



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 (@ 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°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 |

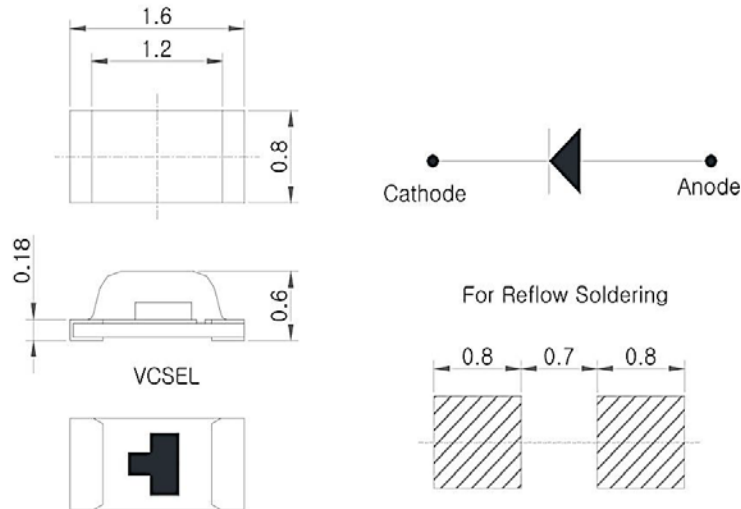
Thermal Characteristics

| Parameter | Symbol | Min. | Values | | Test Conditions | Unit |
|---------------------------------------|----------------------------|------|--------|------|---------------------------------|-------|
| | | | Typ. | Max. | | |
| 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 a LED is an exponential function of the voltage across it. Usage of current regulated drive circuits is mandatory.

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