ROITHNER LASERTECHNIK GmbH
WIEDNER HAUPTSTRASSE 76 1040 VIENNA AUSTRIA
TEL. +43 1 586 52 43 -0. FAX. -44 OFFICE@ROITHNER-LASER.COM

v 1.0 6.11.2013

VC670S-TO46FW

- Red VCSEL
- 670 nm, 0.5 mW
- Single Mode
- TO-46 Can
- Flat window cap



Description

VC670S-TO46FW is a single mode red VCSEL emitting at typically 670 nm with rated output power of 0.5 mW cw, mounted into a standard TO-46 package and sealed with a flat window cap. The VCSEL provides a Gaussian beam shape under low forward current and voltage.

Maximum Ratings

Parameter	Symbol	Values Min.	Values Max.	Unit
Forward Current	I_F		5	mA
Reverse Voltage (@ 10µA)	V_F		10	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 (T_{CASE}=25°C)

Parameter	Symbol	Min.	Values Typ.	Max.	Unit
Emission Wavelength	λ_{Peak}	660	670	690	nm
Optical Output Power	P_O	0.2	0.5		mW
Threshold Current	I_{TH}		2.5	4	mA
Operating Current	I_F		4		mA
Operating Voltage	V_F		2.3	2.7	V
Beam Divergence (Full Width)	Θ	10	12	30	deg
Slope Efficiency	η	0.1	0.2		mW/mA
Dynamic Resistance	R_D		120	180	Ω

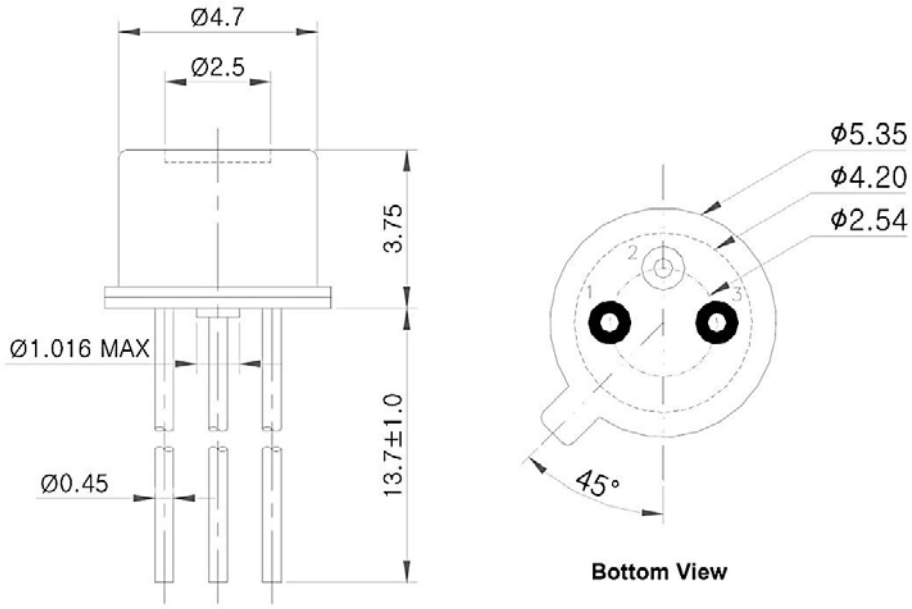
Thermal Characteristics

Parameter	Symbol	Min.	Values Typ.	Max.	Test Conditions	Unit
Max. Operating Temperature Optical Output Power	$P_{T=50°C}$		0.1		T_C=50°C, 4mA	mW
I_{TH} Temperature Variation	ΔI_{TH}		1.5		T_C=-20 to 50°C	mA
η Temperature Variation	$\Delta\eta / \Delta T$		-0.8		T_C=-20 to 50°C,4mA	%/°C
λ Temperature Variation	$\Delta\lambda / \Delta T$		0.06		T_C=-20 to 50°C,4mA	nm/°C

ROITHNER LASERTECHNIK GmbH
WIEDNER HAUPTSTRASSE 76 1040 VIENNA AUSTRIA
TEL. +43 1 586 52 43 -0. FAX. -44 OFFICE@ROITHNER-LASER.COM

Outline Dimensions

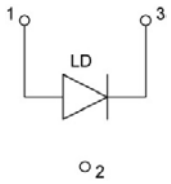
TO46FW	TO-46 with flat window



All Dimensions in mm

Electrical Connection

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



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.

© All Rights Reserved
The above specifications are for reference purpose only and subjected to change without prior notice