PD-LD Inc. offers a variety of standard Vertical Cavity Surface Emitting Lasers (VCSELs) in ready to use fiber coupled packages. Packaging options include Receptacle style housings such as ST, FC and SC as well as fiber pigtailed co-axial assemblies. VCSELs are typically used with multi-mode optical fiber and may be specified for coupling to 50 um, 62.5 um or 100 um core optical fibers. VCSELs may also be fiber coupled to single mode fibers with 5, 7 or 9 um core diameters. Units built with fiber pigtails are available terminated with optical connectors. Specialty fiber sizes may be available upon request.

VCSEL devices operating at 850 nm may be specified with or without internal monitor detectors for stabilizing the optical power output using feedback. VCSELs have inherently narrow optical spectrums of 0.5 nm FWHM. Maximum rise and fall times of 0.3 nsec make them ideal for high speed modulation, but the devices may also be operated in CW mode.

### Features 850 nm VCSELs
- Low Operating Current, 6 to 12 mA typ.
- High Speed > 1GHz
- Hermetically Sealed optical subassembly
- Three Different Laser/Photodiode Polarities available
- Power monitor diode available
- Available in TOSA housings for transceiver packaging

### PD-LD Part Number

<table>
<thead>
<tr>
<th>PD-LD Part Number</th>
<th>Wavelength Typ. (nm)</th>
<th>Operating Current (mA) Typ. Max.</th>
<th>Fiber Type Core/Cladding (um)</th>
<th>Fiber Coupled Power (uW) Min Typ.</th>
<th>Pin-Out</th>
<th>Spectral Width FWHM (nm)</th>
<th>Rise/Fall Time Max. (nsec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV85L.09ST74-Z-0</td>
<td>850</td>
<td>Ith=3.5, Iop=12</td>
<td>62.5/125</td>
<td>900</td>
<td>3 lead</td>
<td>0.85</td>
<td>100 psec</td>
</tr>
<tr>
<td>PV85L.05FC12-Z-0</td>
<td>850</td>
<td>Ith=3.5, Iop=12</td>
<td>50/125</td>
<td>500</td>
<td>3 lead</td>
<td>0.85</td>
<td>100 psec</td>
</tr>
<tr>
<td>PV85L.62STD-Z-0-01</td>
<td>850</td>
<td>Ith=3.5, Iop=12</td>
<td>50/125/900</td>
<td>600</td>
<td>3 lead</td>
<td>0.85</td>
<td>100 psec</td>
</tr>
<tr>
<td>PV85L.53FUG-A-0-01</td>
<td>850</td>
<td>Ith=3.5, Iop=12</td>
<td>62.5/125/900</td>
<td>500</td>
<td>3 lead</td>
<td>0.85</td>
<td>100 psec</td>
</tr>
<tr>
<td>PV85W.05STA-0-001</td>
<td>850</td>
<td>Ith=3.5, Iop=12</td>
<td>62.5/125</td>
<td>500</td>
<td>3 lead</td>
<td>0.85</td>
<td>100 psec</td>
</tr>
<tr>
<td>PV85T.05SMA-0-0-01</td>
<td>850</td>
<td>Ith=2.0, Iop=8</td>
<td>62.5/125</td>
<td>500</td>
<td>4 lead</td>
<td>0.85</td>
<td>150 psec</td>
</tr>
</tbody>
</table>

‘Examples only; most device/packaging combinations available. Changes to specifications may be made without notice. ’

02-11 PV Series .Rev B
PV Series 850 nm VCSELs

3 Lead VCSEL PIN-OUT

4 Lead VCSEL PIN-OUT

3 Lead VCSEL

<table>
<thead>
<tr>
<th>Pin-Out</th>
<th>“85L”</th>
<th>“85W”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin #1</td>
<td>LD\text{cathode}</td>
<td>LD\text{Anode}</td>
</tr>
<tr>
<td>Pin #2</td>
<td>PD\text{cathode}</td>
<td>LD\text{cathode}</td>
</tr>
<tr>
<td>Pin #3</td>
<td>PD\text{Anode}</td>
<td>PD\text{cathode}</td>
</tr>
</tbody>
</table>

4 Lead VCSEL Device Code “85T”

| Pin #1 | VCSEL Cathode |
| Pin #2 | VCSEL Anode / PD Cathode |
| Pin #3 | PD Anode |
| Pin #4 | Case Ground |

Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>-10 to 70 C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40 to 80 C</td>
</tr>
<tr>
<td>Lead Soldering Temperature</td>
<td>260 C, 10 seconds</td>
</tr>
<tr>
<td>Laser Continuous Average Current</td>
<td>15 mA</td>
</tr>
<tr>
<td>Laser Peak Forward Current with Pulse Width &lt; 1usec</td>
<td>20 mA</td>
</tr>
<tr>
<td>Laser Reverse Voltage</td>
<td>5 V</td>
</tr>
</tbody>
</table>

1^Examples only; most device/packaging combinations available. Changes to specifications may be made without notice. 02-11 PV Series .Rev B
PV Series 850 nm VCSELs

Ordering Information

Data Legend: **Pigtailed** VCSELs

- **V** = VCSEL
- **WWW** = Wavelength & Device Type
  - 85W = 850nm VCSEL 3 lead
  - 85L = 850nm VCSEL 3 lead
  - 85T = 850nm VCSEL 4 lead
- **PPP** = Fiber-Coupled Power
  - 005 = 5µW
  - 008 = 8µW
  - 010 = 10µW
  - 015 = 15µW
  - 020 = 20µW
  - 035 = 30µW
  - 0.1 = 0.10 mW (100µW)
  - 0.5 = 0.50 mW (500µW)
- **F** = Fiber Type
  - 1 = 9/125 SMF
  - 2 = 50/125 MMF
  - 3 = 62.5/125 MMF
  - 4 = 100/140 MMF
  - 7 = 5/250 SMF
  - 9 = Customer Supplied
- **CC** = Connector Type
  - ST = ST/PC
  - SC = SC/PC
  - SA = SC/APC
  - FC = FC/PC
  - FA = FC/APC
  - SM = SMA
  - 00 = No Connector
- **B** = Bracket Type
  - A = None
  - B = Panel Mount
  - C = Board Mount
  - G = Board Mount (bracket shipped loose)
- **O** = Orientation
  - 0 = N/A
  - A = Bracket Shipped Loose
- **V** = Version
  - 0 = Standard
  - Unique codes for specific requirements
- **LL** = Length (in meters)
  - 01 = 1m, 02 = 2m, .5 = .5m etc.

Ex: PV WWW PPP F CC B-O-V-LL

Data Legend: **Receptacle** VCSELs

- **V** = VCSEL
- **WWW** = Wavelength & Device Type
  - 85W = 850nm VCSEL 3 lead
  - 85L = 850nm VCSEL 3 lead
  - 85T = 850nm VCSEL 4 lead
- **PPP** = Fiber-Coupled Power
  - 005 = 5µW
  - 008 = 8µW
  - 010 = 10µW
  - 015 = 15µW
  - 020 = 20µW
  - 035 = 30µW
  - 0.1 = 0.10 mW (100µW)
  - 0.5 = 0.50 mW (500µW)
- **F** = Fiber Type
  - 1 = 9/125 SMF
  - 2 = 50/125 MMF
  - 3 = 62.5/125 MMF
  - 4 = 100/140 MMF
  - 7 = 5/250 SMF
  - 9 = Customer Supplied
- **RRR** = Receptacle Type
  - FC1 = FC Panel Mount
  - FC2 = FC Board Mount
  - SC2 = SC Panel/Board Mount
  - ST7 = ST low profile
  - ST8 = ST high profile
- **V** = Version
  - 0 = Standard
  - Unique codes for specific requirements
- **O** = Orientation
  - 0 = N/A
  - A = Bracket Shipped Loose

Ex: PV WWW PPP RRR F-O-V

1Examples only; most device/packaging combinations available. Changes to specifications may be made without notice.
Examples only; most device/packaging combinations available.

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PV Series 850 nm VCSELs

Mechanical Dimensions for Receptacle Packages

ST Receptacle Height
Low Profile 7.9mm
High Profile 10.4mm
PV Series 850 nm VCSELs

SC Receptacle Mounted 3 lead VCSEL

NOTES:

1. THESE DEVICES ARE ESD SENSITIVE. ESD PRECAUTIONS ARE ADVISED.
2. ALL DEVICES ARE SHIPPED WITH ESD LEAD PROTECTORS AND DUST COVERS.
3. ALL DEVICES WILL BE MARKED WITH A PD-LD SERIAL NUMBER.

PET PLASTIC, BLUE
BRASS, NICKEL PLATED
DELRIN, BLACK

2.20 mm DIAMETER THRU, 4.00 mm C.BORE, 1.50 mm DEEP TYP.