



## VC850M-H-T046GL

- Infrared VCSEL
- 850 nm, 10 mW
- Multi Mode
- TO-46 Can
- Glass lens cap, Viewing angle 5°



### Description

**VC850M-H-T046GL** is a multi mode infrared VCSEL emitting at typically 850 nm with rated output power of 10 mW cw, mounted into a standard TO-46 package and sealed with a glass lens cap. The VCSEL works under low forward current and voltage.

### Maximum Ratings

Parameter	Symbol	Values		Unit
		Min.	Max.	
Forward Current	$I_F$		30	mA
Reverse Voltage (@ 10 $\mu$ A)	$V_F$		5	V
Operating Temperature	$T_{CASE}$	0	+ 70	°C
Storage Temperature	$T_{STG}$	- 40	+ 100	°C
Lead Solder Temperature *	$T_{SLD}$		+ 260	°C

\* must be completed within 10 seconds

### Electro-Optical Characteristics (T<sub>CASE</sub>=25°C)

Parameter	Symbol	Min.	Values		Unit
			Typ.	Max.	
Emission Wavelength	$\lambda_{Peak}$	840	850	860	nm
Spectral Width	$\Delta\lambda$			0.85	nm
Optical Output Power	$P_O$		10		mW
Beam Divergence	$\Theta$		5		°
Threshold Current	$I_{TH}$		5		mA
Operating Current	$I_F$		20		mA
Operating Voltage	$V_F$	1.6	1.9	2.2	V
Breakdown Voltage	$V_B$		-10		V
Slope Efficiency	$\eta$	0.2	0.4		mW/mA
Dynamic Resistance	$R_D$		25	40	$\Omega$

### Thermal Characteristics

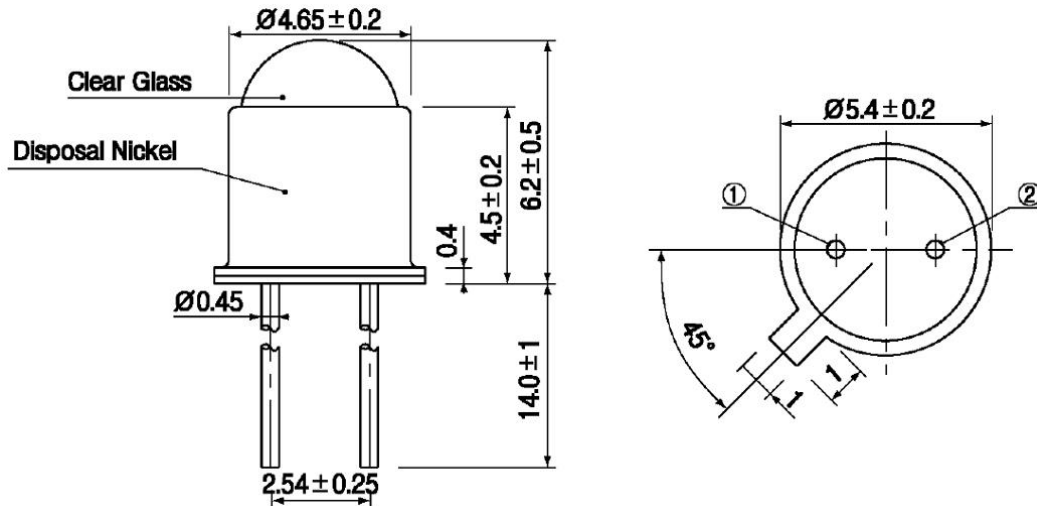
Parameter	Symbol	Min.	Values		Test Conditions	Unit
			Typ.	Max.		
I <sub>TH</sub> Temperature Variation	$\Delta I_{TH}$		2.5		T <sub>c</sub> =0 to 70°C	mA
$\eta$ Temperature Variation	$\Delta\eta / \Delta T$		-0.5		T <sub>c</sub> =0 to 70°C, 20mA	%/°C
$\lambda$ Temperature Variation	$\Delta\lambda / \Delta T$		0.06		T <sub>c</sub> =0 to 70°C, 20mA	nm/°C



## Outline Dimensions

TO46GL

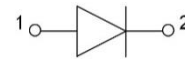
TO-46 with glass lens



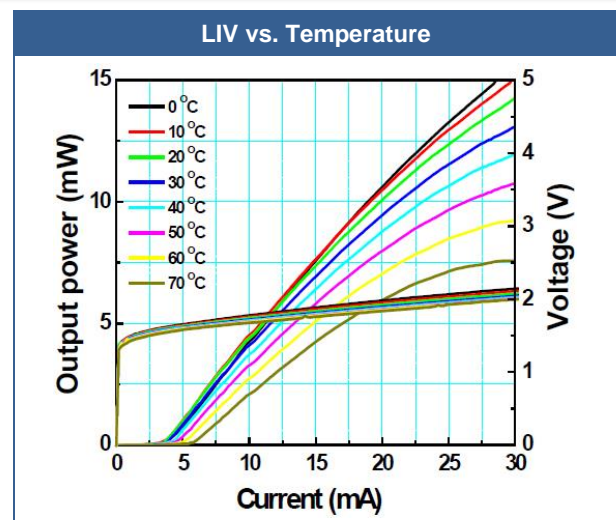
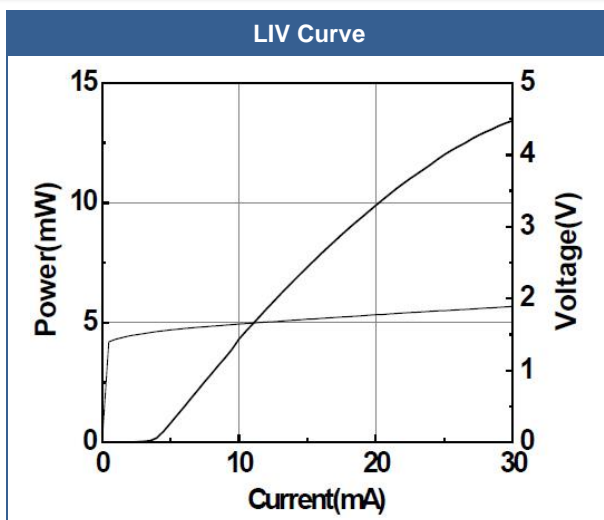
All Dimensions in mm

## Electrical Connection

Lead	Description
Pin 1	LD Anode
Pin 2	LD Cathode

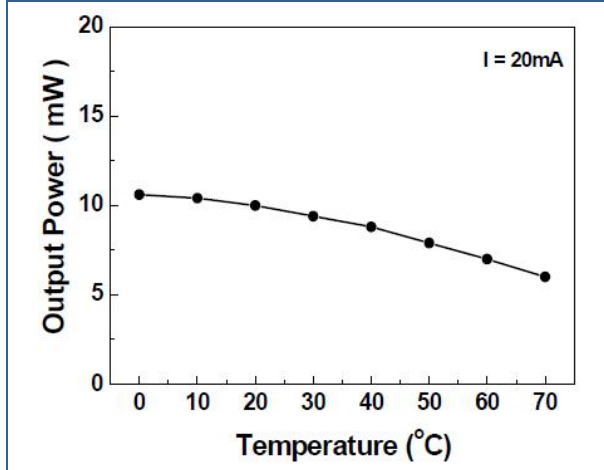


## Typical Performance Curves

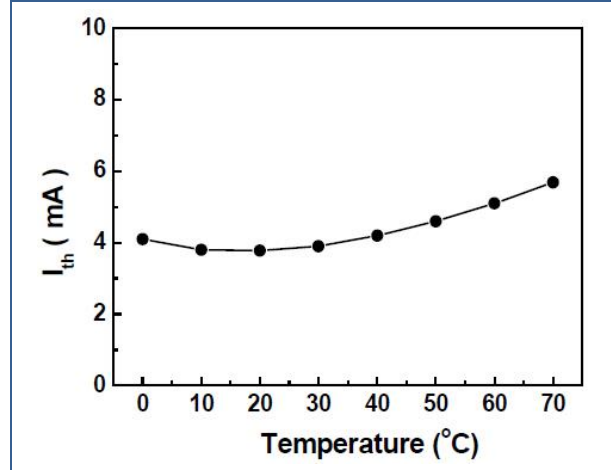




Optical Output Power vs. Temperature



Threshold Current vs. Temperature



## 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.