

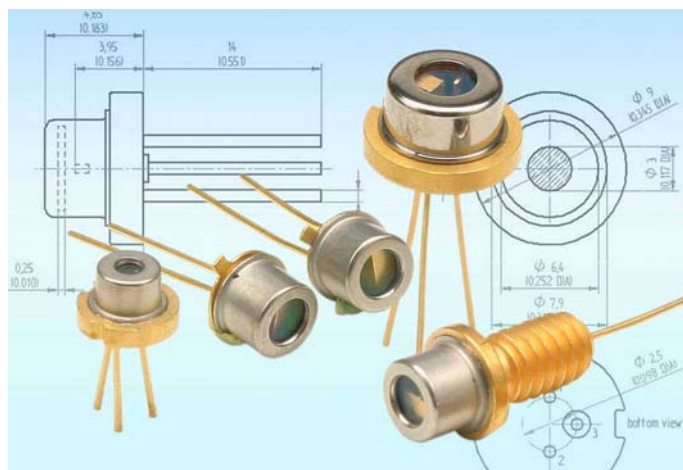
High Power Pulsed Laser Diodes 850-Series

PRELIMINARY



FEATURES

- Single and stacked devices up to 100 Watts
- Proven AlGaAs high reliability structure
- 0.9 W/A efficiency
- Excellent temperature stability
- Hermetic and custom designed package



APPLICATIONS

- Range finding
- Surveying equipment
- Weapons simulation
- Laser radar
- Security barrier
- Optical trigger

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

	Min	Typ	Max	Units
Wavelength of peak radiant intensity λ_m	840	850	860	nm
Spectral bandwidth $\Delta\lambda$ at 50 % intensity points		5		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				
Single element		30		Degrees
Stacks		35		Degrees



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SINGLE CHIPS

Single chip characteristics at $t_{RT} = 21^{\circ}C$, $t_W = 150$ ns, $P_{rr} = 6.66$ KHz

Parameter	850D1S03X	850D1S06X	850D1S09X	850D1S12X	850D1S16X
P_O at i_{FM} , (min)	5.0 W	11.0 W	17.0 W	23.0 W	30.0 W
Emitting area	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}	7 A	15 A	22 A	30 A	40 A
I_{th} typ	300 mA	600 mA	900 mA	1200 mA	1500 mA

STACKED ARRAYS

Stacked chip characteristics at $t_{RT} = 21^{\circ}C$, $t_W = 150$ ns, $P_{rr} = 6.66$ KHz

Parameter	850D2S06X	850D3S09X	850D3S12X	850D4S12X	850D4S16X
Number of elements	2	3	3	4	4
P_O at i_{FM} , (min)	22.0 W	45.0 W	60.0 W	80.0 W	100.0 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	600 mA	900 mA	1200 mA	1200 mA	1500 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 $^{\circ}C$ to + 100 $^{\circ}C$
Operating	- 45 $^{\circ}C$ to + 85 $^{\circ}C$
Lead soldering	
5 seconds max at	200 $^{\circ}C$



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Figure 1: Optical Output Power vs. Forward Current

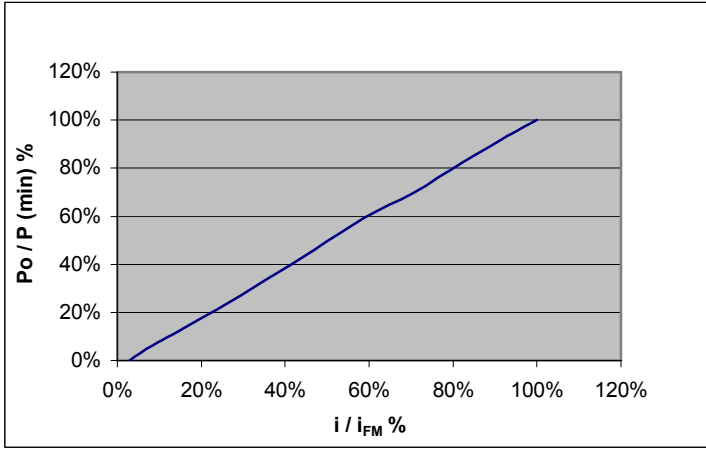


Figure 2: Optical Output Power vs. Temperature

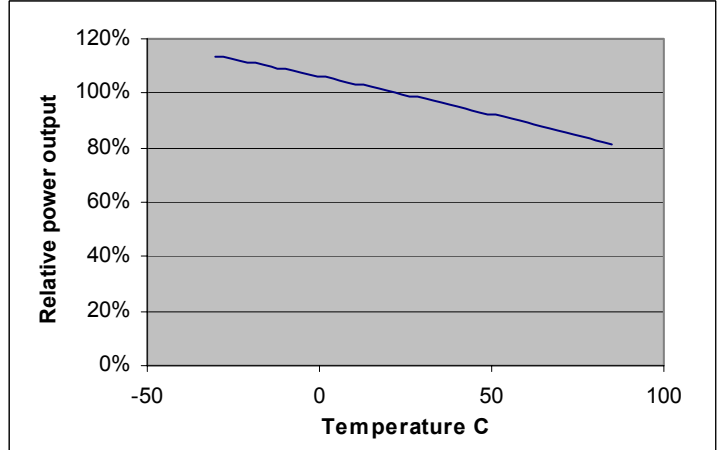


Figure 3: Optical Output Power vs. Half Angle

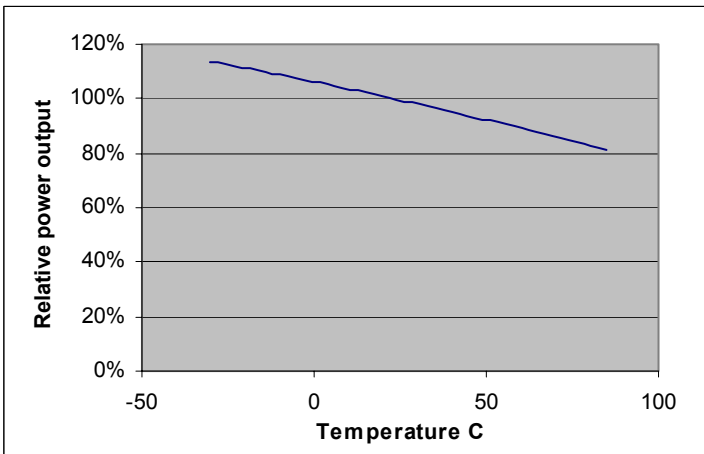
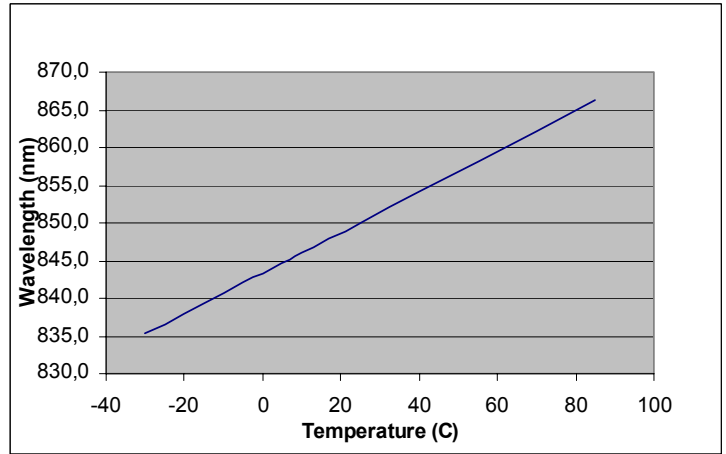


Figure 4: Wavelength vs. Temperature



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Figure 5: Spectral Plot Distribution

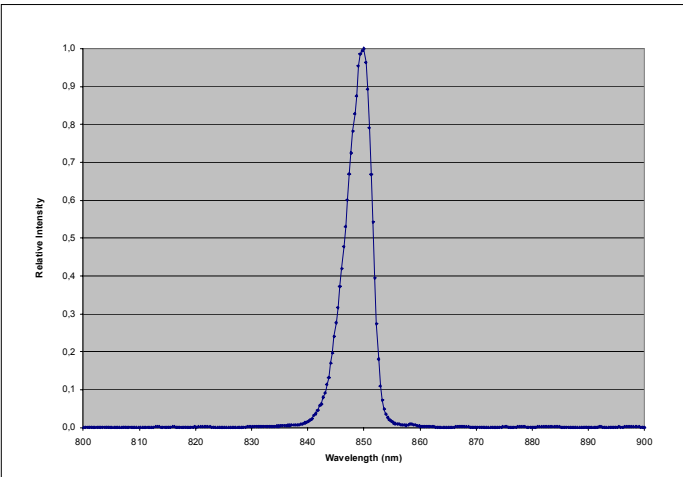
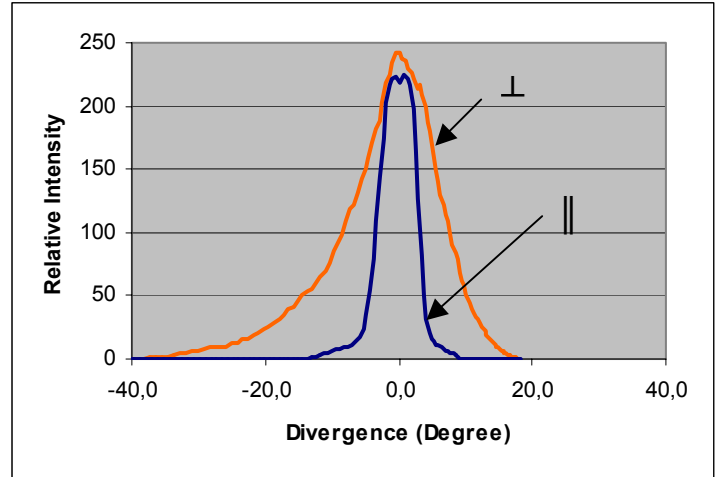
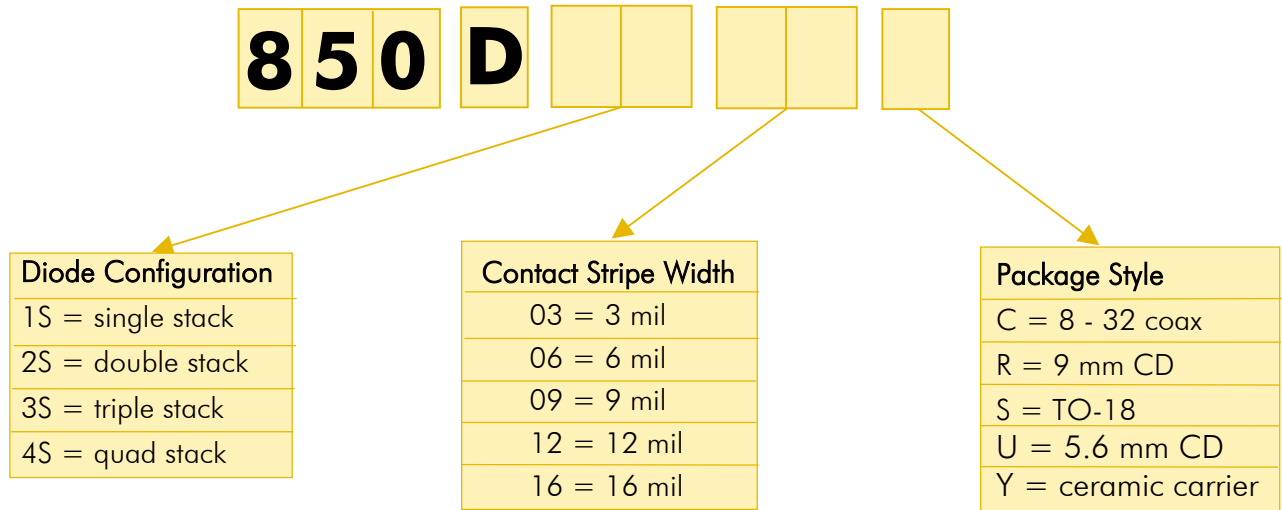


Figure 6: Far Field Emission Pattern Parallel and Perpendicular to Junction Plane



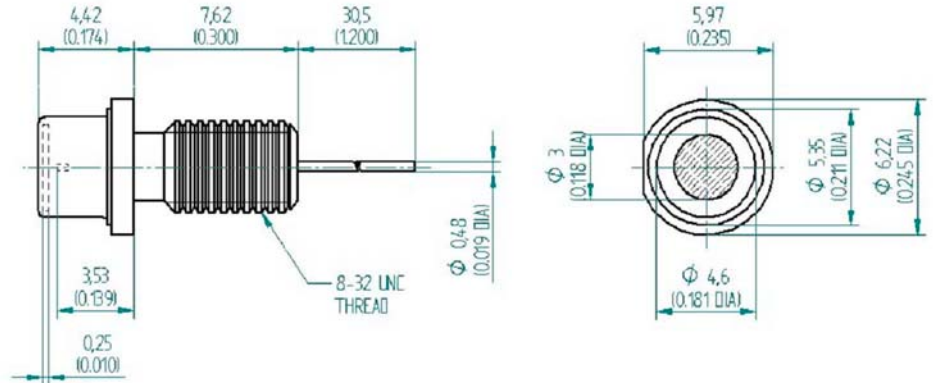
PRODUCT NUMBER DESIGNATIONS



PRELIMINARY

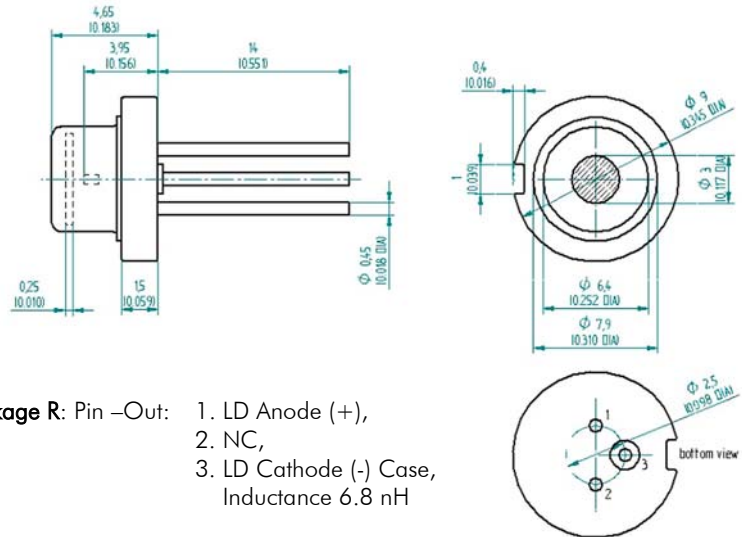
PACKAGE DRAWINGS

Package C 8 – 32 coax



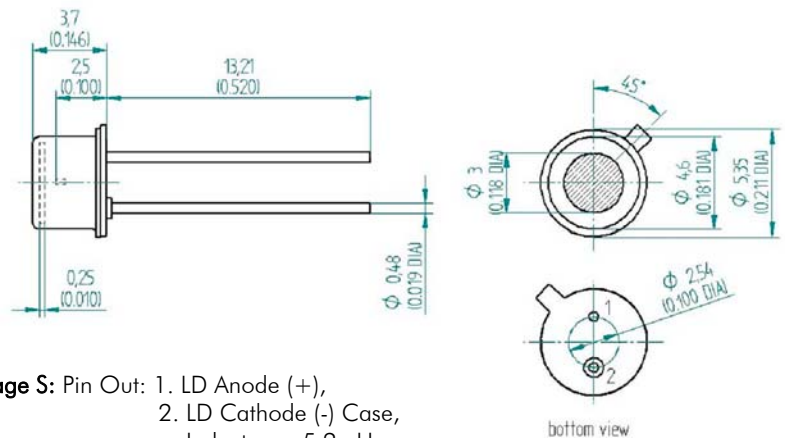
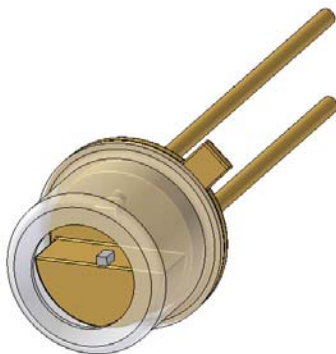
Package C: Pin Out: Case (-), Pin (+), Inductance 12 nH

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

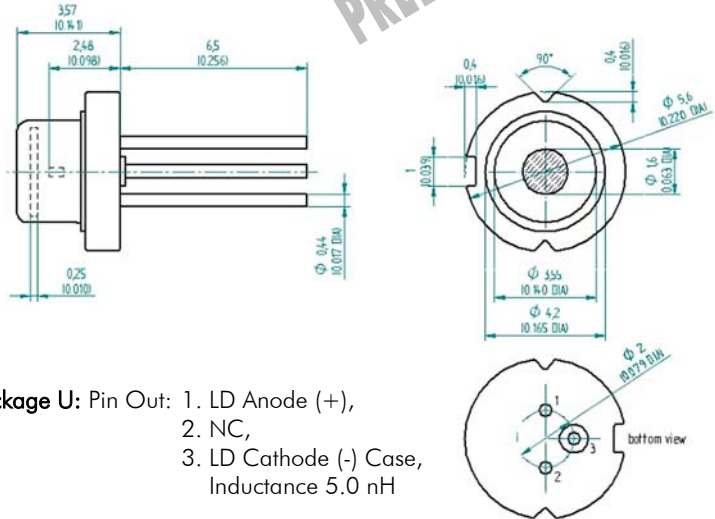


Package S: Pin Out: 1. LD Anode (+), 2. LD Cathode (-) Case, Inductance 5.2 nH



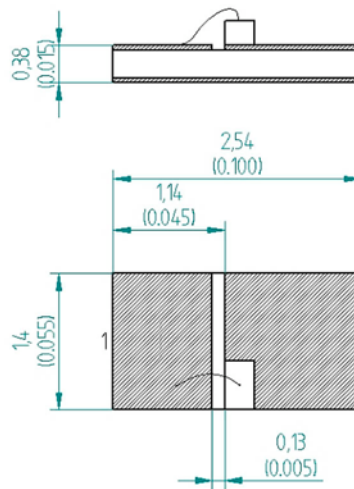
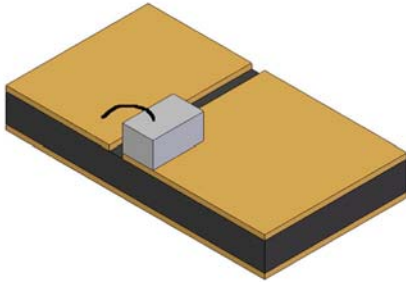
PRELIMINARY

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 Cathode (-),
2. LD Anode (+),
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.

DANGER
"INVISIBLE LASER RADIATION - AVOID DIRECT EXPOSURE TO BEAM"
"CLASS IIIb LASER PRODUCT" MAX. PEAK POWER 200 WATTS
WAVELENGTH 850 nm

