



VC850M-SMD

- Infrared VCSEL
- 850 nm, 0.5 mW
- Multi Mode
- SMD 0603
- Viewing angle 6°



Description

VC850M-SMD is a multi mode infrared VCSEL emitting at typically 850 nm with rated output power of 0.5 mW cw, mounted into a SMD 0603 package and sealed with epoxy resin. The VCSEL works under low forward current and voltage.

Maximum Ratings

Parameter	Symbol	Values		Unit
		Min.	Max.	
Forward Current	I_F		8	mA
Reverse Voltage (@ 10µA)	V_F		5	V
Operating Temperature	T_{CASE}	- 10	+ 50	°C
Storage Temperature	T_{STG}	- 40	+ 85	°C
Lead Solder Temperature *	T_{SLD}		+ 260	°C

* must be completed within 10 seconds

Electro-Optical Characteristics ($T_{CASE}=25^{\circ}\text{C}$)

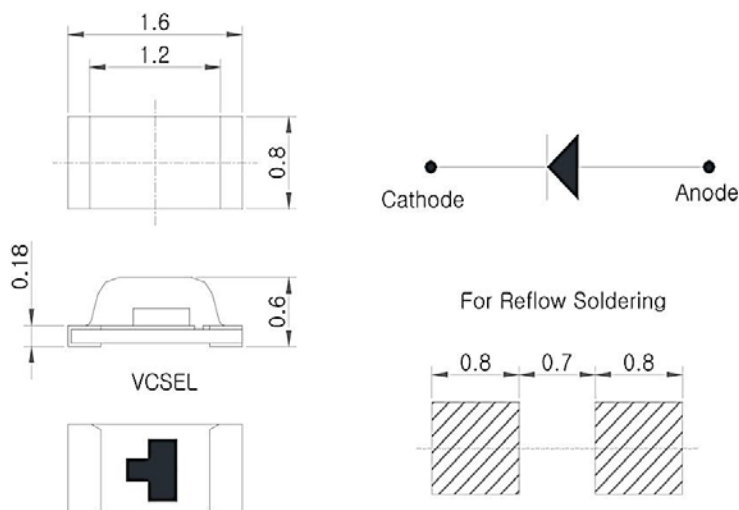
Parameter	Symbol	Min.	Values		Unit
			Typ.	Max.	
Emission Wavelength	λ_{Peak}	830	850	860	nm
Spectral Width	$\Delta\lambda$			0.06	nm
Optical Output Power	P_O	0.2	0.5	0.8	mW
Beam Divergence	θ		6		°
Threshold Current	I_{TH}		3.0	3.5	mA
Operating Current	I_F		4		mA
Operating Voltage	V_F		1.7	2.1	V
Breakdown Voltage	V_B		-10		V
Slope Efficiency	η	0.2	0.4	0.5	mW/mA
Dynamic Resistance	R_D	20	30	50	Ω

Thermal Characteristics

Parameter	Symbol	Min.	Values Typ.	Max.	Test Conditions	Unit
I_{TH} Temperature Variation	ΔI_{TH}		1.5		$T_C = -10$ to 50°C	mA
η Temperature Variation	$\Delta\eta / \Delta T$		-0.5		$T_C = -10$ to 50°C , 4mA	%/°C
λ Temperature Variation	$\Delta\lambda / \Delta T$		0.06		$T_C = -10$ to 50°C , 4mA	nm/°C

Outline Dimensions

SMD



All Dimensions in mm

Precautions

Static Electricity:

VCSELs are **sensitive to electrostatic discharge (ESD)**. Precautions against ESD must be taken when handling or operating these VCSELs. Surge voltage or electrostatic discharge can result in complete failure of the device.



Safety Advice:

This VCSEL emits concentrated infrared light which can be **hazardous to the human eye and skin**. This diode is classified as CLASS 3B laser product according to **IEC 60825-1** and **21 CFR Part 1040.10** Safety Standards.

Operation:

Do *only* operate VCSELs with a current source.

Running these LEDs from a voltage source will result in complete failure of the device.

Current of an LED is an exponential function of the voltage across it. Usage of current regulated drive circuits is mandatory.