

50mW 940 nm Vertical-Cavity Surface-Emitting Laser

RS940-MP010-S

Description

The 50mW 940nm VCSEL is designed for high-performance sensor applications.

Features

- Low dependence of electrical and optical characteristics over temperature

Applications

- Proximity sensor
- Gesture sensor

Electrical and optical characteristics

(T = 25°C unless otherwise stated)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Output Power	P_o	41	45	54	mW	I_o
Threshold current	I_{th}	4.0	7.0	10.0	mA	
Operating voltage	V_o		1.95	2.25	V	P_o
Operating current	I_o		60		mA	P_o
Slope efficiency	η_d	0.8	0.9	1.1	W/A	
Wavelength	λ	935	940	945	Nm	P_o
Spectral width	$\Delta\lambda$		2.0		nm	P_o , FWHM
Beam divergence	θ	10		17	degree	FWHM
Peak temperature dependence	$\Delta\lambda/\Delta T$		0.07		nm/°C	T = 0 to 85°C

Absolute maximum ratings

(T = 25°C unless otherwise stated)

Parameter	Symbol	Rating	Unit	Notes
Forward current	I_f	100	mA	Max. 10 sec
Reverse voltage	V_r	2	V	
Operating temperature	T_{op}	-25 ~ 85	°C	
Storage temperature	T_{stg}	-40 ~ 85	°C	
Reflow temperature	T_{ref}	260	°C	Max. 10 sec. 2 mm from case

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.

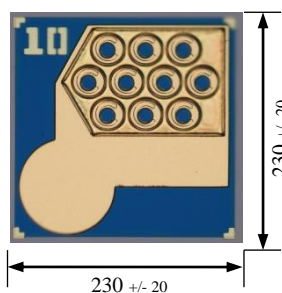
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VCSEL chip

Dimensions unit : μm

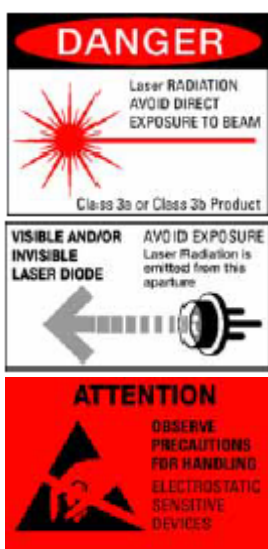
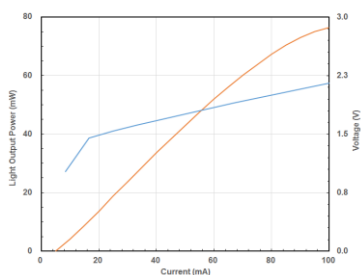
Chip : top side view



Cathode : backside

Thickness : 150 +/- 20

L-I-V(25°C)



Warning

The VCSEL is a class IIIb laser. Laser beams emitted from this product are hazardous to the naked eye. Avoid eye or skin exposure to direct or scattered radiation. Due to the size of the component, the applicable warning logotype, aperture label, and identification label can not be placed on the component.

Caution

This product is sensitive to the electrostatic discharge(ESD). To prevent ESD-induced damage and/or degradation to equipment, take normal ESD precautions when handling this product.