

High Power Pulsed Laser Diodes 1550-Series

FEATURES

- Single and stacked devices up to 50 Watts
- Proven InGaAsP high reliability structure
- 0.35 W/A efficiency
- Excellent temperature stability
- Hermetic and custom designed package

APPLICATIONS

- Eye safe range finding
- Surveying equipment
- "Friend or Foe" identification
- Laser radar
- Security barrier



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

	Min	Typ	Max	Units
Wavelength of peak radiant intensity λ_m	1520	1550	1580	nm
Spectral bandwidth $\Delta\lambda$ at 50 % intensity points		12		nm
Wavelength temperature coefficient		0.60		nm/ $^{\circ}\text{C}$
Beam spread (50 % peak intensity) Parallel to junction plane \parallel		10		Degrees
Perpendicular to junction plane \perp Single element		48		Degrees
Stacks		48		Degrees



SINGLE CHIPS

Single chip characteristics at $t_{RT} = 21^{\circ}\text{C}$, $t_W = 150 \text{ ns}$, Duty Factor (DF) = 0.1 %

Parameter	155G1S06X	155G1S14X
P_O at i_{FM} , (min.)	5 W	12 W
Emitting area	150 x 1 μm	350 x 1 μm
Max peak forward current i_{FM}	20 A	40 A
I_{th} typ	1 A	1.5 A

STACKED ARRAYS

Stacked chip characteristics at $t_{RT} = 21^{\circ}\text{C}$, $t_W = 150 \text{ ns}$, Duty Factor (DF) = 0.1 %

Parameter	155G2S06X	155G4S14X
Number of elements	2	4
P_O at i_{FM} , (min.)	10 W	45 W
Emitting area	150 x 150 μm	350 x 340 μm
Max peak forward current i_{FM}	20 A	40 A
I_{th} typ	1 A	1.5 A

ABSOLUTE MAXIMUM RATINGS

Maximum ratings	Limiting values
Peak reverse voltage	2 V
Pulse duration	
Single element	200 ns
Stacks	150 ns
Duty factor	0.1 %
Temperature	
Storage	- 55 $^{\circ}\text{C}$ to + 100 $^{\circ}\text{C}$
Operating	- 45 $^{\circ}\text{C}$ to + 85 $^{\circ}\text{C}$
Lead soldering 5 seconds max at	200 $^{\circ}\text{C}$



Figure 1: Wavelength vs. Temperature

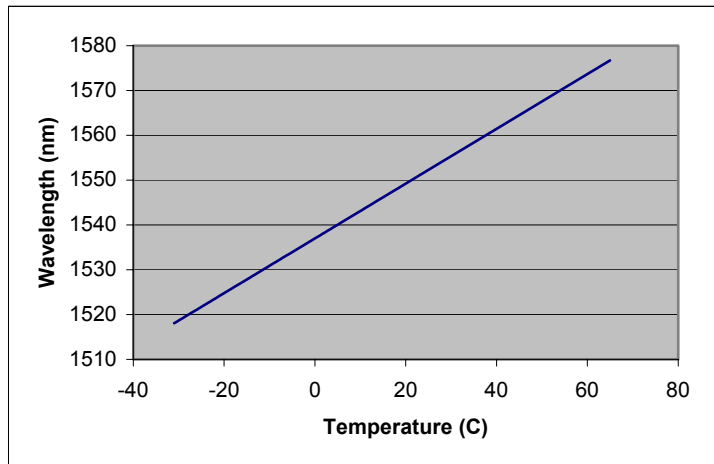


Figure 2: Optical Output Power vs. Forward Current, 1550nm 150 micron Stripe, 100ns, 2.5 kHz

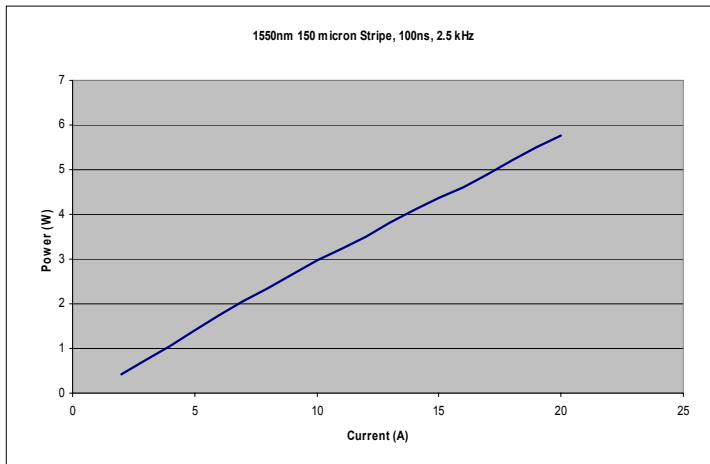


Figure 3: Optical Output Power vs. Forward Current, 350 μm

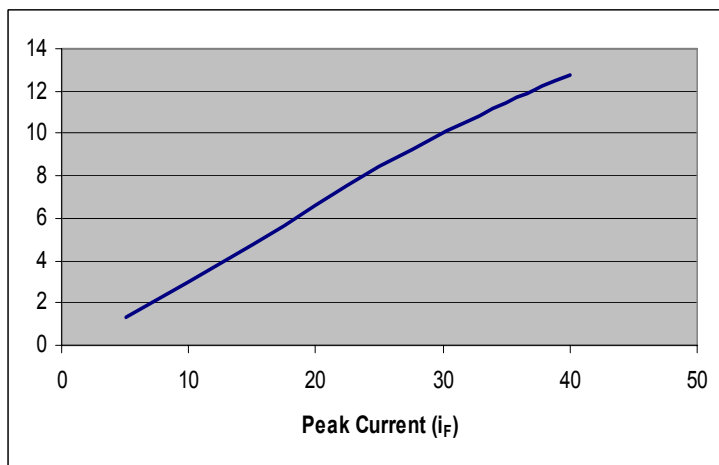


Figure 4: Optical Output Power vs. Forward Current, 350 μm Stack

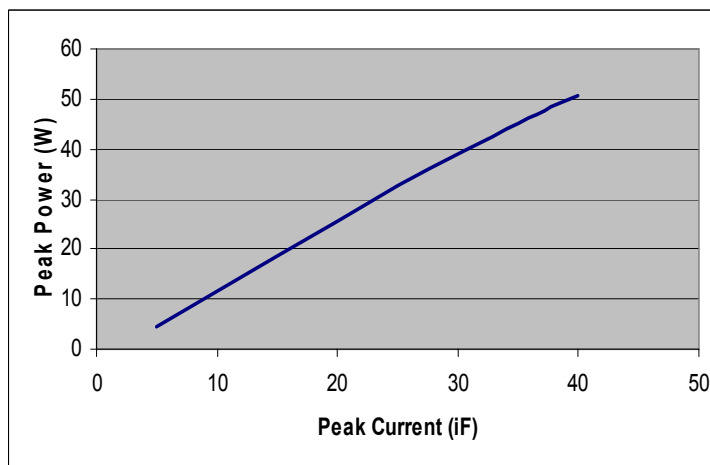


Figure 5: Optical Output Power vs. Half Angle

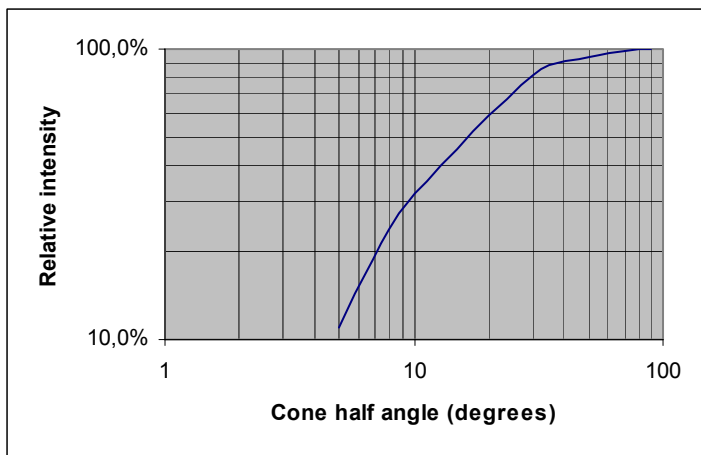
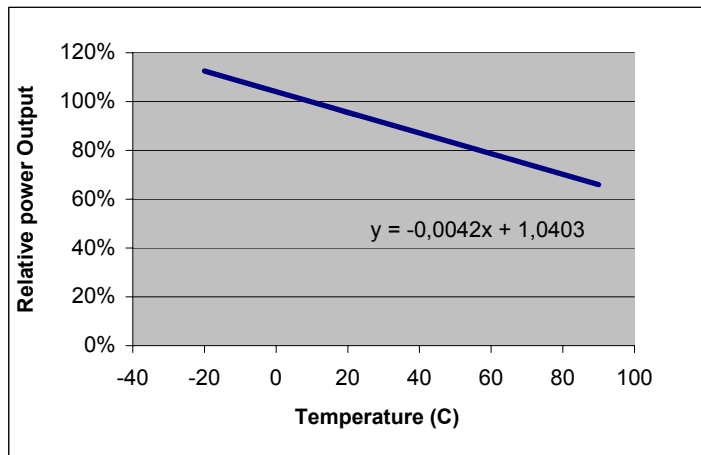
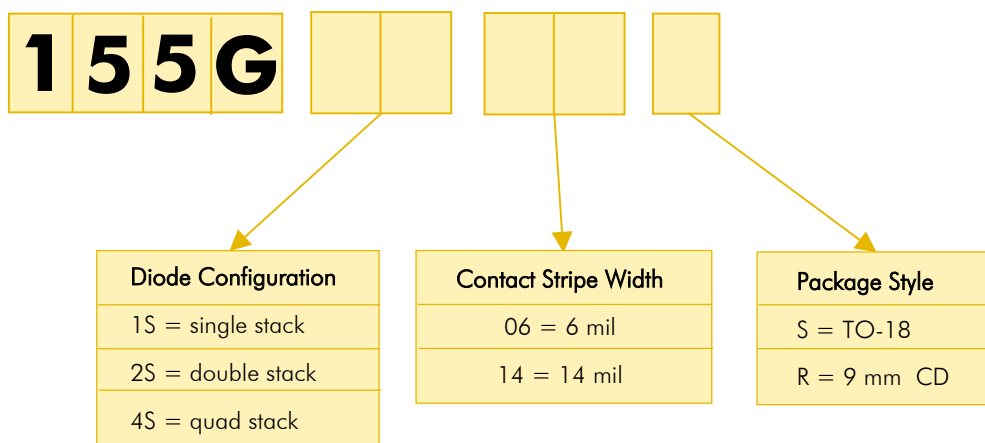


Figure 6: Optical Output Power vs. Temperature

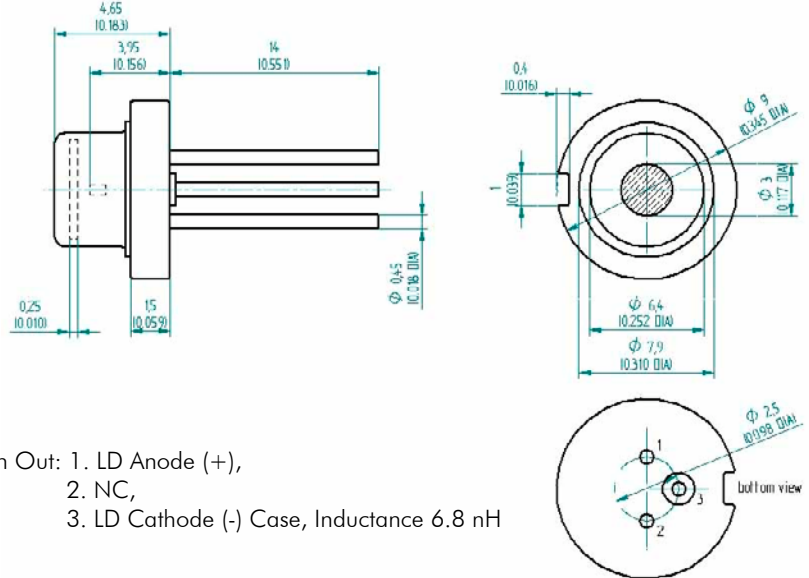
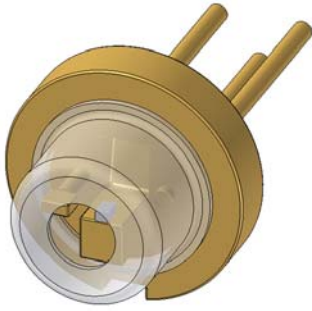


PRODUCT NUMBER DESIGNATIONS



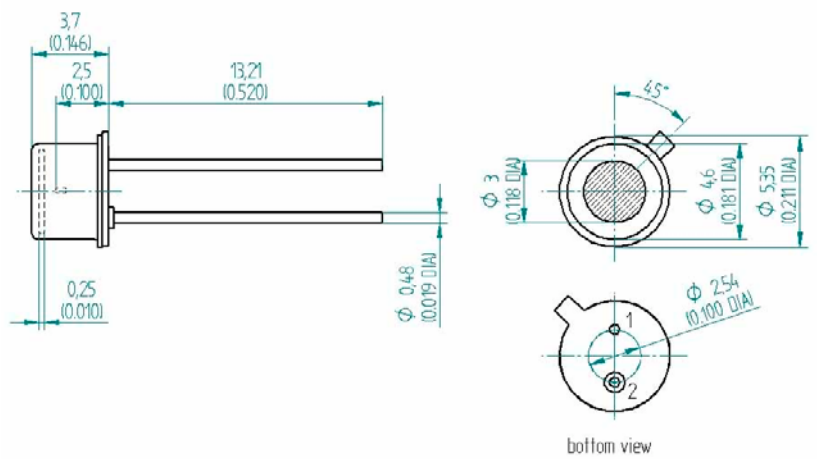
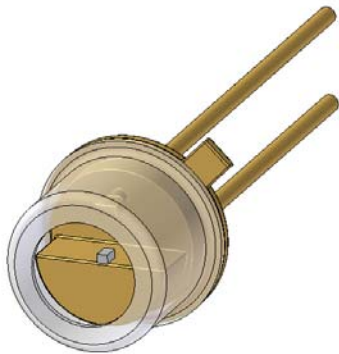
PACKAGE DRAWINGS

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



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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