VC670M-TO46FW-2

- Red VCSEL
- 670 nm, 1 mW
- Multi Mode
- TO-46 Can
- Flat Window



v 1.0 21.01.2015

Description

VC670M-TO46FW-2 is a multi mode red VCSEL emitting at typically 670 nm with rated output power of 1.0 mW cw, mounted into a standard TO-46 package and sealed with a flat window cap. The VCSEL works under low forward current and voltage.

Maximum Ratings

Parameter	Symbol	Val	Unit	
Parameter	Symbol	Min.	Max.	Offic
Forward Current	IF		8	mA
Reverse Voltage (@ 10µA)	V _F		5	V
Operating Temperature	T_{CASE}	- 20	+ 50	°C
Storage Temperature	T_{STG}	- 40	+ 85	°C
Lead Solder Temperature *	T_{SLD}		+ 260	°C

^{*} must be completed within 10 seconds

Laser Characteristics (TCASE=25°C)

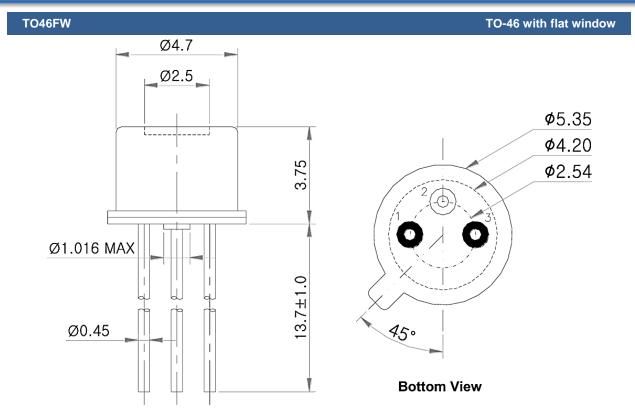
Parameter	Symbol	Min.	Values Typ.	Max.	Unit
Emission Wavelength	λ_{Peak}	660	670	690	nm
Spectral Width	$\Delta \lambda$			0.85	nm
Optical Output Power	P_{O}		1.0		mW
Threshold Current	I_{TH}		2.0	3.5	mA
Operating Current	I_{\digamma}		5		mA
Operating Voltage	V_F		2.1	2.5	V
Beam Divergence (Full Width)	θ	14		30	deg
Slope Efficiency	Н	0.2	0.4		mW/mA
Dynamic Resistance	$R_{\scriptscriptstyle D}$	50		90	Ω
Breakdown Votage	V_B	14	19		V
ESD threshold	R_{TH}			100	V

Thermal Characteristics

Parameter	Symbol	Min.	Values Typ.	Max.	Test Conditions	Unit
Max. Operating Temperature Optical Output Power	P _{T=50°C}		0.5		T _C =50°C, 5mA	mW
I _{TH} Temperature Variation	ΔI_{TH}		1		T _C =-20 to 50°C	mA
η Temperature Variation	$\Delta \eta / \Delta T$		-0.8		T _C =-20 to 50°C,5mA	%/°C
λ Temperature Variation	$\Delta \lambda / \Delta T$		0.05		T _C =-20 to 50°C,5mA	nm/°C

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Outline Dimensions



All Dimensions in mm

Electrical Connection

Lead	Description
Pin 1	LD Anode
Pin 2	n.c.
Pin 3	LD Cathode



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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 red light which can be hazardous to the human eye and skin. This diode is classified as CLASS 2 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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The above specifications are for reference purpose only and subjected to change without prior notice

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