

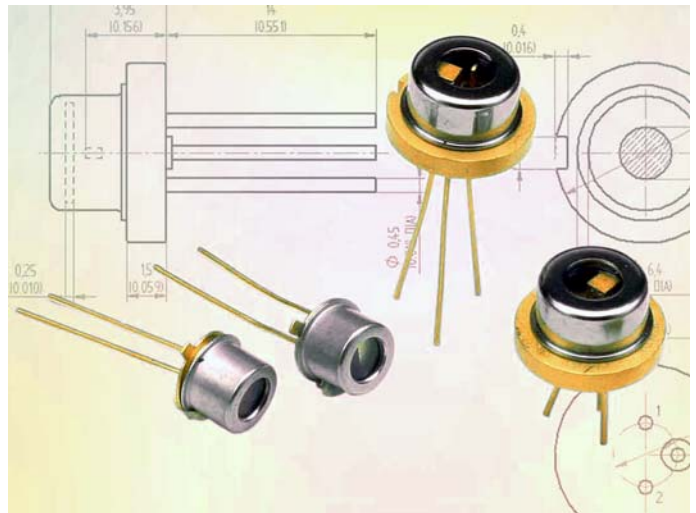
High Intensity Pulsed Laser Diodes 1550 HI-Series

FEATURES

- High intensity output
- Low divergence
- 0.5 W/A efficiency
- Excellent temperature stability
- Hermetic and custom designed package
- High Reliability

APPLICATIONS

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



OPTICAL CHARACTERISTICS AT $t_{RT}=21^{\circ}C$, I_{FM}

| | MIN | TYP | MAX | UNITS |
|--|------|------|------|-----------------|
| Wavelength of peak radiant intensity λ | 1520 | 1530 | 1580 | nm |
| Spectral bandwidth $\Delta\lambda$ at 50% intensity points at i_{FM} | | 30 | | nm |
| Spectral bandwidth $\Delta\lambda$ at 50% intensity points, 50% i_{FM} | | 20 | | nm |
| Wavelength temperature coefficient | | 0.6 | | nm/ $^{\circ}C$ |
| Beam spread (50% peak intensity) | | | | |
| Parallel to junction plane \parallel | | 12 | | Degrees |
| Perpendicular to junction plane \perp | | 25 | | Degrees |

"SemiNex chip inside"



SINGLE CHIPS

Single chip characteristics at $t_{RT} = 21^{\circ}C$, $t_w = 150\text{ ns}$, $P_{rr} = 3.33\text{ kHz}$

| PARAMETER | HI155G1S02X** | HI155G1S04X | HI155G1S06X** | HI155G1S07X | HI155G1S14X |
|-------------------------------------|------------------|-------------------|-------------------|-------------------|-------------------|
| P_o at I_{FM} (typ.) | 6.5 W | 10 W | 14.5 W | 17 W | 33 W |
| Emitting area | 50 μm | 100 μm | 150 μm | 180 μm | 350 μm |
| Max peak forward current I_{FM}^* | 20 A | 30 A | 40 A | 46 A | 80 A |
| I_{TH} typ | 0.3 A | 0.6 A | 0.9 A | 0.9 A | 2 A |
| Forward voltage at I_{FM} | 6 V | 6 V | 6 V | 6 V | 8 V |

* I_{FM} is the maximum peak current under any drive condition and is applicable to devices operated for short and intermittent duration such as in hand held range finders.

For applications that demand continuous use at maximum duty factor, we recommended I_{FM} at 50% to ensure longevity. High temperature operation will reduce peak power and MTTF so for optimal performance under high stress conditions it is important to provide an adequate heat sink.

** Available on request.

ABSOLUTE MAXIMUM RATINGS

| Maximum ratings | Limiting values |
|----------------------|------------------|
| Peak reverse voltage | 6 V |
| Pulse duration | 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 | 200°C |



Figure 1:
Peak Power vs. Current for 50 μm, 100 μm, 150 μm and 180 μm (150 ns, 3 kHz, 21°C, F/0)

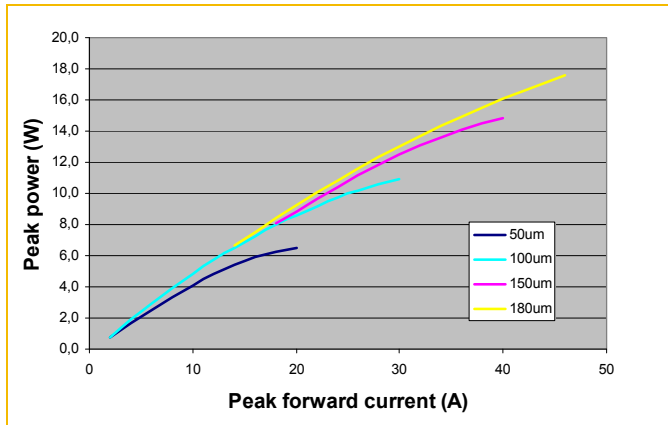


Figure 2:
Peak Power vs. current for 350 μm (150 ns, 3 kHz, 21°C, F/0)

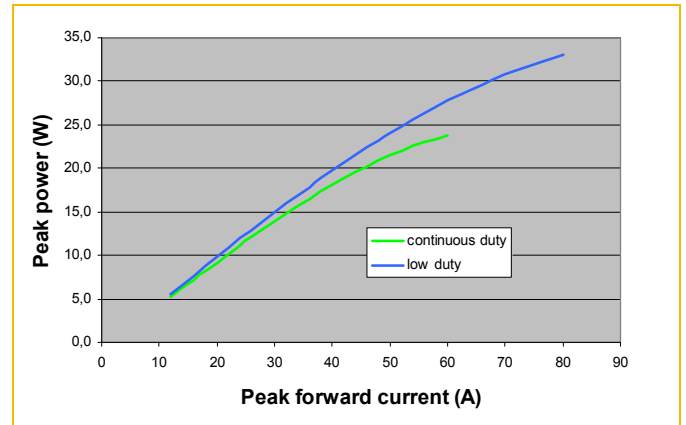


Figure 3:
Collection into reducing aperture size

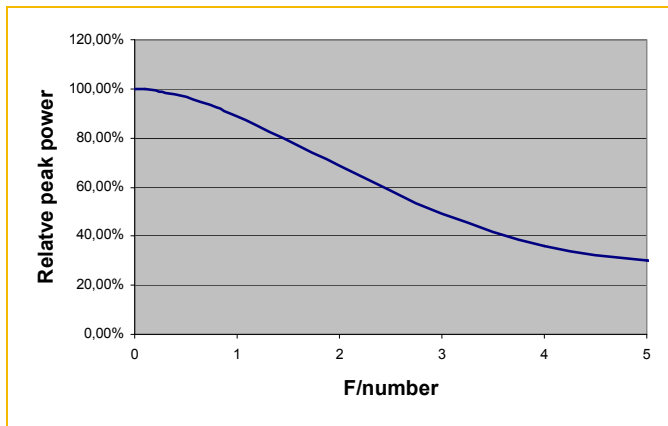


Figure 4:
Power Retention with Temperature

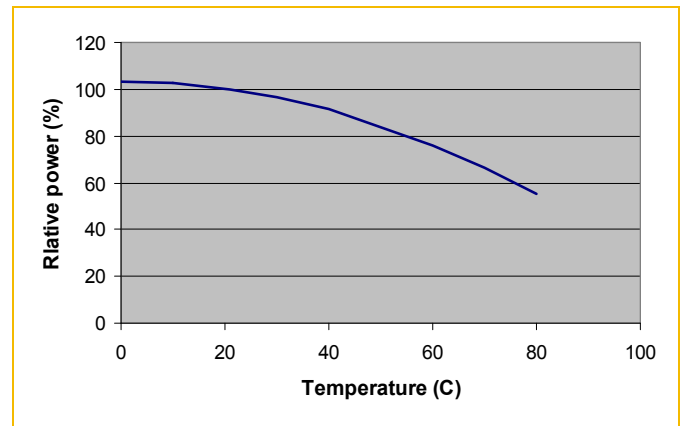


Figure 5:
Static Forward Voltage

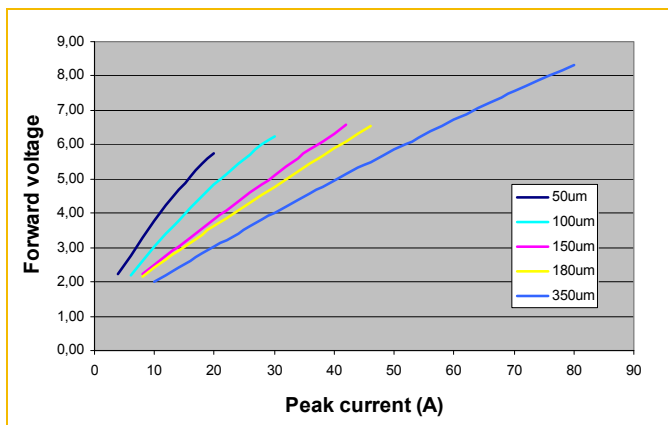


Figure 6:
Wavelength vs. Temperature

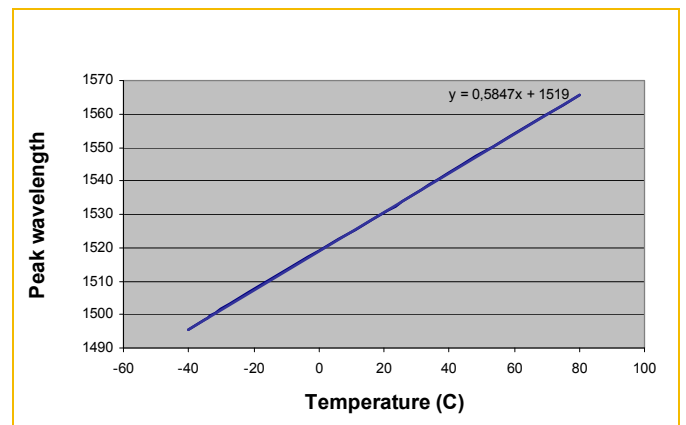


Figure 7:
Far field emission parallel and perpendicular to junction plane

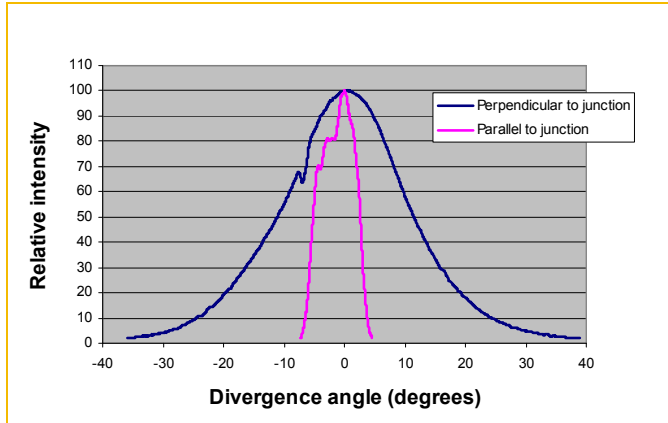
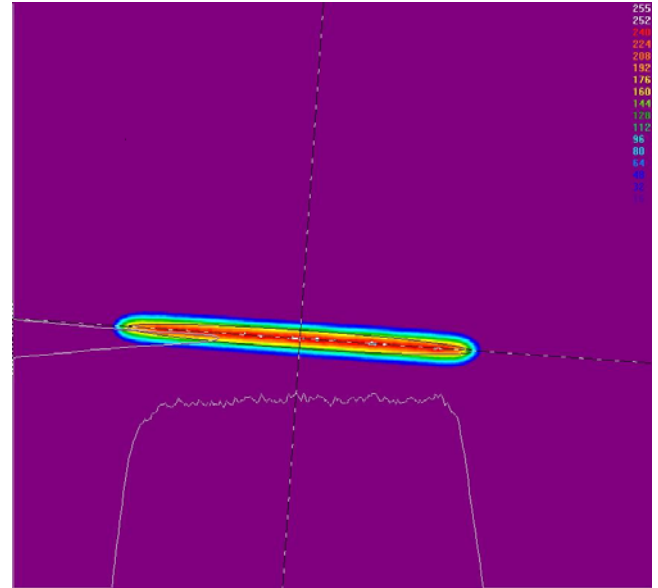
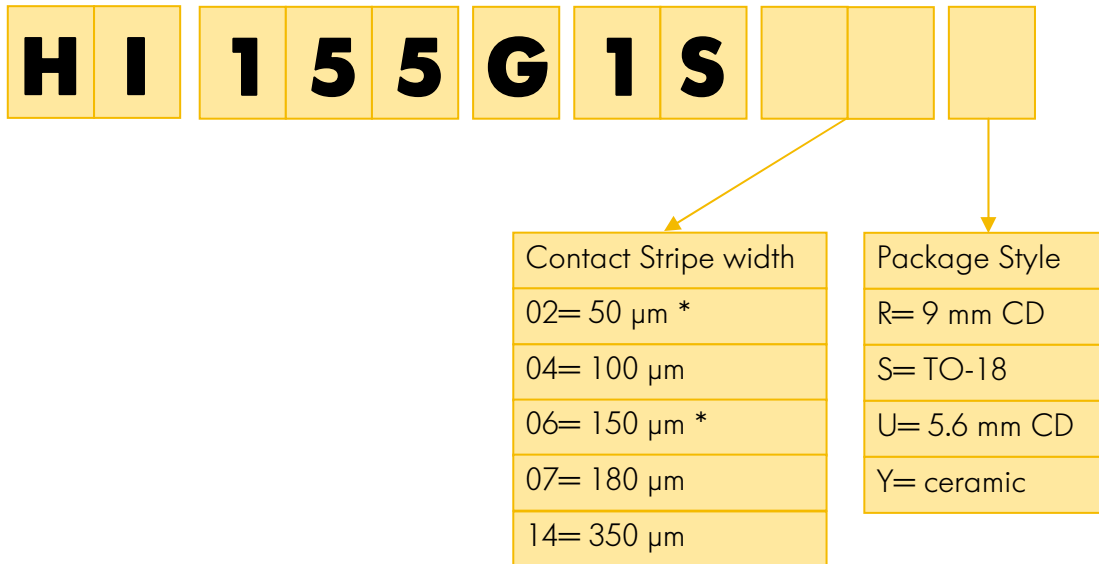


Figure 8:
Near field emission



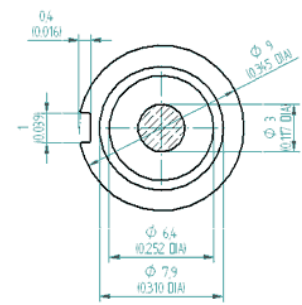
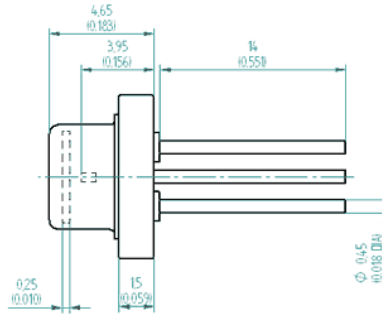
PRODUCT NUMBER DESIGNATIONS



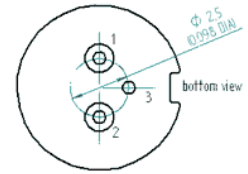
* Available on request

PACKAGE DRAWINGS

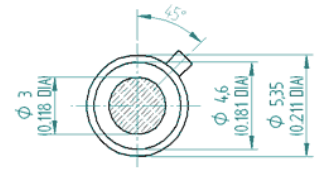
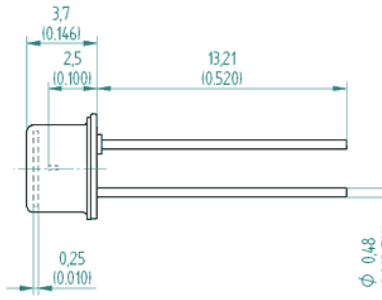
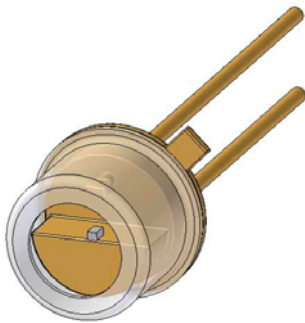
Package R 9 mm CD



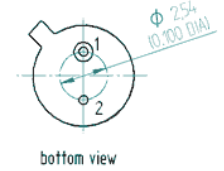
Package R: Pin Out: 1. LD Anode (+),
2. NC,
3. LD Cathode (-) Case,
Inductance 6.8 nH



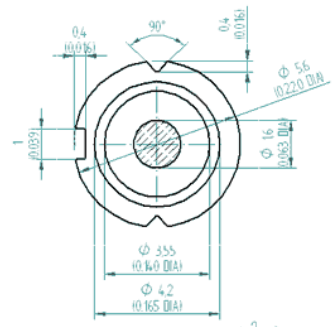
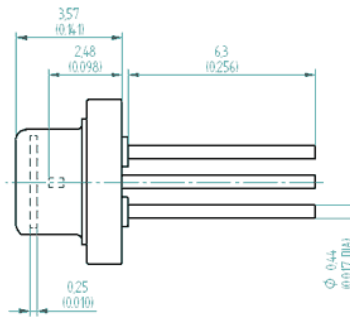
Package S TO-18



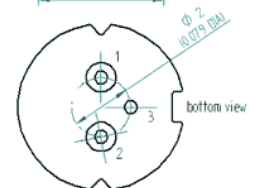
Package S: Pin Out: 1. LD Anode (+),
2. LD Cathode (-) Case,
Inductance 5.2 nH



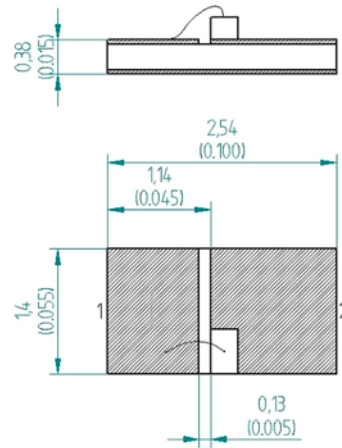
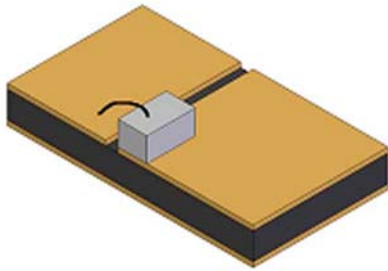
Package U 5,6 mm CD



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.



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