

PL-VD0-00-S20-C0

850nm 2.5G VCSEL Die



The Picolight 850nm 2.5 Gbps VCSEL (Vertical Cavity Surface Emitting Laser) is designed for high-speed optical data communication applications. The patented Picolight VCSEL is engineered for performance and reliability over extended operating temperatures and power supply conditions. Extensive production lot testing and rigorous lot qualification processes ensure specification compliance and high reliability.

Features

- Data Rates from 622 Mbps to 2.5 Gbps
- -20°C to 85°C Operation
- <2.2V Operation
- Backside Cathode and Topside Anode Configuration
- Custom Specification Tolerances Available

Benefits

- Very High Reliability
 - * Low FIT
 - * High MTBF
- Excellent Performance Over Extended Operating Temperatures

Ordering information

Part Number:	Description:	Contact Information:
PL-VD0-00-S20-C0	850nm 2.5G VCSEL Die	Picolight Incorporated 1480 Arthur Ave Louisville, CO 80027 USA Tel: 303.530.3189 Web site: www.picolight.com

Absolute maximum ratings

($T_{case} = 30^{\circ}C$, Continuous Wave (CW) operation unless otherwise stated)

Parameter	Symbol	Ratings	Unit	Notes
Storage Temperature	T_{st}	-40 to +125	$^{\circ}C$	
Laser Forward Current	I_f	12	mA	
Laser Reverse Voltage	BVR_{PD}	-5	V	
ESD		Class 1	V	HBM

Notice

Conditions exceeding those listed may cause permanent damage to the device. Devices subjected to conditions beyond the limits specified for extended periods of time may adversely affect reliability.

Electro-optical characteristics

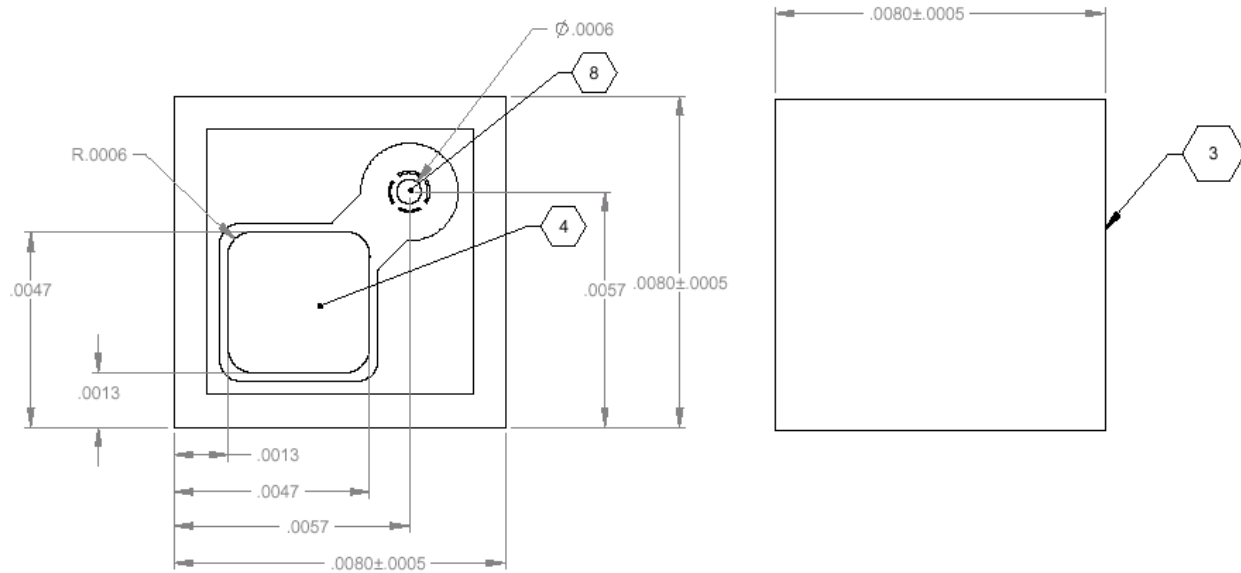
($T_{case} = 30^{\circ}C$, CW operation unless otherwise stated)

VCSEL Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit	Notes
Peak Emission Wavelength	λ_p		830	845	860	nm	
Operating Temperature	T_{op}		-40		85	$^{\circ}C$	
RMS Spectral Width	$\Delta\lambda$	$I_f = 8 \text{ mA}$			0.85	nm	
λ_p Temperature Coefficient	$\Delta\lambda_p$			0.06		nm/ $^{\circ}C$	
Beam Divergence	Θ	$P_{out} = 1.4 \text{ mW}$ Full Width $1/e^2$			27	deg	
Relative Intensity Noise	RIN_{12}	$I_f = 8 \text{ mA}$		-130	-122	dB/Hz	
Rise/Fall Time	t_r t_f	20% - 80% 20% - 80%		100 100	130 130	psec	1
Threshold Current	I_{th}			1.5	2.5	mA	
I_{th} Temperature Variation	ΔI_{th}	$T = -20^{\circ}C$ to $85^{\circ}C$		± 1.0	± 1.5	mA	
Laser Forward Voltage	V_f	$P_{out} = 1.4 \text{ mW}$		1.7	2.0	V	
Series Resistance	R_s	$P_{out} = 1.4 \text{ mW}$	20	45	60	Ohms	
Slope Efficiency	η	$P_{out} = 1.4 \text{ mW}$	0.20	0.3	0.45	mW/mA	2
Slope Efficiency Temperature Variation	$\Delta\eta/\Delta T$			-5000		PPM/ $^{\circ}C$	

Notes

1. Drive electronics and optical measurement hardware affect Rise/Fall Time measurement. Rise/Fall Time is specified using an AC coupled 50Ω voltage source and DC bias T.
2. Tighter specification ranges are available upon request.

Mounting dimensions



Chipping not to exceed 0.0007" from edge of die.

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Note	Description
3	Device Cathode
4	Device Anode
8	Optical Emissions Area

Shipping information

Shipped in anti-static 2" x 2" gel pack containers. 1000 per gel pack.