

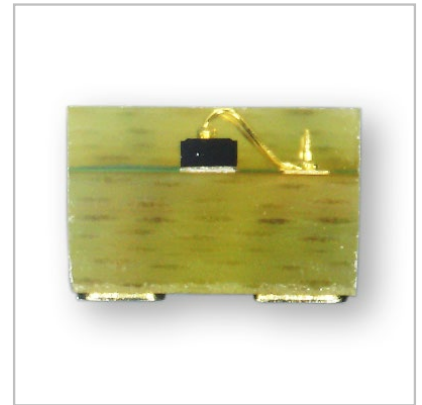
High Power Multi-Junction Pulsed Laser Diodes 905D1S3JTOXSMD

Features

- Multi-junction device up to 120 W
- Low inductance package (1 nH) suitable for short pulses
- 75 μm , 150 μm , and 225 μm source size
- Proven InGaAs / GaAs high reliability structure
- High power multi-junction structure for narrow far field
- Excellent temperature stability
- Reflow surface mount device MSL3 rating
- Top or side-looking

Applications

- LIDAR
- Range finding
- Surveying equipment
- Obstacle detection
- Medical



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

	Min	Typ	Max	Units
Wavelength of peak radiant intensity λ	895	905	915	nm
Spectral bandwidth $\Delta\lambda$ at 50% intensity points		5		nm
Wavelength temperature coefficient		0.28		nm/ $^{\circ}\text{C}$
Beam spread (50% peak intensity)				
Parallel to junction plane \parallel		10		Degrees
Perpendicular to junction plane \perp		23		Degrees
Parallel to junction $1/e^2$		15		Degrees
Perpendicular to junction $1/e^2$		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	905D1S3JT03SMD	905D1S3JT06SMD	905D1S3JT09SMD
P_O at I_{FM}	35 W	70 W	105 W
Emitting area	85 x 10 μm	160 x 10 μm	235 x 10 μm
I_{TH}	300 mA	600 mA	800 mA
I_{FM}	13.5 A	27 A	40 A
Forward voltage at I_{FM}	9.5 V	11.8 V	13.2 V

Note:

Given the very low inductance of SMD packaging and with proper design of the driving circuitry, very short current pulses (~5ns) can be applied and therefore higher output powers can be reached, as shown in Figure 6. Special care must always be taken to avoid exceeding maximal rate duty factor. LASER COMPONENTS experts are available to help support your design efforts.

Absolute Maximum Ratings

Maximum ratings	Limiting values
Peak reverse voltage	36 V
Pulse duration	150 ns
Duty factor	0.1%
Temperature - Storage - Operating	-55 °C to + 100 °C -45 °C to + 85 °C
Max. soldering temperature	235 °C during soldering reflow (see Figure 5) 250 °C for less than 30 seconds, if hand soldering

Figure 1:
Output power vs. forward current

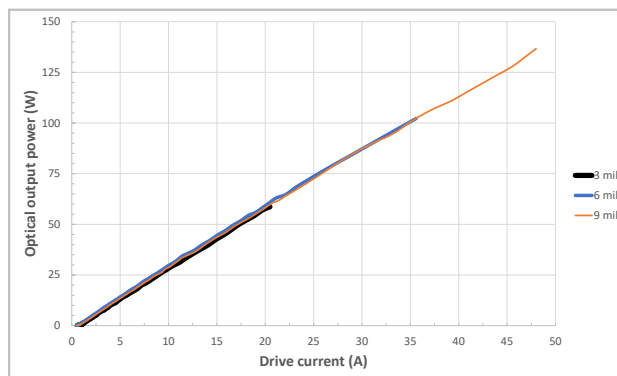


Figure 2:
Spectral intensity distribution

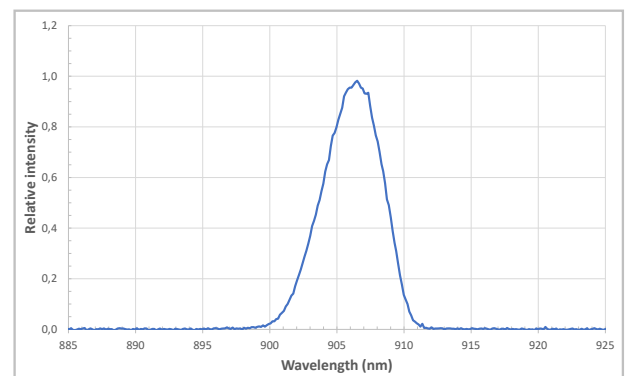


Figure 3:
Near field beam profile

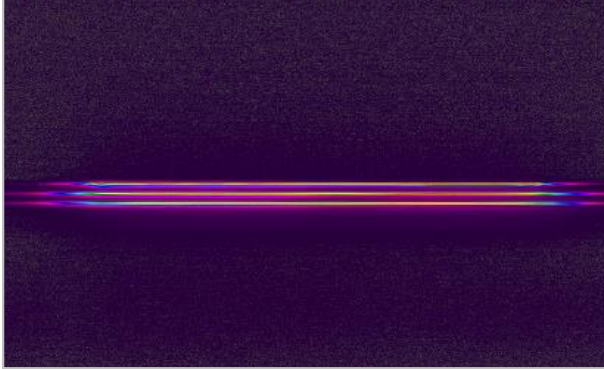


Figure 4:
Far field beam profile

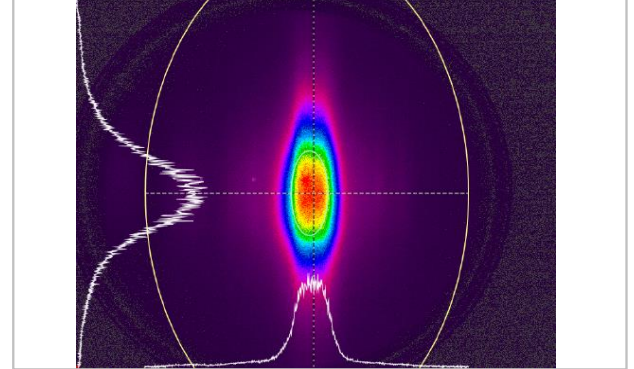
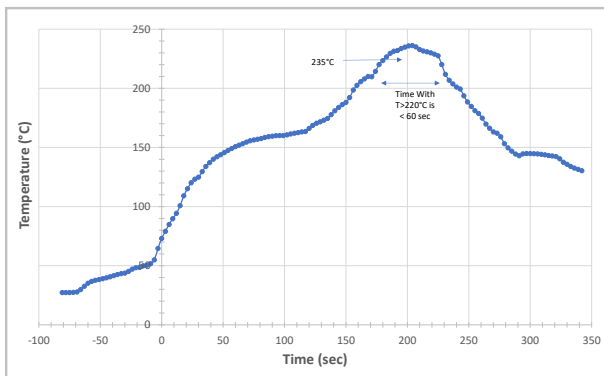


Figure 5:
Typical recommended soldering reflow profile



Note:

Reflow oven profile must follow J-STD-020 JEDEC Standard with the following recommendations:

- Max. temperature must not exceed 235 °C
- Time with T > 220 °C must not exceed one minute
- Two reflow cycles max.

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

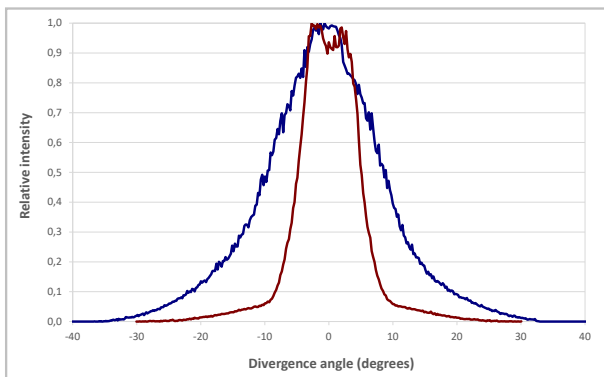


Figure 7:
Safe operating limits at maximum duty factor

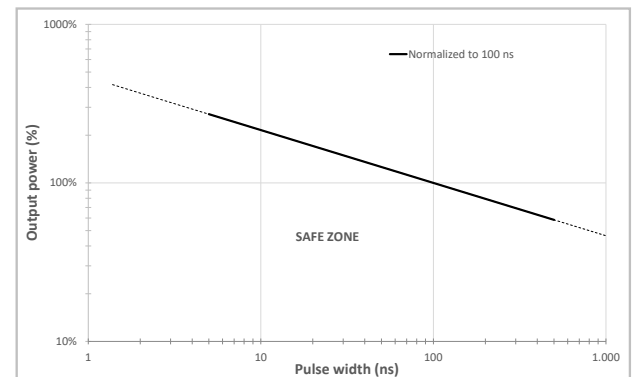
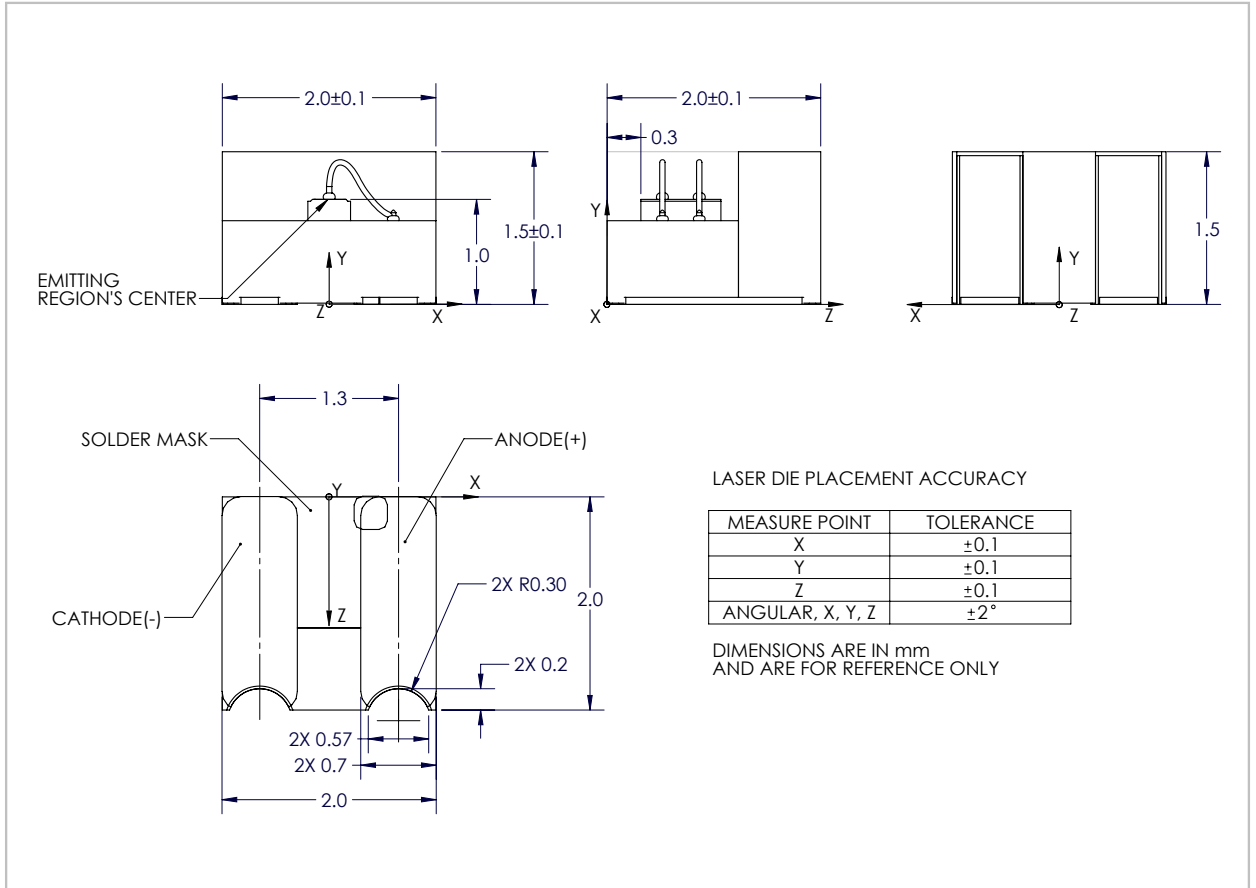
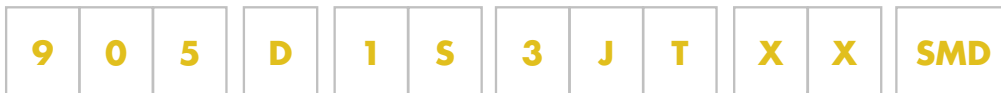


Figure 8:
Package drawing



Product Number Designations



Emitting Source Size

03 = 85 μm

06 = 160 μm

09 = 235 μm

Footprint is available upon request.

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.



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