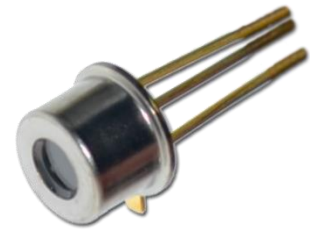




VC850M-Z-TO18FW

- Infrared VCSEL
- 850 nm, 10 mW
- Multimode
- TO-18 Can, Build-in Zener Diode
- Flat window cap



Description

VC850M-Z-TO18FW is a multimode infrared VCSEL emitting at typically 850 nm with rated output power of 10 mW cw, mounted into a standard TO-18 package, containing a Zener diode for protection and sealed with a flat window cap. The VCSEL works under low forward current and voltage and with 150 Mbps data rate.

Maximum Ratings

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

* must be completed within 10 seconds

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

Parameter	Symbol	Min.	Values		Unit
			Typ.	Max.	
Emission Wavelength	λ_P	840	850	860	nm
Spectral Width	$\Delta\lambda$			0.85	nm
Optical Output Power	P_O	9	10		mW
Threshold Current	I_{TH}		8.0	12	mA
Operating Current	I_F				mA
Operating Voltage	V_F	1.4	1.8	2.2	V
Breakdown Voltage	V_B		-10		V
Slope Efficiency	η	0.4	0.9		W/A
Dynamic Resistance	R_D		13	20	Ω
Beam Divergence	θ		22		$^{\circ}$

Thermal Characteristics

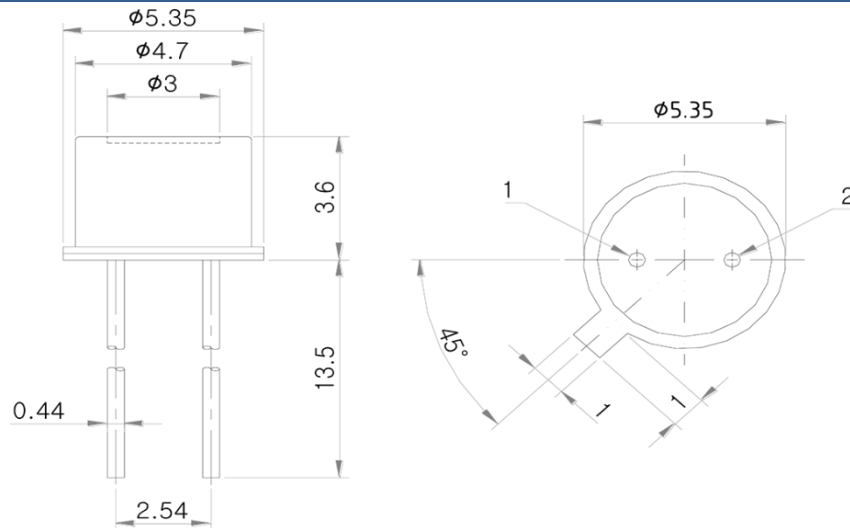
Parameter	Symbol	Test Conditions	Min.	Values		Unit
				Typ.	Max.	
I _{TH} Temperature Variation	ΔI_{TH}	T _C =0 to 70 $^{\circ}$ C		3.0		mA
η Temperature Variation	$\Delta\eta / \Delta T$	T _C =0 to 70 $^{\circ}$ C, 20mA		-0.5		%/ $^{\circ}$ C
λ_P Temperature Variation	$\Delta\lambda / \Delta T$	T _C =0 to 70 $^{\circ}$ C, 20mA		0.06		nm/ $^{\circ}$ C



Outline Dimensions

TO18FW

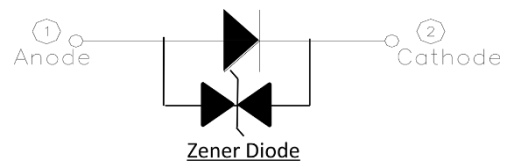
TO-18 with flat window



All Dimensions in mm

Electrical Connection

Lead	Description
Pin 1	VCSEL Anode
Pin 2	VCSEL Cathode, PD Anode





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 3R 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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