

# High End / Low Cost Pulsed Laser Diodes 905D1SxxUA-Series

## FEATURES

- Single and Multi-junction devices up to 75 W
- Hermetic 5.6 mm CD package
- Excellent temperature stability
- Ultra precise mechanical tolerances
- Fully RoHS compliant

## APPLICATIONS

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



## OPTICAL CHARACTERISTICS AT $t_{RT} = 21^{\circ}\text{C}$

	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  $t_{rt}= 21^{\circ}\text{C}$ ,  $t_w= 100\text{ ns}$ ,  $P_{rr}= 3.33\text{ kHz}$

PARAMETER	905D1S03UA	905D1S09UA	905D1S3J03UA	905D1S3J06UA	905D1S3J09UA
$P_o$ at $I_{FM}$ (typ)	6 W	19 W	25 W	50 W	75 W
Emitting area	75 x 1 $\mu\text{m}$	230 x 1 $\mu\text{m}$	85 x 10 $\mu\text{m}$	160 x 10 $\mu\text{m}$	235 x 10 $\mu\text{m}$
$I_{th}$ typ.	200 mA	600 mA	300 mA	500 mA	800 mA
Max. current $I_{FM}$ at 100 ns	7 A	22 A	11 A	22 A	35 A
Forward voltage at $I_{MAX}$	3.5 V	3.5 V	12 V	11 V	11 V

ABSOLUTE MAXIMUM RATINGS

Maximum ratings	Limiting values
Peak reverse voltage	6 V
Pulse duration (905D1S03/09UA)	1 $\mu\text{s}$
Pulse duration (905D1S3J03/09UA)	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	260°C

Typical near field scan of triple junction lasers (905D1S3J03UA)

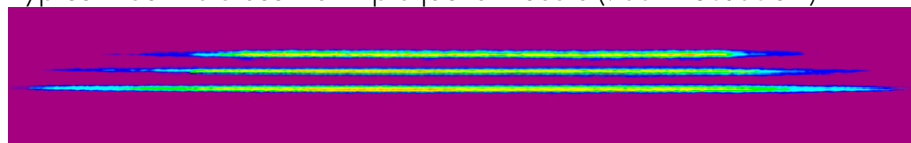


Figure 1:  
Optical Output Power vs. Forward Current

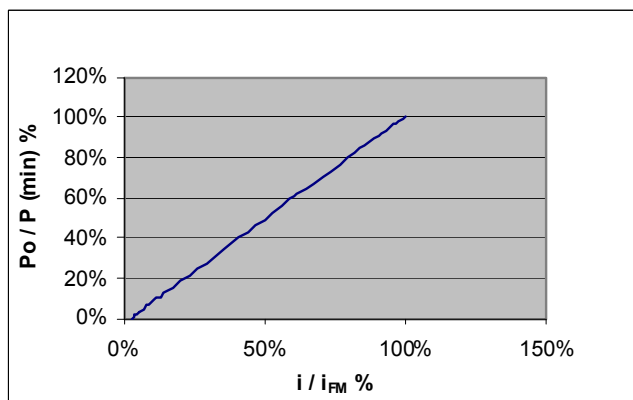


Figure 2:  
Optical Output Power vs. Temperature

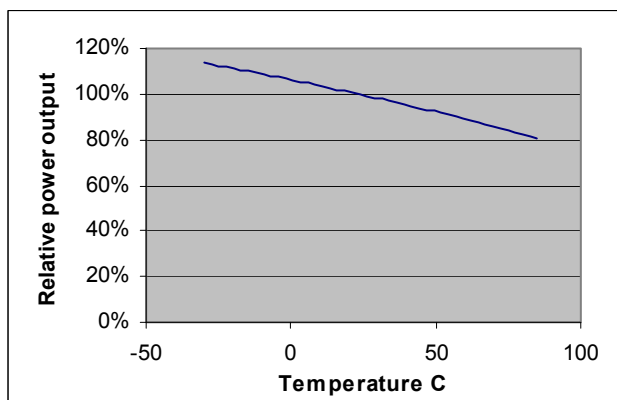


Figure 3:  
Optical Output Power vs. Half Angle

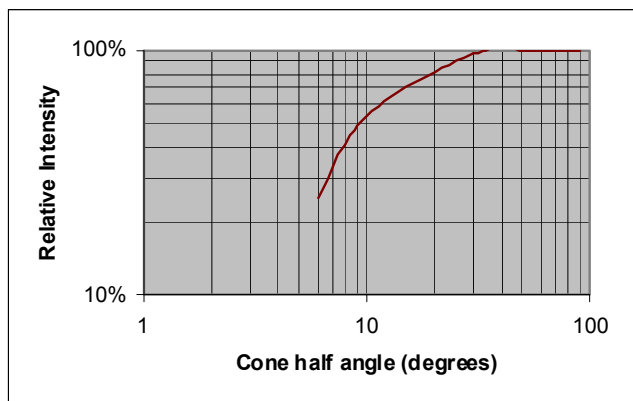


Figure 4:  
Wavelength vs. Temperature

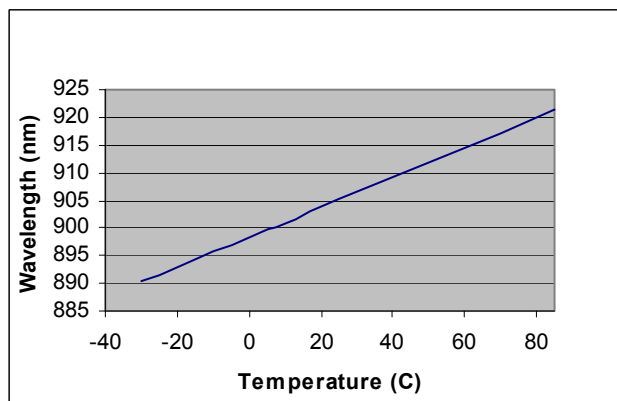


Figure 5:  
Spectral Plot Distribution

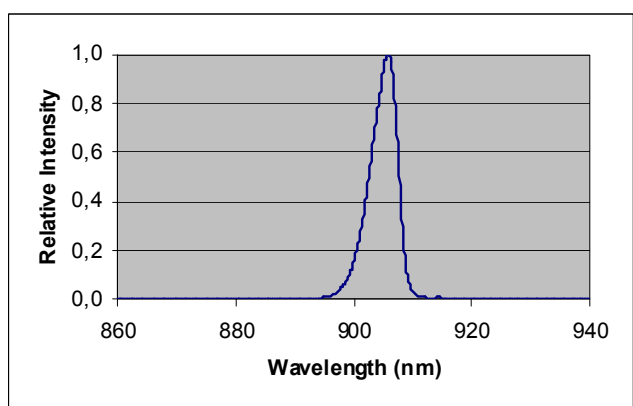
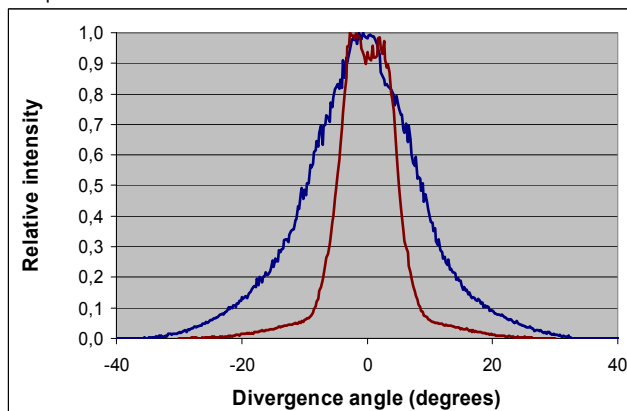


Figure 6:  
Far Field Emission Pattern Parallel and Perpendicular to Junction Plane



PRODUCT NUMBER DESIGNATIONS (Single element devices)



Contact Stripe width
03 = 75 $\mu\text{m}$
09 = 225 $\mu\text{m}$

PRODUCT NUMBER DESIGNATIONS (Multi junction devices)



Contact Stripe width
03 = 85 $\mu\text{m}$
06 = 160 $\mu\text{m}$
09 = 235 $\mu\text{m}$



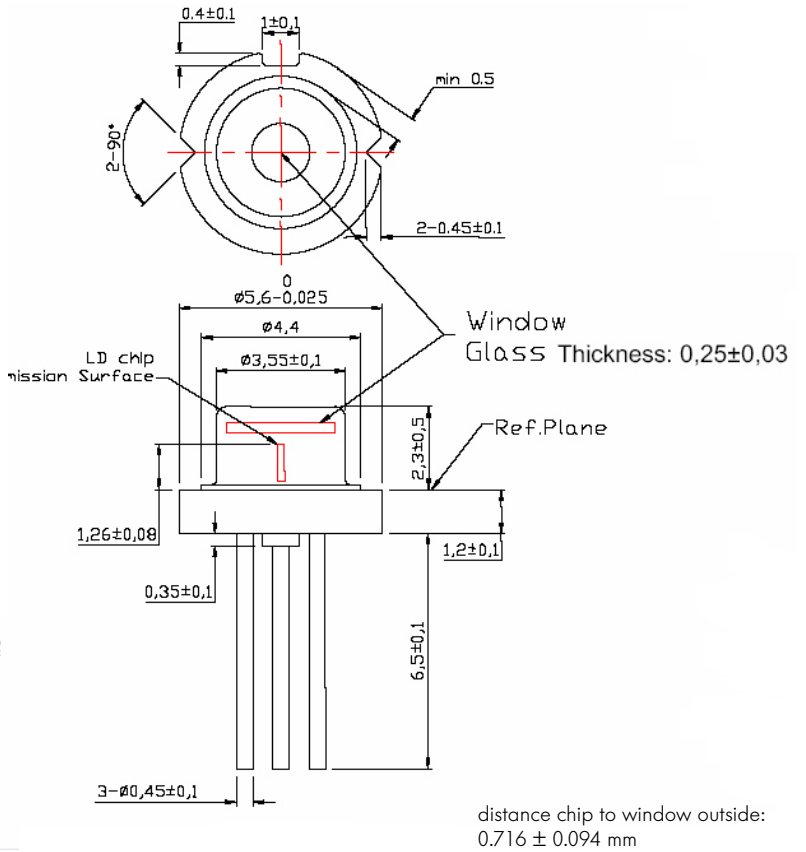
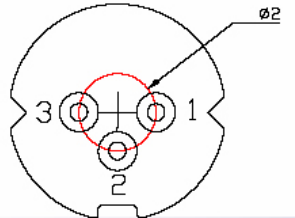
PACKAGE DRAWING

Package UA 5,6 mm CD



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

Bottom view:

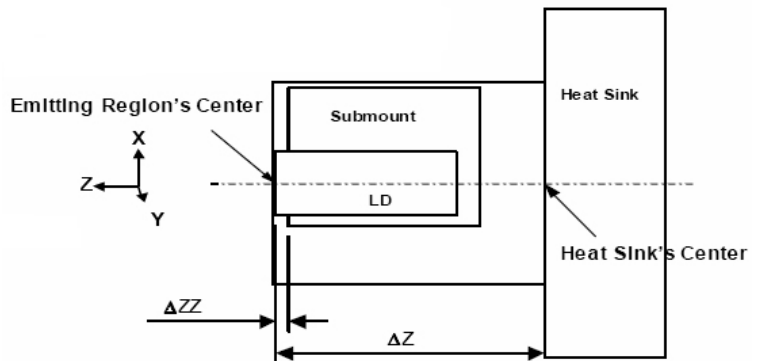
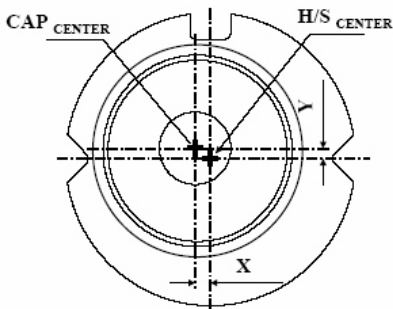


Die Placement Accuracy

Measuring Point		Tolerance
LD	ΔX	0 ± 50 μm
	ΔY	0 ± 50 μm
	ΔZ	1260 ± 15 μm
	ΔZZ	15 ± 15 μm
	Δθ	0 ± 2°

Die Placement Accuracy

Measuring Point		Tolerance
Cap	X	0 ± 100 μm
	Y	0 ± 100 μm



## 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.



03/11 / V7 / HW / lcc/ 905d1sxxua.doc

