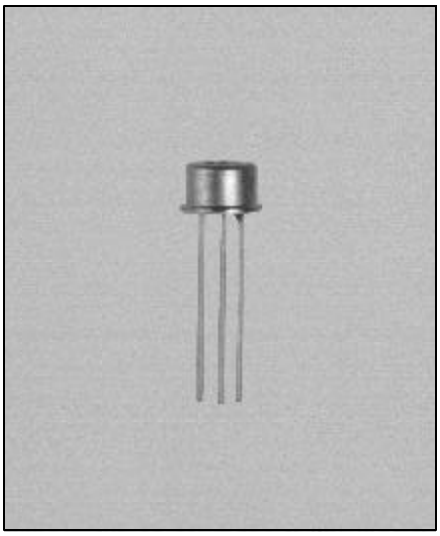
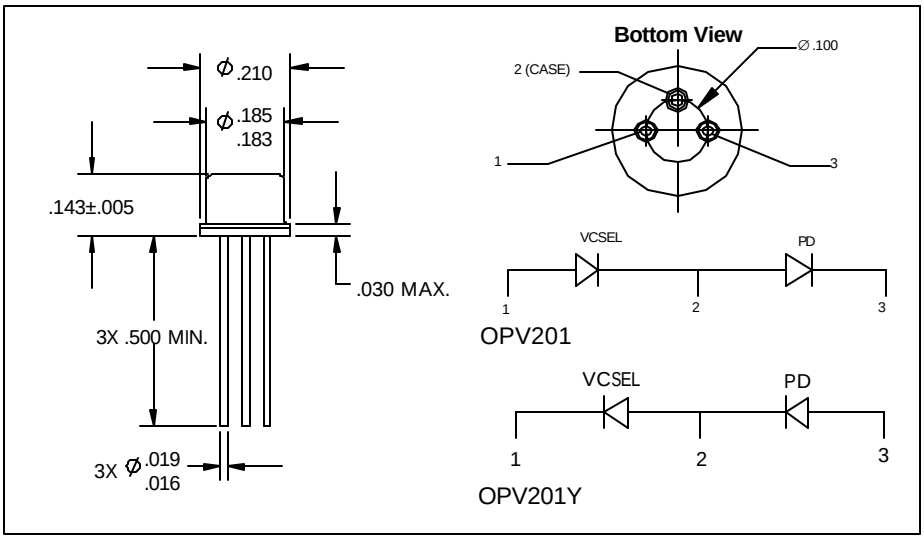
Vertical Cavity Surface Emitting Laser
Types OPV210, OPV210Y





Features

- Backmonitor photodiode
- 850 nm VCSEL technology
- High thermal stability
- High output density
- Narrow and concentric beam angle
- Up to 1.25 Gbps
- Recommended for multimode fiber applications
- Flat window
- Pin out and attenuation options available on request
- Burned in for communication level reliability

Description

The OPV210 and OPV210Y is a high performance 850 nm VCSEL packaged for high speed communication links. OPV210 and OPV210Y combines all the performance advantages of a VCSEL with the option of a power monitor diode. Attenuated outputs available on request. This product is an ideal light source and is designed for easy integration into applications in Fibre Channel, Gigabit Ethernet, ATM, VSR (Very Short Reach) and in intra-system or optical backplane interconnects.

Absolute Maximum Ratings ($T_A = 25^oC$ unless otherwise noted)

Storage Temperature	-40° C to +125° C
Operating Temperature	-40° C to +85° C
Soldering Lead Temperature	260° C for 10 seconds
Maximum Forward Peak Current	30 mA
Maximum Reverse Voltage	5 V
Maximum Continuous Output Power at 70° C.	1.1 mW

Warning: This product is classified as a IIIb laser per ANSI Z136.1. Therefore this part is capabile of causing eye damage under certain operating conditions. Optek recommends ANSI Z136.1 as a source for proper handling and labeling of equipment using this product.

OPV210	
Pin	**Connection**
1	VCSEL Anode
2	VCSEL Cathode/PD Anode
3	PD Cathode

OPV210Y	
Pin	**Connection**
1	VCSEL Cathode
2	VCSEL Anode/PD Cathode
3	PD Anode

Types OPV210, OPV210Y

Electrical Characteristics (T_A = 25° C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
P_{ot}	Power Out Total	1.45		4.5	mW	I_F = 12 mA
I_{th}	Threshold Current	2.0		5.0	mA	Note 1
V_F	Forward Voltage			2.2	V	I_F = 12 mA
I_R	Reverse Current, VCSEL			35	nA	V_r = 5 V
R_s	Series Resistance	15		40	ohms	Note 2
η	Slope Efficiency	.20		.57	mW/mA	Note 3
	Linearity	0.0		1.0		Note 4
I_{rpd}	Reverse Current, photo diode			30	nA	I_F = 0
I_m	Monitor Current	30			μA	I_F = 12 mA, V_R = 5 V
λ	Wavelength	830	850	860	nm	
$\Delta\lambda$	Optical Bandwidth			.85	nm	
θ	Beam Divergence		16		Degree	I_F = 12 mA
t_r/t_f	Rise and Fall Time		200		ps	20% to 80%
Nri	Relative Intensity Noise		-123		db/Hz	
Δlth/ΔT	Temp Coefficient of Theshold Current		± 1.5		mA	0° - 70° C, Note 1
$\Delta\lambda/\Delta T$	Temp Coefficient of Wavelength		.06		%/°C	0° - 70° C, I_F = 12 mA
$\Delta Vf/\Delta T$	Temperature Coefficient for VF		-2.5		mv/°C	0° - 70° C, I_F = 12 mA
$\Delta h/\Delta T$	Temperature Coefficient for Efficiency		-.4		%/C	0° - 70° C, Note 3

NOTES:

(1) Threshold Current is based on the two line intersection method specified in Telcordia GR-468-Core. Line 1 from 6 mA to 12 mA. Line 2 from 0 mA to 2 mA.

(2) Series Resistance is the slope of the Voltage-Current line from 8 to 12mA.

(3) Slope efficiency, is the slope of the best fit LI line from 1 mA above threshold to 12 mA.

(4) Using data points taken for slope efficiency above, delta L/delta I shall be calculated for each adjacent pair of .5 mA points. The minimum shall be 0.0. (No negative values permitted).

VCSEL COMPONENTS