



## 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 $\mu$ 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	$\lambda_P$	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	$I_F$		20		mA
Operating Voltage	$V_F$	1.4	1.8	2.2	V
Breakdown Voltage	$V_B$		-10		V
Slope Efficiency	$\eta$	0.4	0.9		W/A
Dynamic Resistance	$R_D$		13	20	$\Omega$
Beam Divergence	$\theta$		22		$^{\circ}$

### Thermal Characteristics

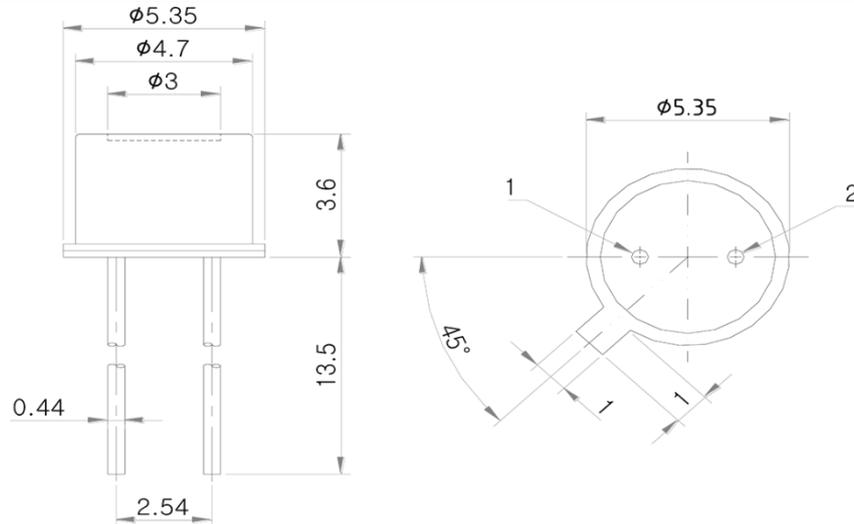
Parameter	Symbol	Test Conditions	Min.	Values		Unit
				Typ.	Max.	
$I_{TH}$ Temperature Variation	$\Delta I_{TH}$	$T_C=0$ to $70^{\circ}$ C		3.0		mA
$\eta$ Temperature Variation	$\Delta\eta / \Delta T$	$T_C=0$ to $70^{\circ}$ C, 20mA		-0.5		%/ $^{\circ}$ C
$\lambda_P$ Temperature Variation	$\Delta\lambda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



## Outline Dimensions

TO18FW

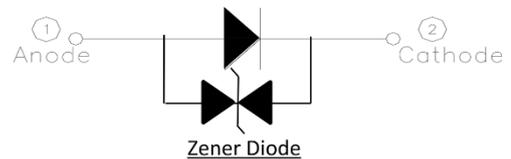
TO-18 with flat window



All Dimensions in mm

## Electrical Connection

Lead	Description
Pin 1	VCSEL Anode
Pin 2	VCSEL Cathode





## Precautions

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### 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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The above specifications are for reference purpose only and subjected to change without prior notice