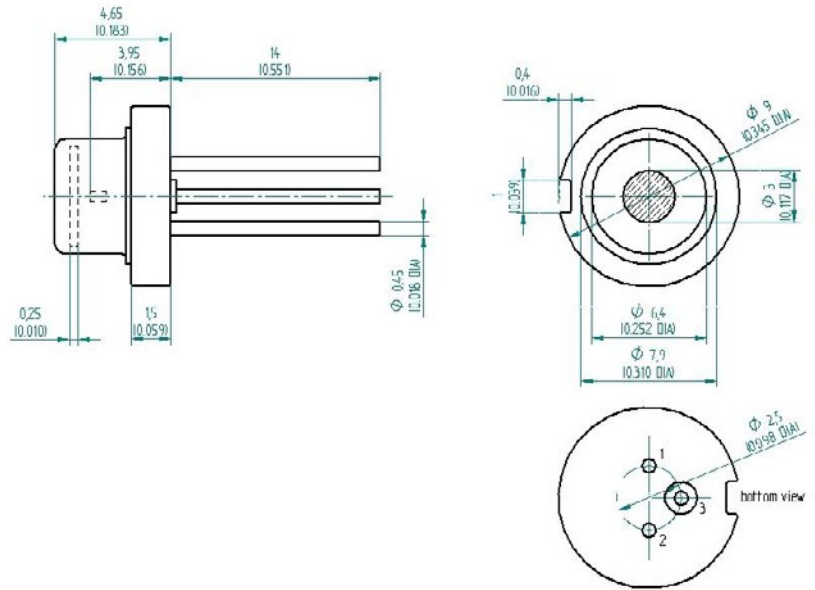
Package Drawings

Package C 8 - 32 coax



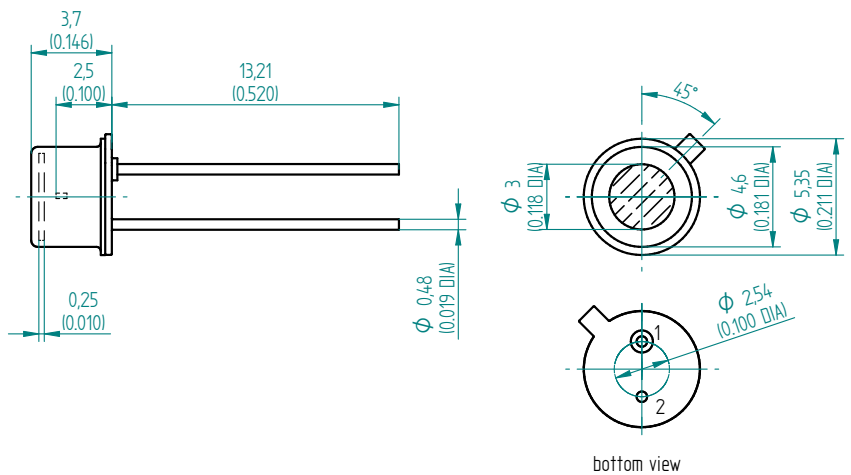
Package C: Pin Out: Case (-), Pin (+), Inductance 12 nH

Package R 9 mm CD



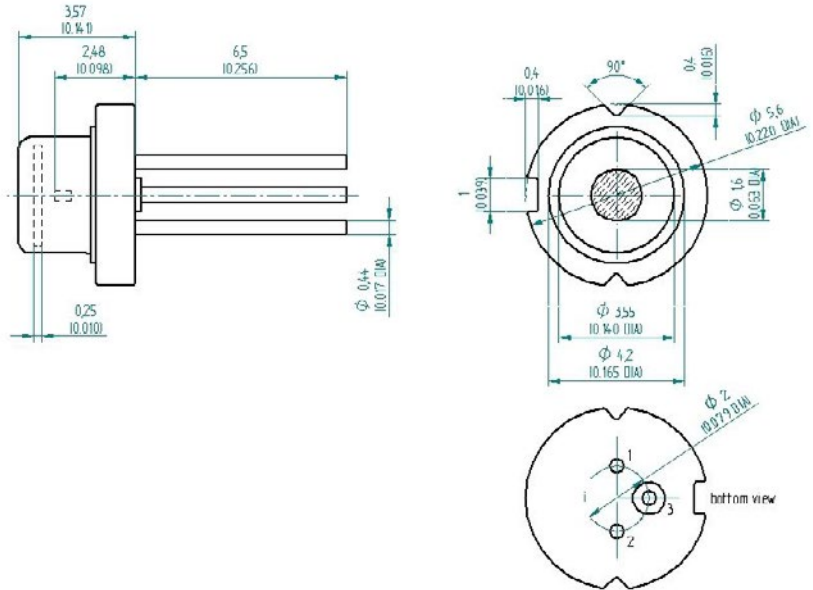
Package R: Pin Out: 1. LD Anode (+),  
2. NC,  
3. LD Cathode (-) Case, Inductance 6.8 nH

Package S TO-18



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

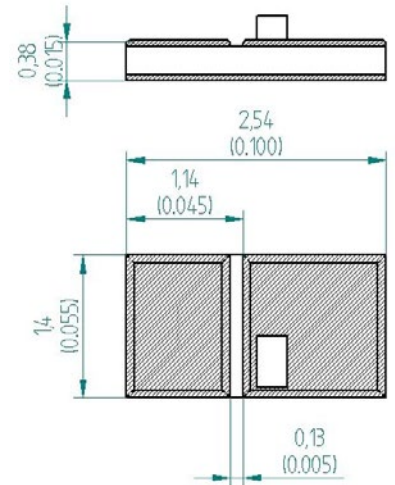
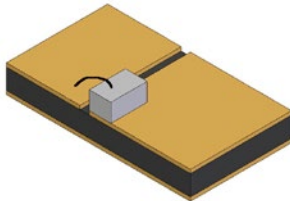
Package U 5.6 mm CD



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](http://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.

