



VC850S-SMD

- Infrared VCSEL
- 850 nm, 0.5 mW
- Single Transverse and Longitudinal Mode
- SMD 0603
- Viewing angle 8°



Description

VC850M-SMD is a single 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 (@ 10 μ A)	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 ($T_{CASE}=25^{\circ}C$)

Parameter	Symbol	Min.	Values		Unit
			Typ.	Max.	
Emission Wavelength	λ_{Peak}	830	850	860	nm
Optical Output Power	P_O	0.3	0.5	0.7	mW
Beam Divergence	Θ		8		°
Threshold Current	I_{TH}		2	3	mA
Operating Current	I_F		3.5		mA
Operating Voltage	V_F		1.8	2.1	V
Breakdown Voltage	V_B		-10		V
Slope Efficiency	H	0.2	0.35		mW/mA
Dynamic Resistance	R_D		70	100	Ω
Side Mode Suppression Ratio	$SMSR$	15			dB
Max. Single Mode Power	P_{SM}		1.0	1.3	mW

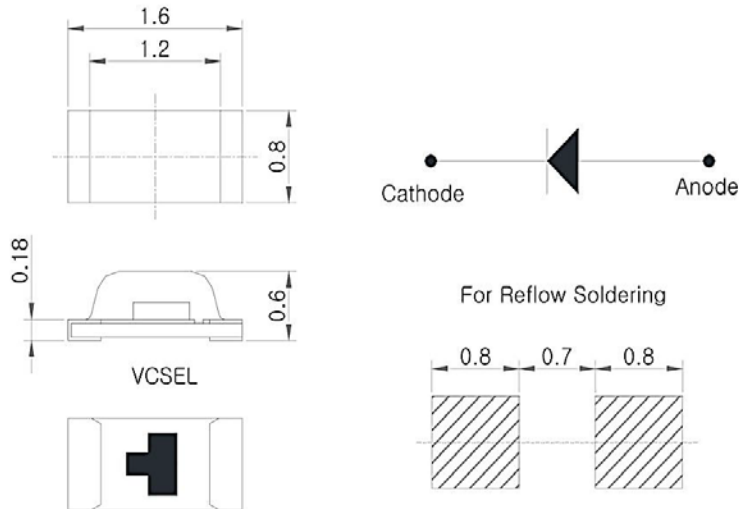
Thermal Characteristics

Parameter	Symbol	Min.	Values		Test Conditions	Unit
			Typ.	Max.		
I_{TH} Temperature Variation	ΔI_{TH}		1.5		$T_C=-10$ to $50^{\circ}C$	mA
η Temperature Variation	$\Delta \eta / \Delta T$		-0.5		$T_C=-10$ to $50^{\circ}C, 3.5mA$	%/°C
λ Temperature Variation	$\Delta \lambda / \Delta T$		0.06		$T_C=-10$ to $50^{\circ}C, 3.5mA$	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 a LED is an exponential function of the voltage across it. Usage of current regulated drive circuits is mandatory.

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