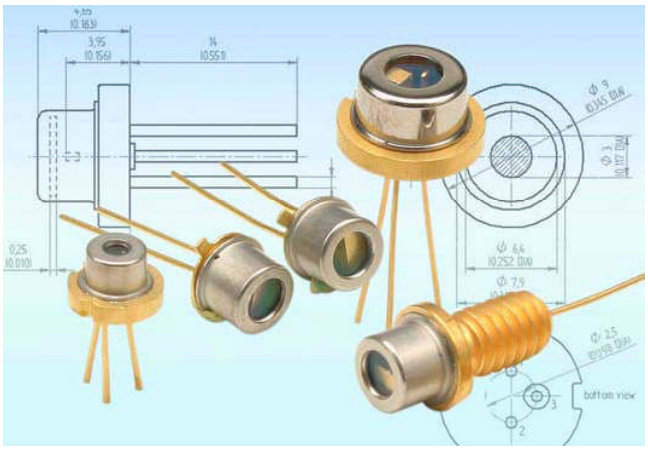
High Power Pulsed Laser Diodes 905-Series

LASER COMPONENTS

25-05702

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

GENERIC CHARACTERISTICS AT t_{RT} = 21 °C

	Min	Typ	Max	Units
Wavelength of peak radiant intensity λ m	895	905	915	nm
Spectral bandwidth Δλ at 50 % intensity points		5		nm
Wavelength temperature coefficient		0.27		nm/°C
Beam spread (50 % peak intensity)				
Parallel to junction plane ∥		12		Degrees
Perpendicular to junction plane ⊥				
Single element		25		Degrees
Stacks		30		Degrees

Germany and other countries: LASER COMPONENTS GmbH, Phone: +49 8142 2864 0, Fax: +49 8142 2864 11, info@lasercomponents.com
USA: LASER COMPONENTS IG, Inc., Phone: +1 603 821 7040, Fax: +1 603 821 7041, info@laser-components.com
Great Britain: LASER COMPONENTS (UK) Ltd., Phone: +44 1245 491 499, Fax: +44 1245 491 801, info@lasercomponents.co.uk
France: LASER COMPONENTS S.A.S., Phone: +33 1 3959 5225, Fax: +33 1 3959 5350, info@lasercomponents.fr

SINGLE CHIPS

Single chip characteristics at t_{RT} = 21°C, t_W = 150 ns, P_{rr} = 6.66 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 ARRAYS

Stacked chip characteristics at t_{RT} = 21°C, t_W = 150 ns, P_{rr} = 6.66 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

Germany and other countries: LASER COMPONENTS GmbH, Phone: +49 8142 2864 0, Fax: +49 8142 2864 11, info@lasercomponents.com
USA: LASER COMPONENTS IG, Inc., Phone: +1 603 821 7040, Fax: +1 603 821 7041, info@laser-components.com
Great Britain: LASER COMPONENTS (UK) Ltd., Phone: +44 1245 491 499, Fax: +44 1245 491 801, info@lasercomponents.co.uk
France: LASER COMPONENTS S.A.S., Phone: +33 1 3959 5225, Fax: +33 1 3959 5350, info@lasercomponents.fr

Figure 1: Optical Output Power vs. Forward Current

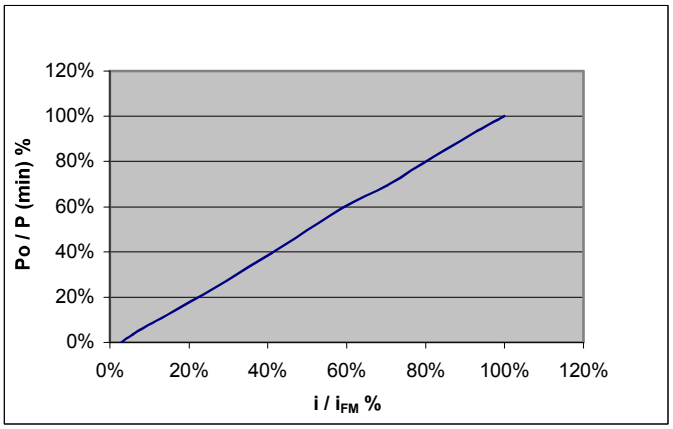


Figure 2: Optical Output Power vs. Temperature

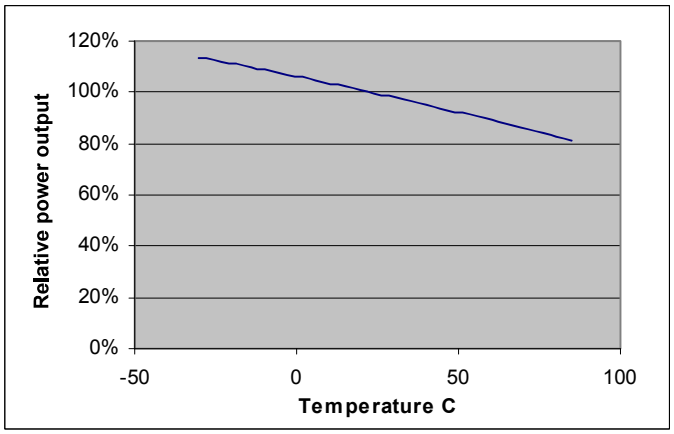


Figure 3: Optical Output Power vs. Half Angle

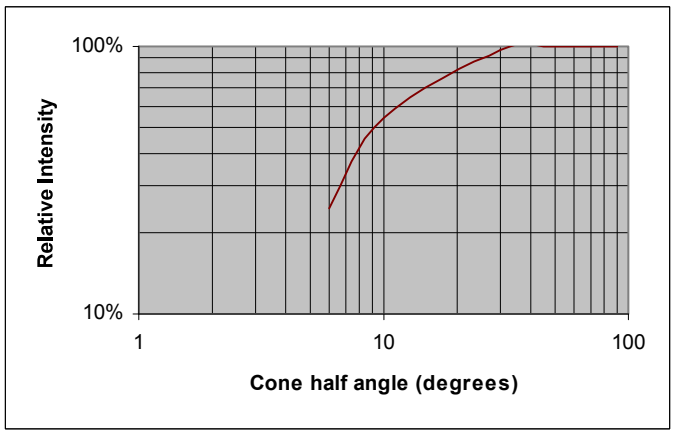
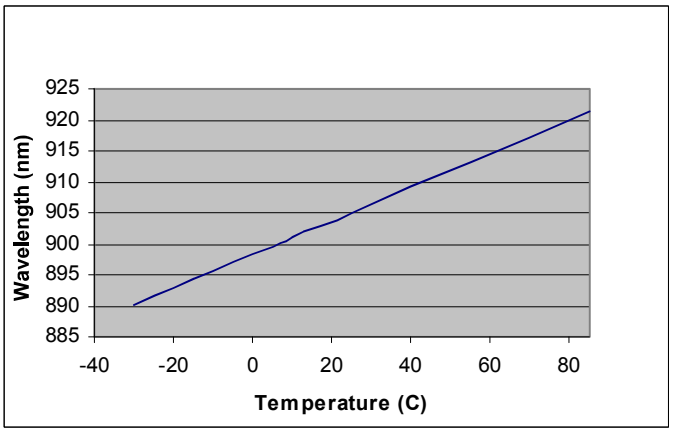


Figure 4: Wavelength vs. Temperature



Germany and other countries: LASER COMPONENTS GmbH, Phone: +49 8142 2864 0, Fax: +49 8142 2864 11, info@lasercomponents.com
USA: LASER COMPONENTS IG, Inc., Phone: +1 603 821 7040, Fax: +1 603 821 7041, info@laser-components.com
Great Britain: LASER COMPONENTS (UK) Ltd., Phone: +44 1245 491 499, Fax: +44 1245 491 801, info@lasercomponents.co.uk
France: LASER COMPONENTS S.A.S., Phone: +33 1 3959 5225, Fax: +33 1 3959 5350, info@lasercomponents.fr

Figure 5: Spectral Plot Distribution

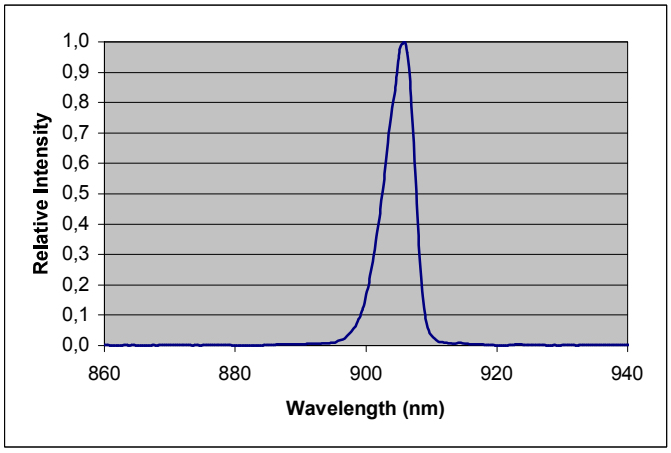
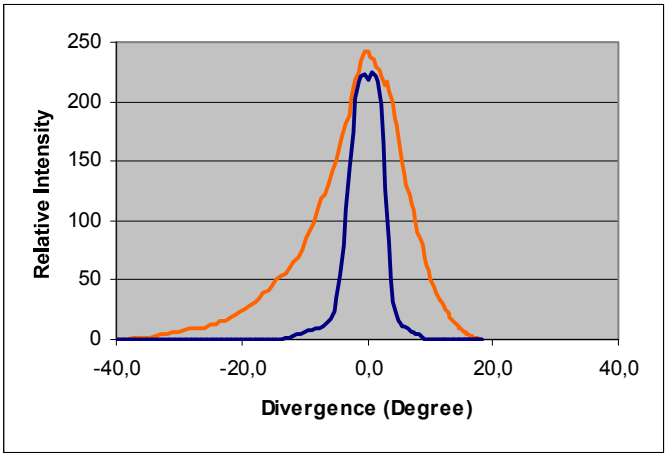
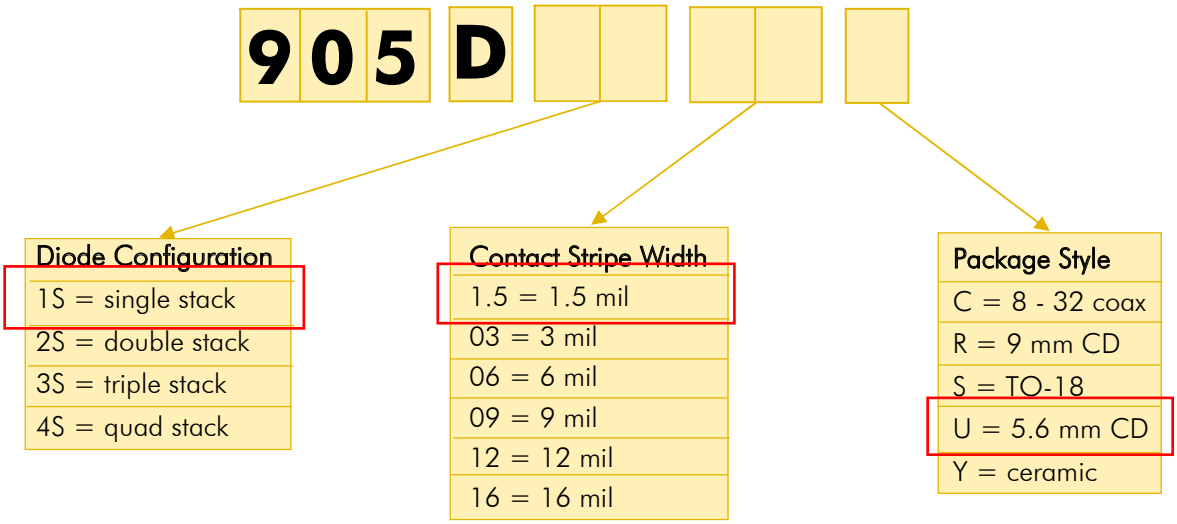


Figure 6: Far Field Emission Pattern Parallel and Perpendicular to Junction Plane



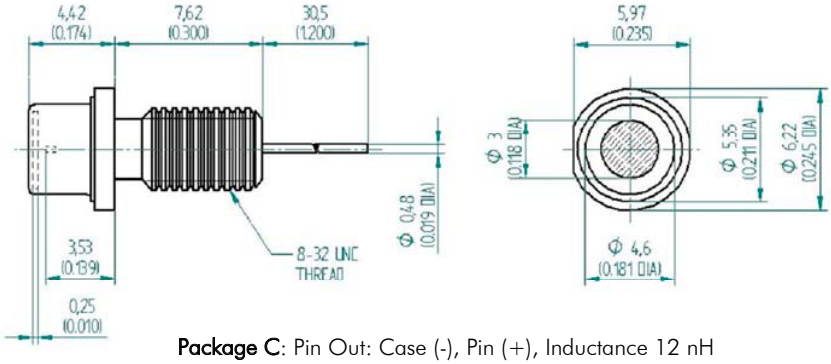
PRODUCT NUMBER DESIGNATION



Germany and other countries: LASER COMPONENTS GmbH, Phone: +49 8142 2864 0, Fax: +49 8142 2864 11, info@lasercomponents.com
USA: LASER COMPONENTS IG, Inc., Phone: +1 603 821 7040, Fax: +1 603 821 7041, info@laser-components.com
Great Britain: LASER COMPONENTS (UK) Ltd., Phone: +44 1245 491 499, Fax: +44 1245 491 801, info@lasercomponents.co.uk
France: LASER COMPONENTS S.A.S., Phone: +33 1 3959 5225, Fax: +33 1 3959 5350, info@lasercomponents.fr

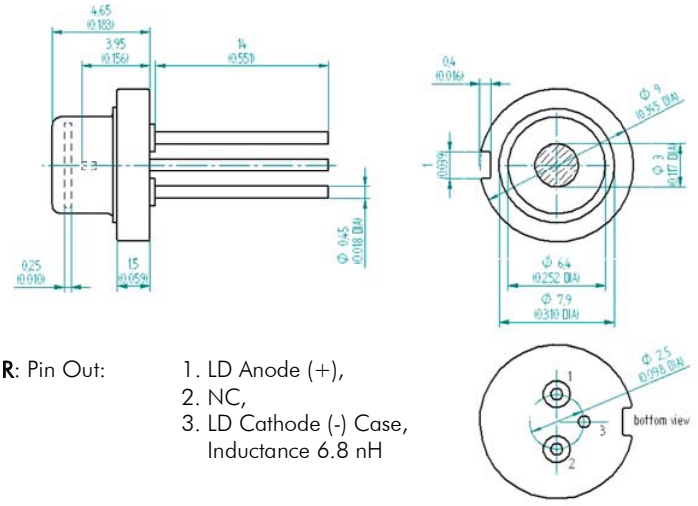
PACKAGE DRAWINGS

Package C 8 – 32 coax



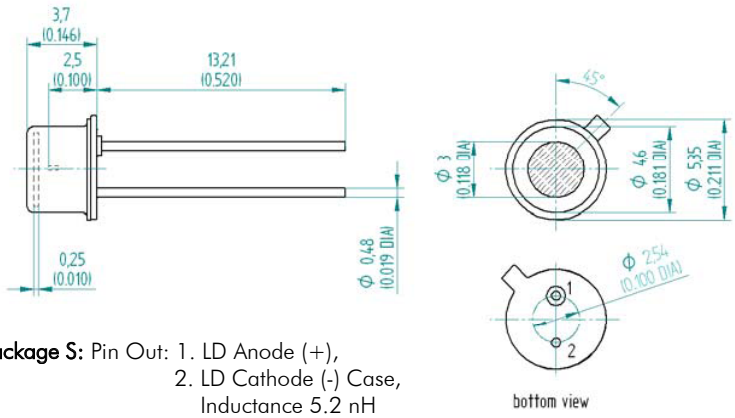
Package C: Pin Out: Case (-), Pin (+), Inductance 12 nH

Package R 9 mm CD



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

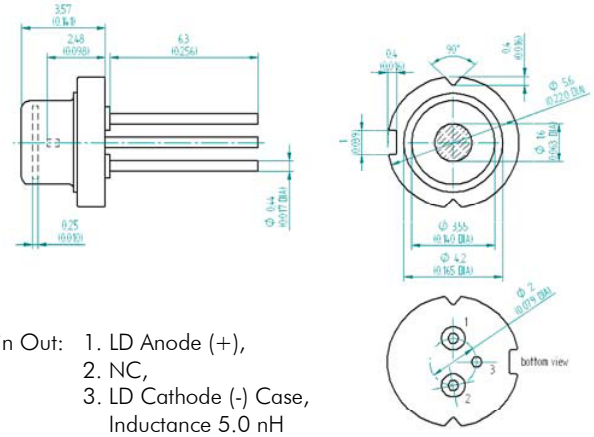
Package S TO-18



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

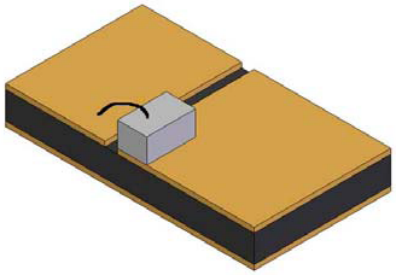
Germany and other countries: LASER COMPONENTS GmbH, Phone: +49 8142 2864 0, Fax: +49 8142 2864 11, info@lasercomponents.com
USA: LASER COMPONENTS IG, Inc., Phone: +1 603 821 7040, Fax: +1 603 821 7041, info@laser-components.com
Great Britain: LASER COMPONENTS (UK) Ltd., Phone: +44 1245 491 499, Fax: +44 1245 491 801, info@lasercomponents.co.uk
France: LASER COMPONENTS S.A.S., Phone: +33 1 3959 5225, Fax: +33 1 3959 5350, info@lasercomponents.fr

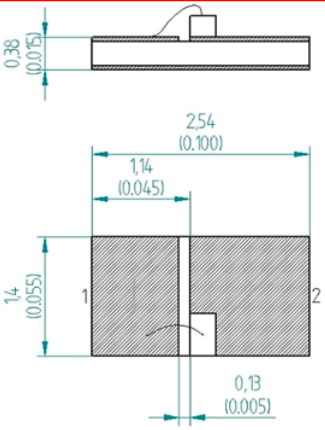
Package U 5, 6 mm CD



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 (-), 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.

Germany and other countries: LASER COMPONENTS GmbH, Phone: +49 8142 2864 0, Fax: +49 8142 2864 11, info@lasercomponents.com
USA: LASER COMPONENTS IG, Inc., Phone: +1 603 821 7040, Fax: +1 603 821 7041, info@laser-components.com
Great Britain: LASER COMPONENTS (UK) Ltd., Phone: +44 1245 491 499, Fax: +44 1245 491 801, info@lasercomponents.co.uk
France: LASER COMPONENTS S.A.S., Phone: +33 1 3959 5225, Fax: +33 1 3959 5350, info@lasercomponents.fr