

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 λ_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 μm | 235 x 212 μm | 235 x 425 μm |
| 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 | 6 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

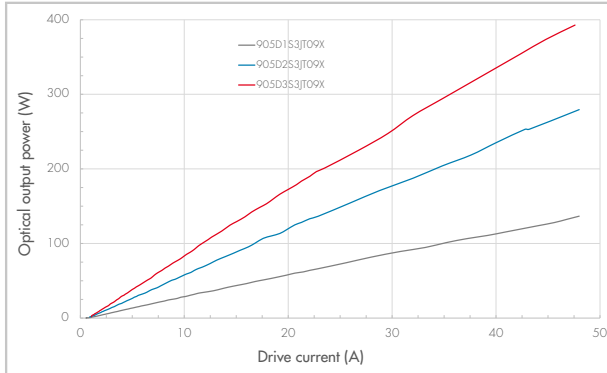


Figure 2:
Optical output power vs. temperature

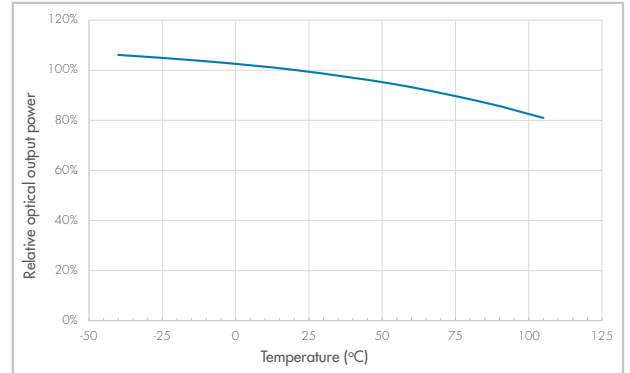


Figure 3:
Wavelength vs. temperature

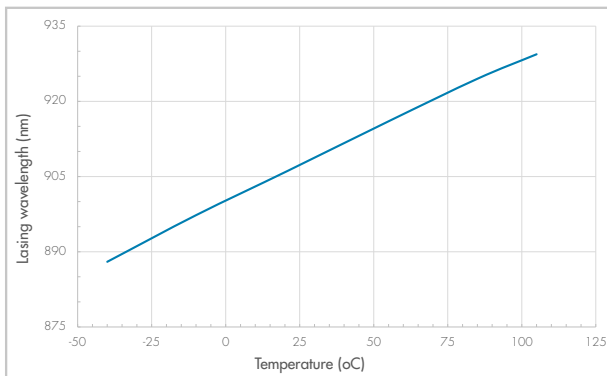


Figure 4:
Spectral intensity distribution

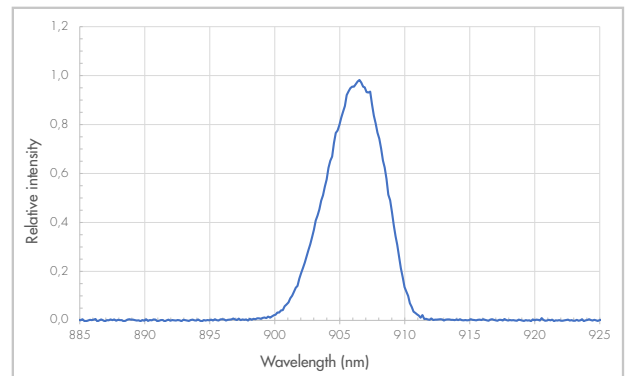


Figure 5:
Far field emission parallel and perpendicular to junction plane

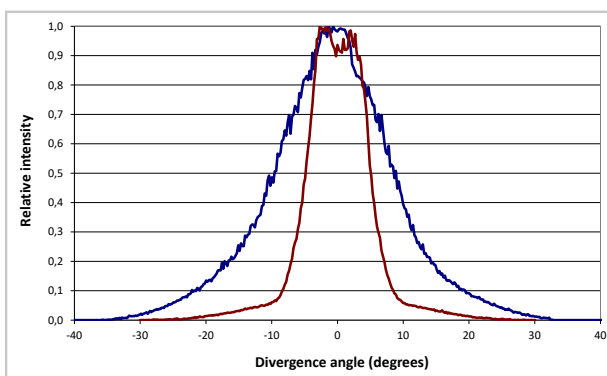


Figure 6:
Forward voltage vs. drive current

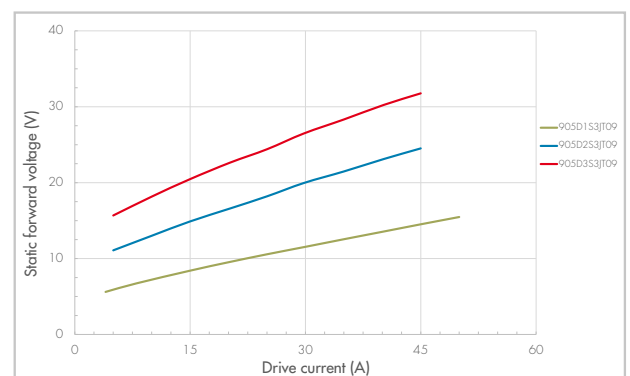


Figure 7:
Typical far field beam scan

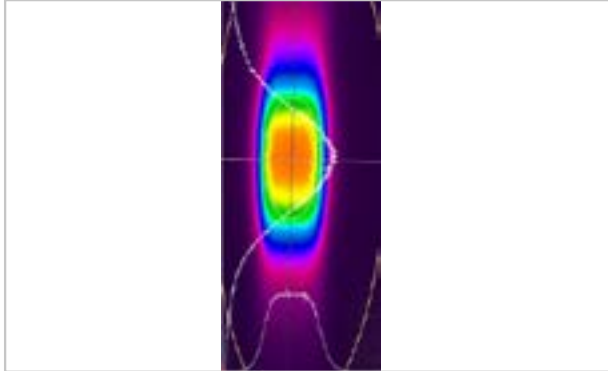


Figure 8:
Typical near field scan

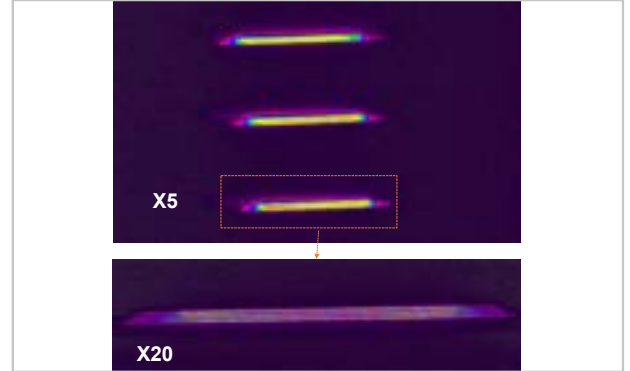
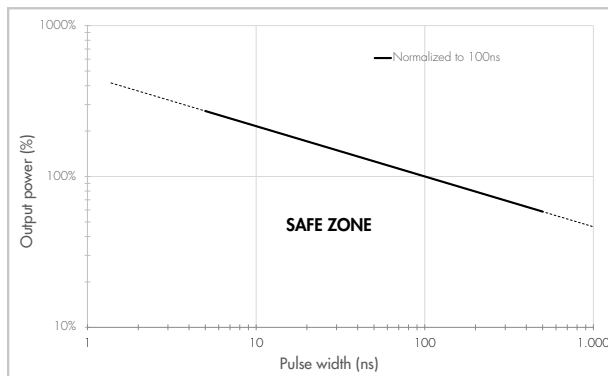
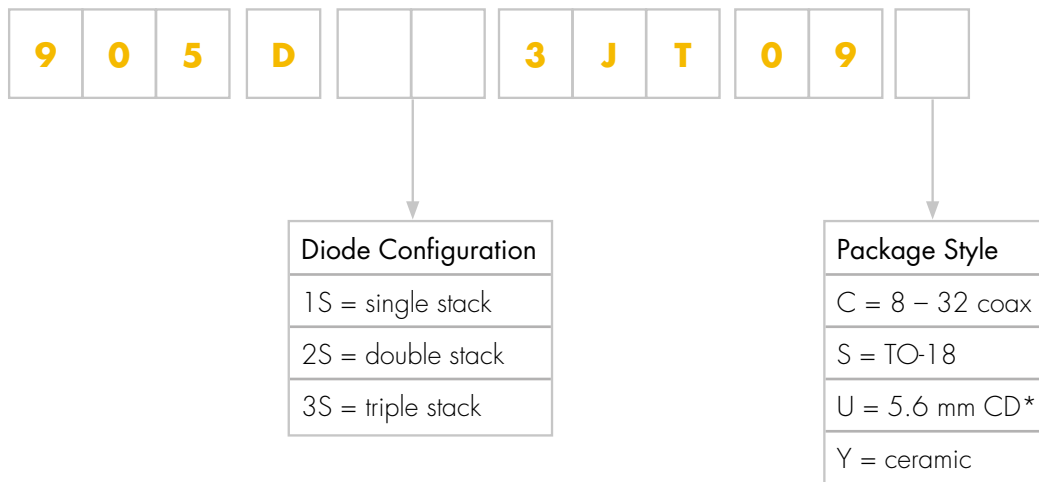


Figure 9:
Output power vs. pulse width



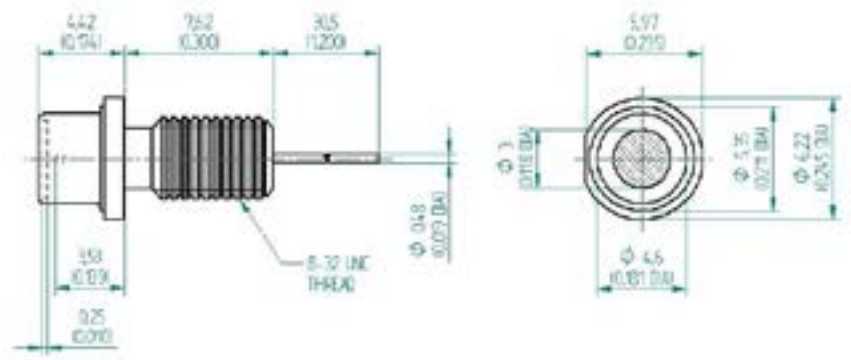
Product Number Designations



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

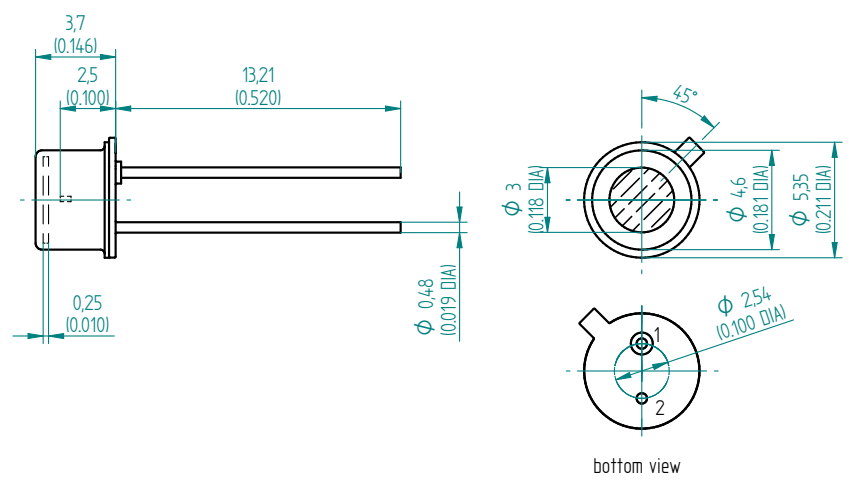
Package Drawings

Package C 8 - 32 coax



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

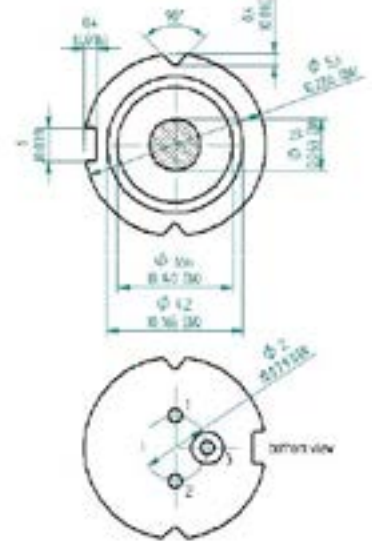
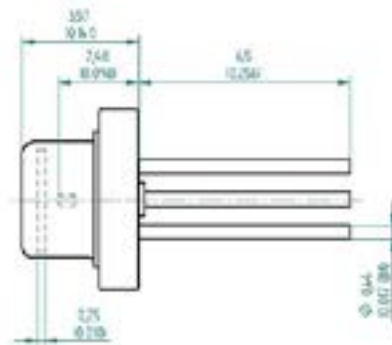
Package S TO-18



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

10/21 / V1 / WRIF / lcpd/905d3jt09x

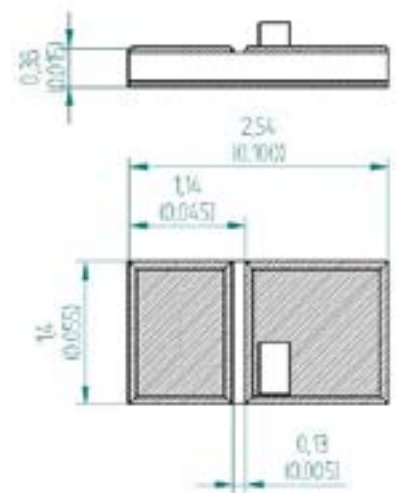
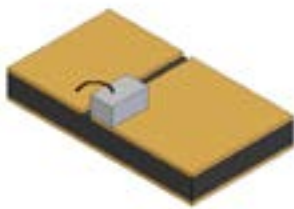
Package U 5.6 mm CD *



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

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.

