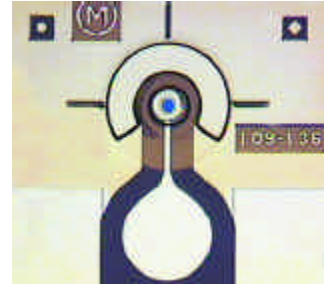


10 Gbps VCSEL

Product Description

The 10Gbps VCSEL 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. The product is offered in die form only with two top side contacts for easy integration into a wide variety of low-cost, high-performance packages for OEM use in Gigabit Ethernet, Fibre Channel, and ATM transceiver modules and systems.



Top View of 10 Gbps Device

Application

The 10Gbps VCSEL is designed to convert electrical current into optical power that can be used in fiber optic communication systems and other applications. The device operates in multiple transverse and single longitudinal modes, ensuring stable coupling of power and low noise when used with multimode fiber.

Product Specifications

Absolute Maximum Ratings

Parameter	Rating	Important Notice
Operating Temperature	0 to 70°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.
Storage Temperature	-40 to +100°C	
Maximum Process Temperature	260°C, 10 Sec	
Maximum Reverse Bias Voltage	5V	
Maximum Continuous Operating Current	4 mA	
Maximum Instantaneous Operating Current	7 mA	

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

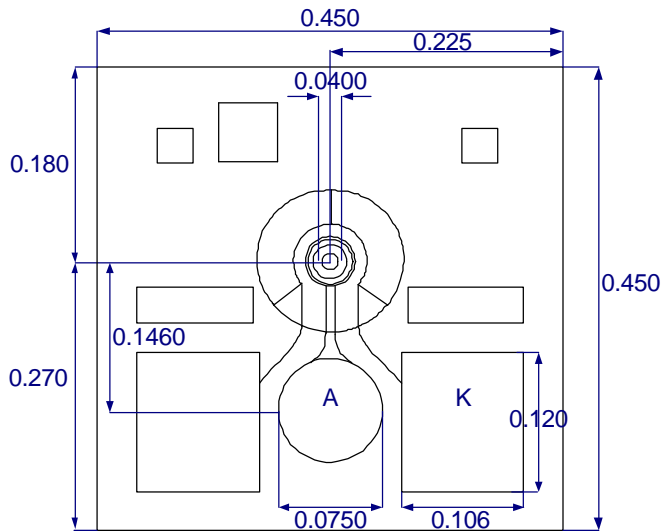
Parameter	Symbol	Min.	Typ.	Max	Units
Threshold Current	I_{th}	.5	.85	1.5	mA
Slope Efficiency (between 2 mA and 5 mA)	η	.2	.4	.6	mW/mA
Forward Voltage	V_0		1.75	2.2	V
Spectral Width (RMS) ¹	$\Delta\lambda$.36		Nm
Peak Wavelength	λ_p	840	845	860	Nm
Beam Divergence (Full width, $1/e^2$)	θ		33		Deg
Rise and Fall times	t_r, t_f		25,40		ps
Differential Resistance	δR	50	75	100	Ω

1. Based on a maximum of 2 equal intensity spectral peaks, no AC modulation.

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Diagram

Physical dimensions after dice (mm), A=Anode, K=Cathode. VCSEL substrate is semi-insulated and is not electrically connected to active portions of the device.



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