v 1.3 15.05.2014

VC850M-H-TO46FW-PD

- Infrared VCSEL
- 850 nm, 10 mW
- Multi Mode
- TO-46 Can, with PD
- Flat window cap



Description

VC850M-H-TO46FW-PD 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, containing a monitor photo diode and sealed with a flat window cap. The VCSEL works under low forward current and voltage and with 1 Gbps data rate.

Maximum Ratings

Daramatar	Symbol	Val	Heit	
Parameter		Min.	Max.	Unit
Forward Current	IF		30	mA
Reverse Voltage (@ 10µA)	V _F		5	V
Operating Temperature	TCASE	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 (TCASE=25°C)

Para	meter	Symbol	Min.	Values Typ.	Max.	Unit
Emission Wavelength		λ_{Peak}	840	850	860	nm
Spectral Width		$\Delta \lambda$			0.85	nm
Optical Output Pow	er	P_{O}		8		mW
Threshold Current		I_{TH}		5		mA
Operating Current		I_F		20		mA
Operating Voltage		V_F		2.0	2.3	V
Breakdown Voltage	•	V_B		-10		V
Slope Efficiency		η	0.2	0.4		mW/mA
Dynamic Resistance	е	R_D		20	30	Ω
Monitor Current		I_{PD}	0.1		1	mA
Dark Current		I_D			10	nA
PD Reverse Voltag	е	V_{PDR}	40			V
PD Capacitance	$V_F=0V,Freq=1MHz$	0			50	
	V_F =0V,Freq=1MHz V_F =5V,Freq=1MHz	C_{PD}			20	pF

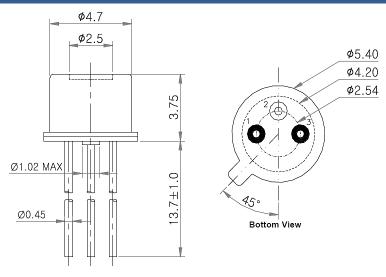
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Thermal Characteristics

Parameter	Symbol	Min.	Values Typ.	Max.	Test Conditions	Unit
I _{TH} Temperature Variation	ΔI_{TH}		2.5		T _C =0 to 70°C	mA
η Temperature Variation	$\Delta \eta / \Delta T$		-0.5		T _C =0 to 70°C,20mA	%/°C
λ Temperature Variation	$\Delta \lambda / \Delta T$		0.06		T _C =0 to 70°C,20mA	nm/°C
I _{PD} Temperature Variation	$\Delta I_{PD}/\Delta T$		0.2		P _O = 8mW	%/°C

Outline Dimensions

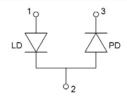
TO46FW TO-46 with flat window



All Dimensions in mm

Electrical Connection

Lead	Description
Pin 1	LD Anode
Pin 2	LD Cathode, PD Anode
Pin 3	PD 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 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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