

## High Power Pulsed Laser Diodes 905D3JT09-Series

### Features

- Multi-Junction devices up to 335 Watts
- Up to 9.8 W/A efficiency
- Proven InGaAs / GaAs high reliability structure
- High power large-optical-cavity (LOC) structure for narrow far-field
- Excellent temperature stability
- Hermetic and custom designed package

### Applications

- Range finding
- Surveying equipment
- Weapons simulation
- LiDAR
- Ceilometer
- Optical trigger
- Medical



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

	Min	Typ	Max	Units
Wavelength of peak radiant intensity $\lambda_m$	895	905	915	nm
Spectral bandwidth $\Delta\lambda$ at 50% intensity points		5.5		nm
Wavelength temperature coefficient		0.28		nm/ $^{\circ}\text{C}$
Beam spread				
Parallel to junction plane $\parallel$ FWHM		11		Degrees
Perpendicular to junction plane $\perp$ FWHM		24		Degrees
Parallel to junction $I/e^2$		15		Degrees
Perpendicular to junction $I/e^2$		48		Degrees
Polarization ratio TE/(TE+TM)		>98%		

**Typical Product Characteristics at  $t_{RT}= 21\text{ °C}$ ,  $t_w= 100\text{ ns}$ ,  $P_{rr}= 1\text{ kHz}$** 

Parameter	905D1S3JT09X	905D2S3JT09X	905D3S3JT09X
Number of chips	1	2	3
$P_O$ at $I_{FM}$	115 W	235 W	335 W
Emitting area	235 x 10 $\mu\text{m}$	235 x 212 $\mu\text{m}$	235 x 425 $\mu\text{m}$
$I_{TH}$	800 mA	800 mA	800 mA
$I_{FM}$	40 A	40 A	40 A
Forward voltage at $I_{FM}$	13.2 V	21.8 V	29.8

**Absolute Maximum Ratings**

Maximum ratings	Limiting values
Peak reverse voltage	36 V
Pulse duration	150 ns
Duty factor	0.1 %
Temperature	
- Storage	-55 °C to + 125 °C
- Operating	-40 °C to + 105 °C
Lead soldering	
- 5 seconds max at	200 °C

Figure 1:  
Optical output power vs. forward current

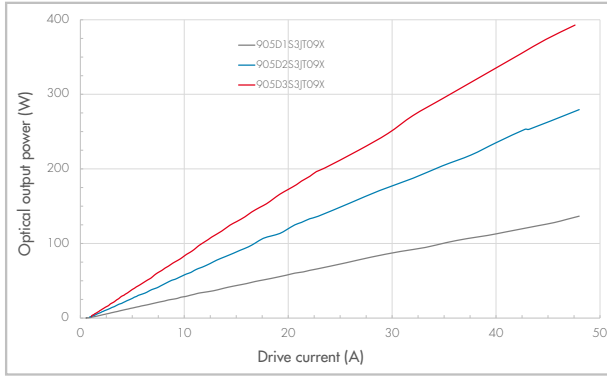


Figure 2:  
Optical output power vs. temperature

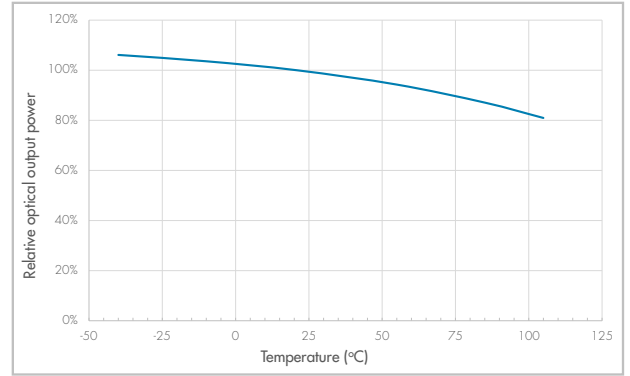


Figure 3:  
Wavelength vs. temperature

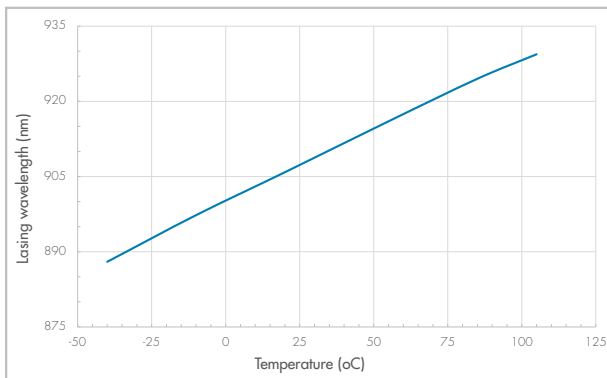


Figure 4:  
Spectral intensity distribution

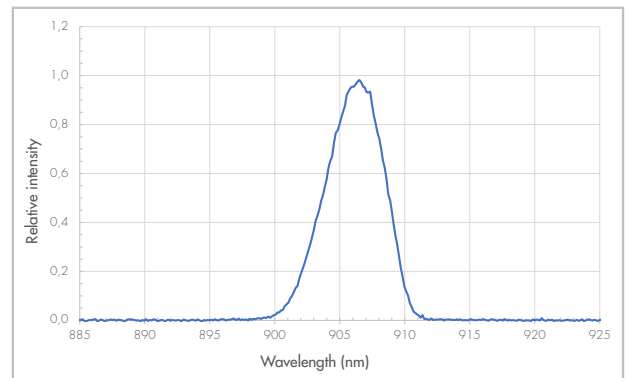


Figure 5:  
Far field emission parallel and perpendicular to junction plane

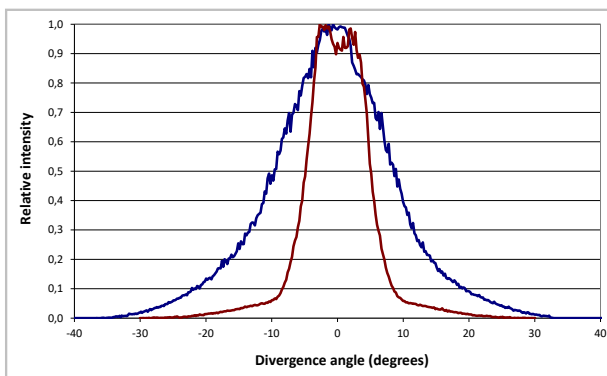


Figure 6:  
Forward voltage vs. drive current

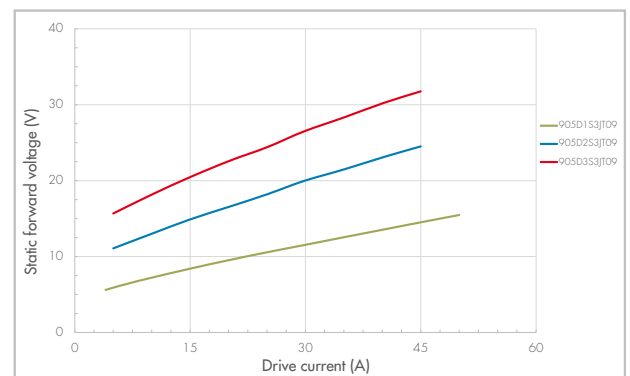


Figure 7:  
Typical far field beam scan

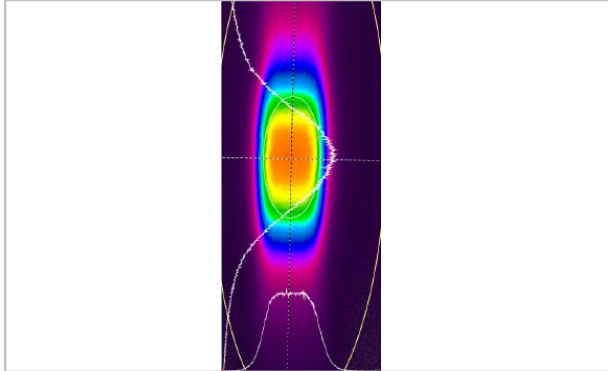


Figure 8:  
Typical near field scan

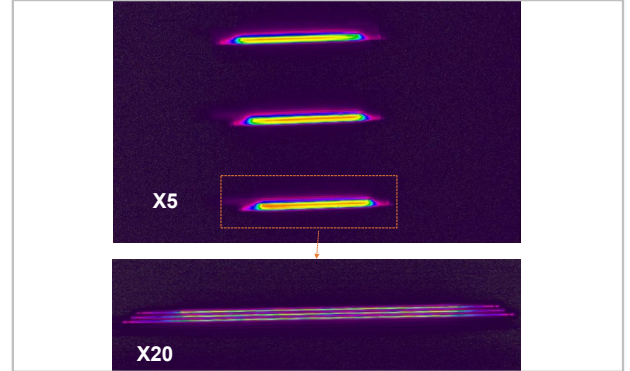
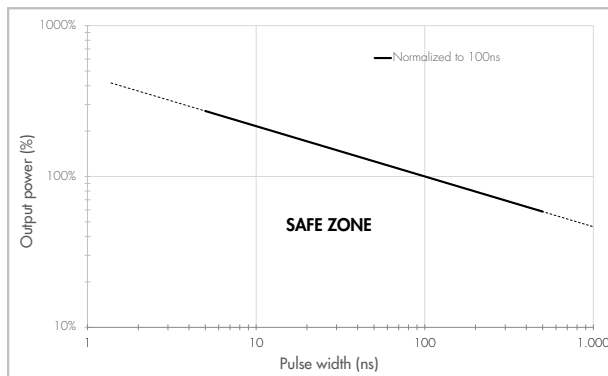
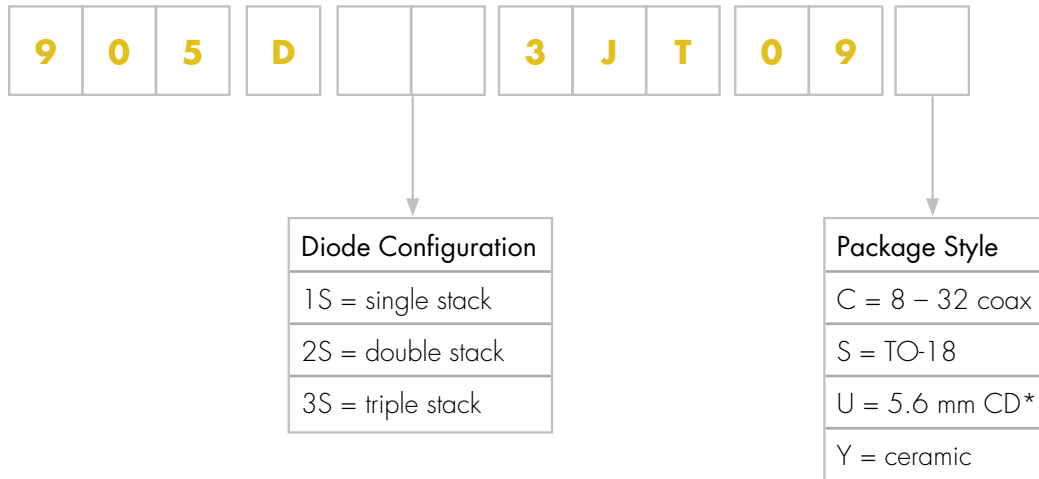


Figure 9:  
Output power vs. pulse width



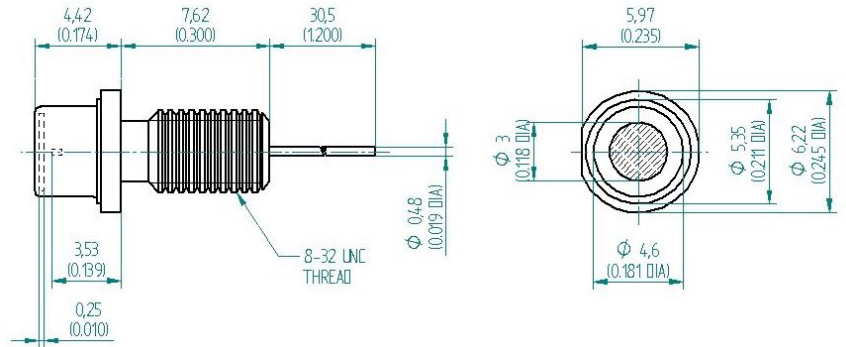
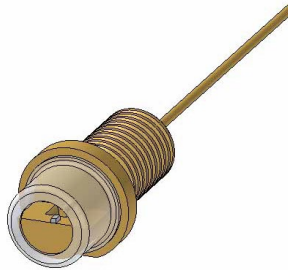
## Product Number Designations



\* "U package" is only available for 905D1S3JT09 and 905D2S3JT09

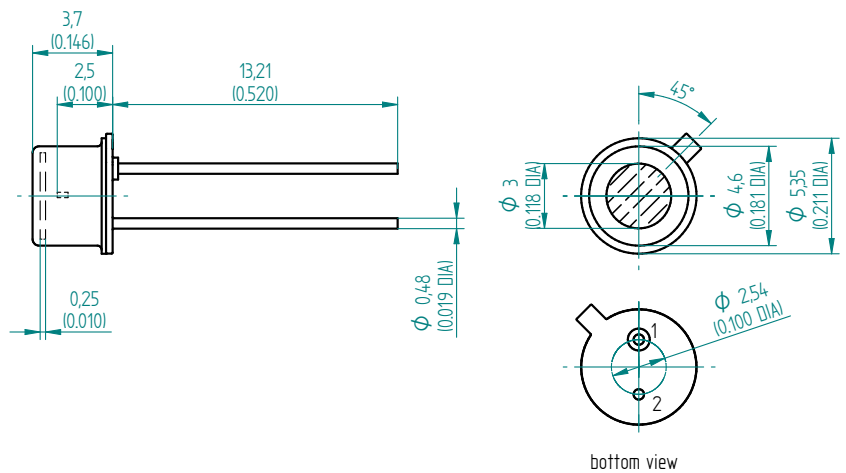
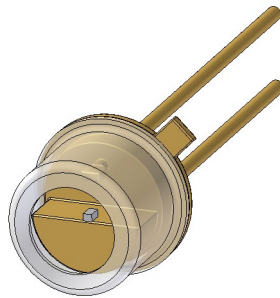
## Package Drawings

### Package C 8 - 32 coax



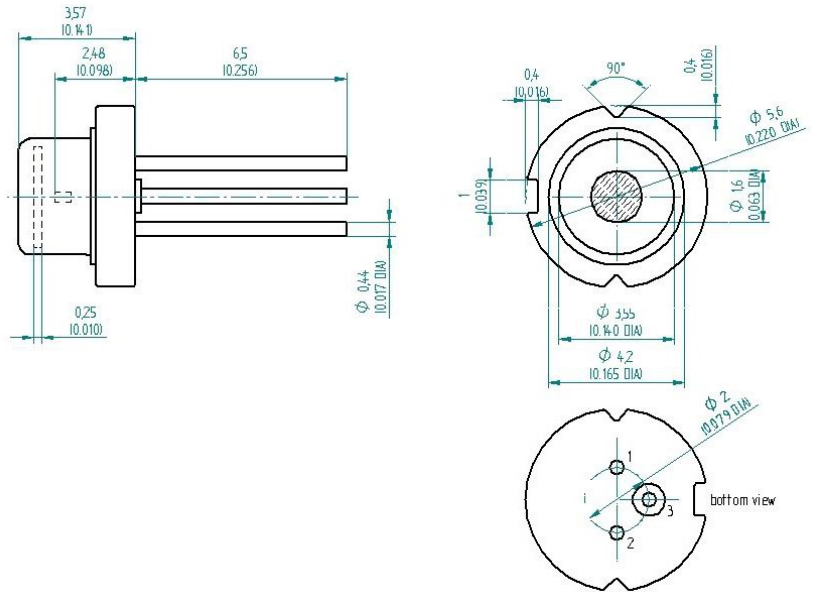
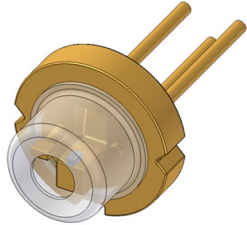
Package C: Pin Out: Case (-), Pin (+), Inductance 12 nH

### Package S TO-18



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

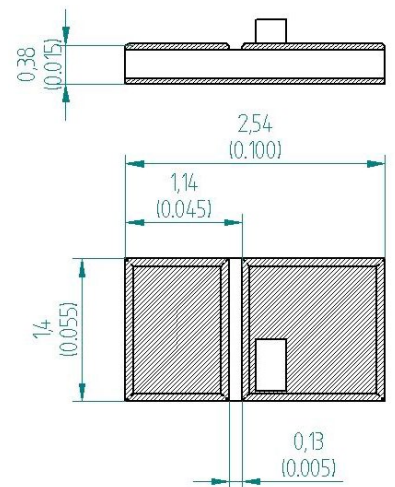
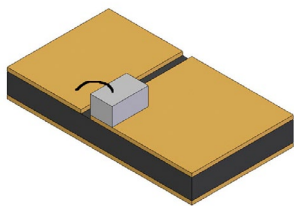
Package U 5.6 mm CD \*



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

\* only available for 905D1S3JT09U and 905D2S3JT09U

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.

