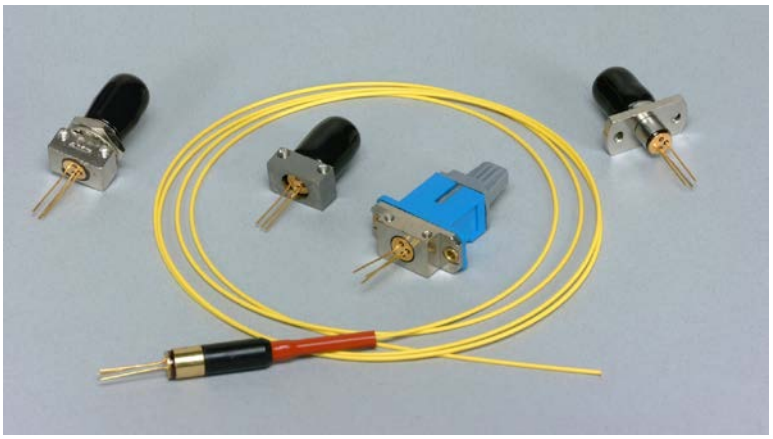
PV85L0.5ASTA-0-1-01 Series 850 nm VCSELs

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,100 um and 200 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**
- **Five Different Laser/Photodiode Polarities available**
- **Power monitor diode available**
- **Available in TOSA housings for transceiver packaging**

Pigtailed Devices	**Receptacle Devices**
PVWWWPPPFCCB-0-V-LL	PVWWWPPPRRF-O-V
PV85L0.5ASTA-0-1-01	PV85L0.5ST73-Z-0

P = PD=LD Product
V= Vertical Cavity Surface Emitting Laser (VCSEL)
WWW= Wavelength and Device Code
85L indicates 850nm center wavelength with 3 lead pin-out
PPP= Fiber Coupled Optical Power
0.5 indicates 0.5mW
F= Fiber Type
A indicates 200um Core Hard Clad Silica Fiber with 0.37NA
3 indictates 62.5um core MMF 0.28NA
CC= Connector Type
ST indicates ST/PC Optical Connector
RR= Receptacle Type, ST7 low profile ST style
B= Mounting Bracket
A indicates No Bracket
O= Orientation of Leads with respect to mounting bracket or Receptacle
A indicates no bracket so not applicable
V= Version
"1" indicates unit built and test with 200um core 0.37NA MMF
LL= Length of optical pigtail
01 indicates 1m

[1]Examples only; most device/packaging combinations available. Changes to specifications may be made without notice. 07-11 PV85L Rev A

Germany & Other Countries
Laser Components GmbH
Tel: +49 8142 2864 – 0
Fax: +49 8142 2864 – 11
info@lasercomponents.com
www.lasercomponents.com

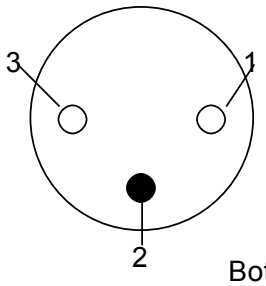
France
Laser Components S.A.S.
Tel: +33 1 39 59 52 25
Fax: +33 1 39 59 53 50
info@lasercomponents.fr
www.lasercomponents.fr

United Kingdom
Laser Components (UK) Ltd.
Tel: +44 1245 491 499
Fax: +44 1245 491 801
info@lasercomponents.co.uk
www.lasercomponents.co.uk

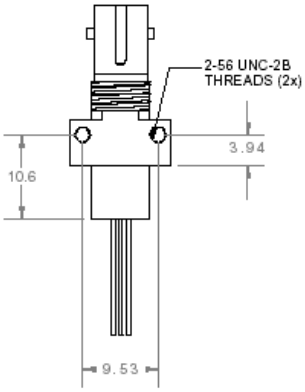
Nordic Countries
Laser Components Nordic AB
Tel: +46 31 703 71 73
Fax: +46 31 703 71 01
info@lasercomponents.se
www.lasercomponents.se

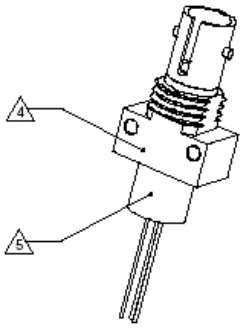
PV85L0.5ASTA-0-1-01 Series 850 nm VCSELs

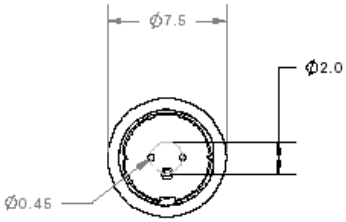
3 Lead VCSEL PIN-OUT



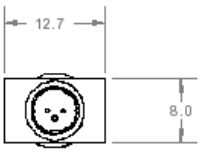
3 Lead VCSEL	
Pin-Out	"85L"
Pin #1	$LD_{cathode}$
Pin #2	$PD_{cathode}$ LD_{Anode}
Pin #3	PD_{Anode}

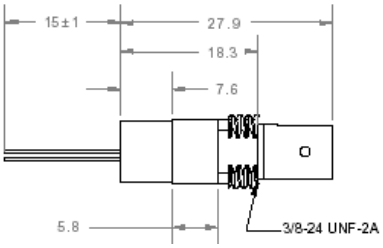






Key Slot





[1]Examples only; most device/packaging combinations available. Changes to specifications may be made without notice. 07-11 PV85L Rev A

Germany & Other Countries
Laser Components GmbH
Tel: +49 8142 2864 – 0
Fax: +49 8142 2864 – 11
info@lasercomponents.com
www.lasercomponents.com

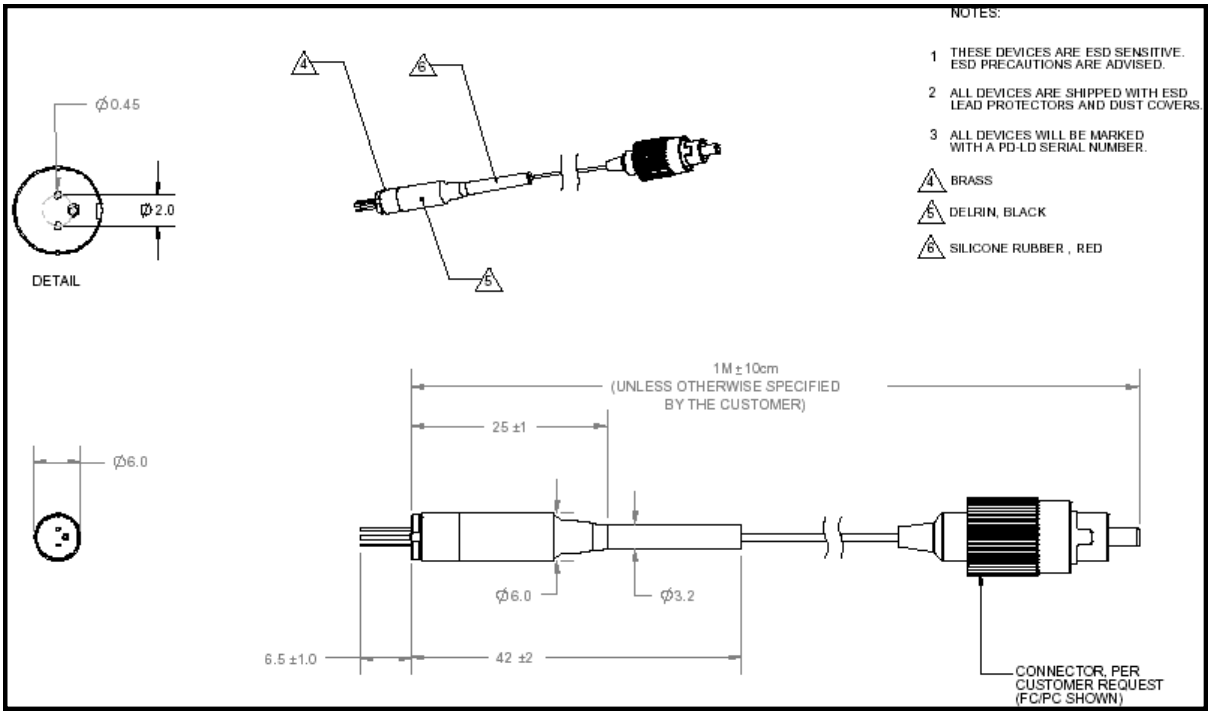
France
Laser Components S.A.S.
Tel: +33 1 39 59 52 25
Fax: +33 1 39 59 53 50
info@lasercomponents.fr
www.lasercomponents.fr

United Kingdom
Laser Components (UK) Ltd.
Tel: +44 1245 491 499
Fax: +44 1245 491 801
info@lasercomponents.co.uk
www.lasercomponents.co.uk

Nordic Countries
Laser Components Nordic AB
Tel: +46 31 703 71 73
Fax: +46 31 703 71 01
info@lasercomponents.se
www.lasercomponents.se

PV85L0.5ASTA-0-1-01 Series 850 nm VCSELs

Mechanical Dimensions for Pigtailed Packages



[1]Examples only; most device/packaging combinations available. Changes to specifications may be made without notice. 07-11 PV85L Rev A

Germany & Other Countries
Laser Components GmbH
Tel: +49 8142 2864 – 0
Fax: +49 8142 2864 – 11
info@lasercomponents.com
www.lasercomponents.com

France
Laser Components S.A.S.
Tel: +33 1 39 59 52 25
Fax: +33 1 39 59 53 50
info@lasercomponents.fr
www.lasercomponents.fr

United Kingdom
Laser Components (UK) Ltd.
Tel: +44 1245 491 499
Fax: +44 1245 491 801
info@lasercomponents.co.uk
www.lasercomponents.co.uk

Nordic Countries
Laser Components Nordic AB
Tel: +46 31 703 71 73
Fax: +46 31 703 71 01
info@lasercomponents.se
www.lasercomponents.se

PV85L0.5ASTA-0-1-01 Series 850 nm VCSELs

Absolute Maximum Ratings			
Parameter	Symbol	Value	Unit
VCSEL Continuous Average Current	I op	15	mA
VCSEL Peak forward Current with pulse widths < 1 usec	V pk	20	mA
VCSEL Reverse Voltage	V_R	5	V
Operating Temperature	T_{OPR}	-10 to 70	°C
Storage Temperature	T_{STR}	-40 to 85	°C
Soldering Temperature	T_{Solder}	260	°C (10 seconds max)

ELECTRICAL-OPTICAL CHARACTERISTICS						
VCSEL Parameter	**Test Condition**	**Symbol**	**Min**	**Typ**	**Max**	**Units**
Peak Operating Current	Adjustable to Establish Power	I_{PEAK}		12	20	mA
Optical Power Output	I= 12mA	Po	0.5		2	mW
Threshold Current		I_{TH}	2	3.5	6	mA
Threshold Current Temperature Variation	T_A = 0 to 70 degree C	ΔI_{TH}	-1.5		1.5	mA
Slope Efficiency	Po= 0.5mW	η	0.05	0.15	0.4	mW/mA
Slope Efficiency Temperature Variation	TA = 0 to 70 degree C	$\Delta\eta/\Delta T$		-0.5		%/degC
Peak Wavelength	I= 12mA	λ_P	830	850	860	nm
Wavelength Temperature Variation	I= 12mA	$\Delta\lambda_P$ / ΔT		0.06		nm / deg C
Spectral Bandwidth	I= 12mA	$\Delta\lambda$			0.85	nm
Laser Forward Voltage	I= 12mA	V_F	1.6	1.8	2.2	V
Laser Reverse Voltage	I_R= 10uA	BVR_{LD}	5	10		V
Series Resistance	I= 12mA	R_S	18	25	40	Ohms
Photodiode Parameters	**Test Condition**	**Symbol**	**Min**	**Typ**	**Max**	**Units**
Monitor Current	Po=0.5mW	I_{PD}	0.01		0.06	mA
Dark Current	Po= 0mW , R= 3V	I_D			20	nA
PD Reverse Voltage	Po= 0mW , R= 3V	BVR PD	30	115		V
PD Capacitance	V_R= 3V			40	55	pF

[1]Examples only; most device/packaging combinations available. Changes to specifications may be made without notice. 07-11 PV85L Rev A

Germany & Other Countries
Laser Components GmbH
Tel: +49 8142 2864 – 0
Fax: +49 8142 2864 – 11
info@lasercomponents.com
www.lasercomponents.com

France
Laser Components S.A.S.
Tel: +33 1 39 59 52 25
Fax: +33 1 39 59 53 50
info@lasercomponents.fr
www.lasercomponents.fr

United Kingdom
Laser Components (UK) Ltd.
Tel: +44 1245 491 499
Fax: +44 1245 491 801
info@lasercomponents.co.uk
www.lasercomponents.co.uk

Nordic Countries
Laser Components Nordic AB
Tel: +46 31 703 71 73
Fax: +46 31 703 71 01
info@lasercomponents.se
www.lasercomponents.se