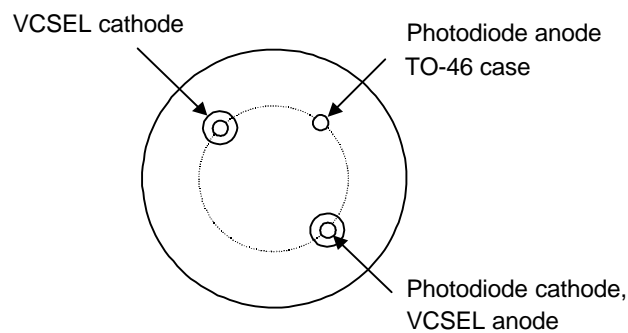


8585-2100 Gigalase[®] VCSEL with OxideGuide[™]

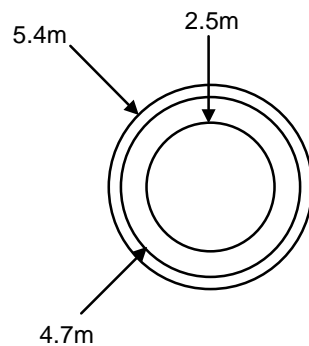
Absolute Maximum Ratings

Parameter	Rating	Important Notice
Storage Temperature	-40 to +100°C	Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated for extended periods of time may effect device reliability.
Operating Temperature	0 to 85°C	
Maximum Die Exposure	260°C for 10s	
Maximum Optical Output Power	3 mW	
Maximum Reverse Bias Voltage	5V	
Maximum Continuous Operating Current	10 mA	
Maximum Instantaneous Operating Current	15 mA	
Reverse voltage (PD)	15 V	
Forward current (PD)	2 mA	



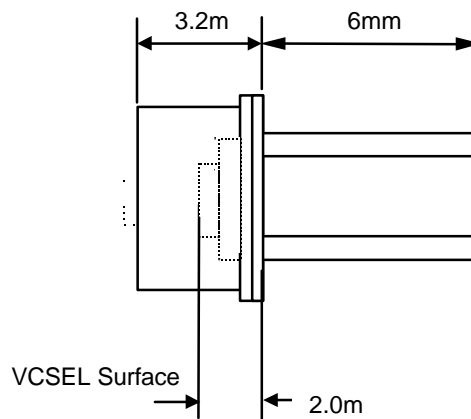
Bottom View

(Not to scale)



Top View

(Not to Scale)



Side View

(Not to scale)

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8585-2100 Gigalase[®] VCSEL with OxideGuide[™]

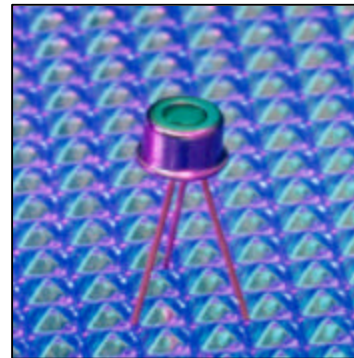
TO-46 Package with Photodiode Isolated VCSEL Leads, Attenuated Window

Product Description

The **Gigalase[®] with OxideGuide[™]** is a high-performance, near-infrared, 850nm VCSEL (Vertical Cavity Surface-Emitting Laser) tailored to meet the needs of high-speed data communications and telecommunications applications. By incorporating oxide technology which guides both the current and the light, the **OxideGuide[™]** family of VCSEL products provides performance enhancements over other laser technologies.

Application

The **8585-2100** VCSEL is designed to convert electrical current into optical power that can be used in fiber optic communication systems and other applications. It operates in multiple transverse modes and single longitudinal mode, ensuring stable coupling of power and low noise when used with multimode fiber. **OxideGuide[™]** lasers provide linear light vs. current characteristics and dynamic performance that is free from aberrations sometimes seen in other VCSELs. The 850nm wavelength is compatible with low-cost silicon or gallium arsenide detectors. The **8585-2100** VCSEL is well suited for Fibre Channel and Gigabit Ethernet data communication applications.



Electro-Optical Characteristics (T=25°C unless otherwise stated)

Parameter	Symbol	Units	Min.	Typ.	Max
Threshold Current (5 to 70°C)	I_{th}	mA		2	4
Slope Efficiency (5-10mA)	η	mW/mA	0.1		0.2
Slope Efficiency Temp. Variation (5 to 25°C)	$\Delta\eta/\Delta T$	%/°C	-0.45%		0.3%
Forward voltage ²	V_0	V			2.2
Peak Wavelength	λ_p	nm	830	850	855
Spectral Width (RMS) ³	$\Delta\lambda$	nm		0.5	0.85
Beam Divergence (Full width, $1/e^2$) ³	θ	deg	25	30	36
Rise and Fall Times ¹	t_r, t_f	ps			180
Relative Intensity Noise at 10mA	RIN	dB/Hz		-140	-120
Differential Resistance	δR	Ω	15		45

1. Using a square wave (100MHz repetition rate) at 2.12Gb/s, drive the VCSEL through a bias-T with a DC current source set to couple 0.5 mW into the fiber. Then adjust the AC signal for an extinction ratio > 10dB.
2. Speced at 6mA, 5-80°C.
3. Measured at 8 mA.

Photodiode Specifications

Parameter	Symbol	Units	Min	Typical	Max
Monitor Current ⁴	I_{pd}	mA	0.12	0.25	
Monitor Current Temperature Coefficient ⁴	$\Delta I_{pd}/\Delta T$	%/°C		0.2	
Dark Current @ -3V bias	I_d	nA		10	
Capacitance @ 0 V bias, 1MHz	C_{pd}	pF		25	

1. Measured with $I_1 = 8$ mA and photodiode at 3 V reverse bias