

850 nm Vertical-Cavity Surface-Emitting Laser

RC0850-250MA-S



Description

The 850 nm VCSEL is designed for high-speed, high-performance communication applications.

Features

- Low dependence of electrical and optical characteristics over temperature
- Data rates up to 25 Gbps

Applications

- Access network for long distance
- Local area network
- Gigabit Ethernet

Electrical and optical characteristics

(T = 25°C unless otherwise stated)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Threshold current	I_{th}		0.6	1.0	mA	
Forward voltage	V_f		2.2	2.4	V	$I = 6\text{ mA}$
Series resistance	R_s		80	100	Ω	$I = 6\text{ mA}$
Output power	P_o	1.3	1.6		mW	$I = 6\text{ mA}$
Wavelength	λ	840	850	860	nm	$I = 6\text{ mA}$
RMS spectral width	$\Delta\lambda$		0.85		nm	$I = 6\text{ mA}$
Slope efficiency	η_a	0.24			W/A	
Beam divergence	θ		28	35	degree	FW at $1/e^2$ $I = 6\text{ mA}$
Peak temperature dependence	$\Delta\lambda/\Delta T$		0.06		nm/°C	$T = 0\text{ to }70^\circ\text{C}$
3dB bandwidth	GHz	15	17			$I = 6\text{ mA}$

Absolute maximum ratings

(T = 25°C unless otherwise stated)

Parameter	Symbol	Rating	Unit	Notes
Forward current	I_f	12	mA	Max. 10 sec
Reverse voltage	V_r	5	V	
Operating temperature	T_{op}	0 ~ 85	°C	
Storage temperature	T_{stg}	-40 ~ 100	°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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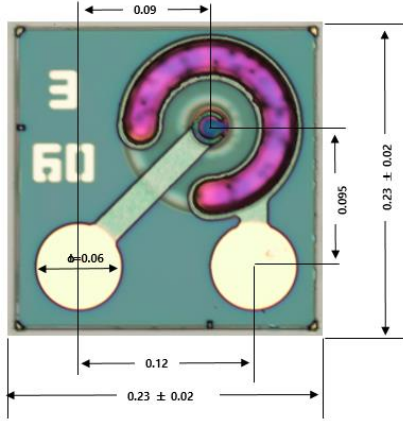
RC0850-250MA-S



VCSEL chip

Dimensions unit : mm

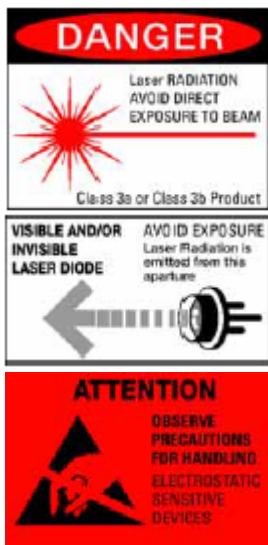
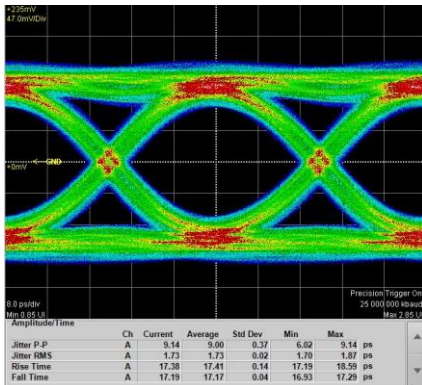
Chip : top side view



Thickness : 0.15 ± 0.02

Optical eye pattern

I = 6 mA, Single ended (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.



1B-25, 727, Wonsi-dong, Danwon-gu, Ansan-city,
Gyeonggi-do, Korea 425-851