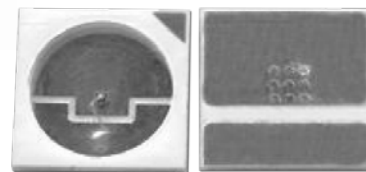




LED23FC-SMD5

- Mid-IR LED
- 2.35 μm , 1 mW qCW
- Ceramic SMD, 5 x 5 x 1 mm



Description

LED23FC-SMD5 is fabricated from narrow band-gap GaInAsSb/AlGaAsSb heterostructures lattice matched to GaSb substrate. This surface mount Mid-IR LED provides a typical peak wavelength of **2.35 μm** and optical power of typ. **1 mW qCW**. It comes in low temperature co-fired ceramic SMD package, with anode and cathode metalized areas on the back side of the surface.

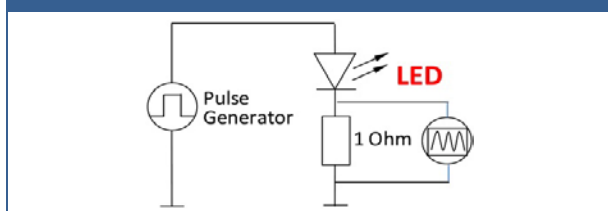
Electro-Optical Characteristics $(T_{\text{CASE}}=25^{\circ}\text{C})$

Parameter	Symbol	Conditions	Min.	Values Typ.	Max.	Unit
Peak Wavelength	λ_{Peak}	$I_F=150\text{mA qCW}$	2.3	2.35	2.37	μm
FWHM of the emission band	$\Delta\lambda$	$I_F=150\text{mA qCW}$	200	270	340	nm
Optical Output Power, qCW	P_O	$I_F=200\text{mA qCW}$	0.8	1.0	1.4	mW
Optical Output Power, pulsed	P_O	$I_F=1\text{A}$, $f=1\text{kHz}$, duty cycle 0.1%	20	25	30	mW
Operating Voltage	V_{OP}	$I_F=200\text{mA qCW}$	1.2		2.8	V
Switching Time			10	20	30	ns
Operating Temperature	T_{CASE}		- 200		+ 50	$^{\circ}\text{C}$
Soldering Temperature *	T_{SOLD}				+ 180	$^{\circ}\text{C}$

* must be completed within 10 seconds

Operating Regime

LED Basic Circuit Connection

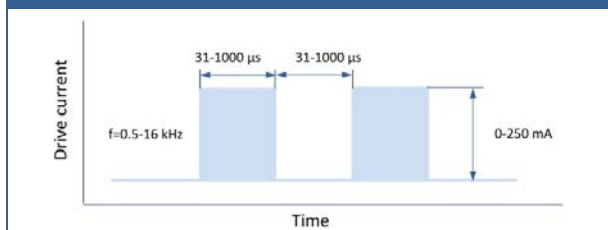


Suitable Drivers and Evaluation Boards

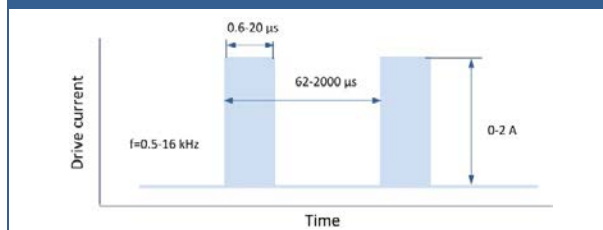
We recommend to use **Quasi Continuous Wave (qCW) mode** with duty cycle 50% or 25% to obtain maximum average optical power, and short **Pulse mode** to obtain maximum peak power.

CW (continuous wave) mode is NOT recommended!

Quasi Continuous Wave (qCW) Mode



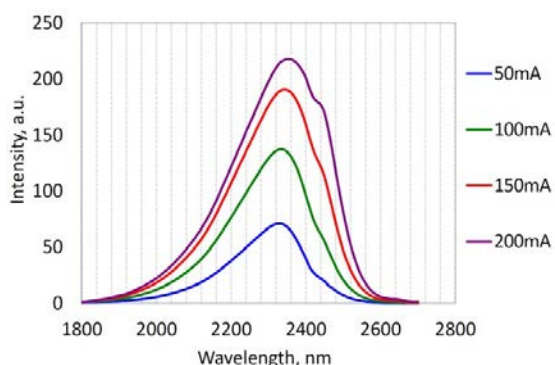
Pulse Mode



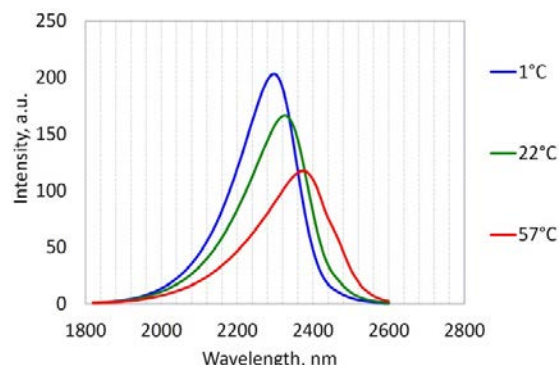


Performance Characteristics

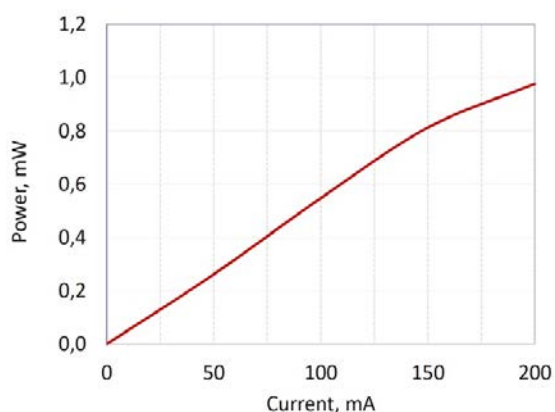
Spectra At Different Currents
(qCW, $T_{CASE}=25^{\circ}C$)



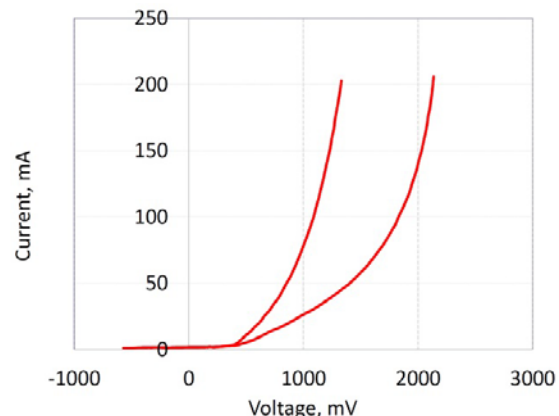
Spectra At Different Temperatures
(qCW, $I_F=150mA$)



Output Power vs. Operating Current
(qCW, $T_{CASE}=25^{\circ}C$)



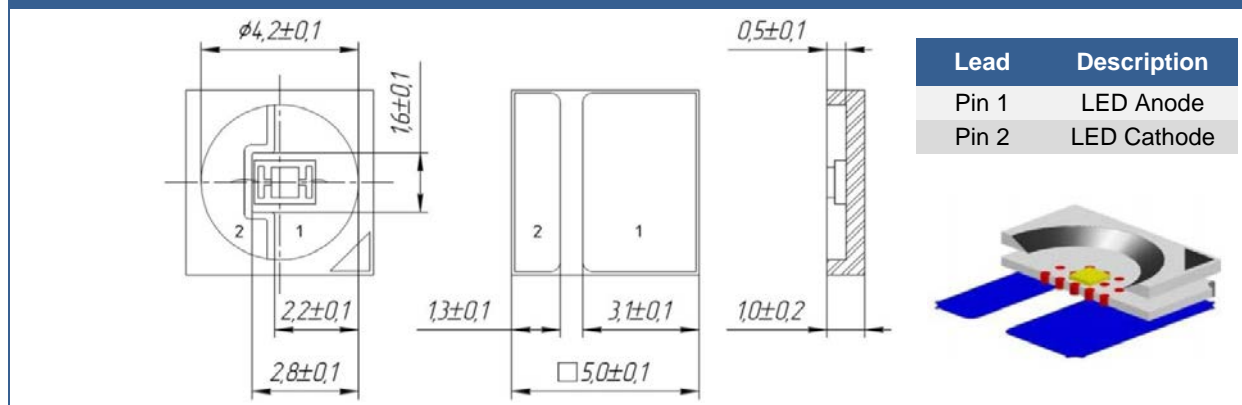
Forward Current vs. Forward Voltage
($T_{CASE}=25^{\circ}C$)



Outline Dimensions

SMB1N

flat



All Dimensions in mm

Material – Low Temperature Co-fired Ceramic (LTCC):

- thermal conductivity 25 W/mK
- thermoresistance 8 $^{\circ}C/W$



Precautions

Cautions:

- Check your connection circuits before turning on the LED.
- Observe the LED polarity: LED anode is marked with a RED dot.
- DO NOT connect the LED to the multimeter!

Soldering:

- Do avoid overheating of the LED
- Do avoid electrostatic discharge (ESD)
- Do avoid mechanical stress, shock, and vibration
- Do only use non-corrosive flux
- Do not apply current to the LED until it has cooled down to room temperature after soldering

Static Electricity:

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

Operation:

Do only operate LEDs 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.