

VCSEL  
Single-mode  
Polarization-stable

850 nm, 2.0 mW



> Ideal circular  
Gaussian beam

> Stable  
polarization

> Single-mode

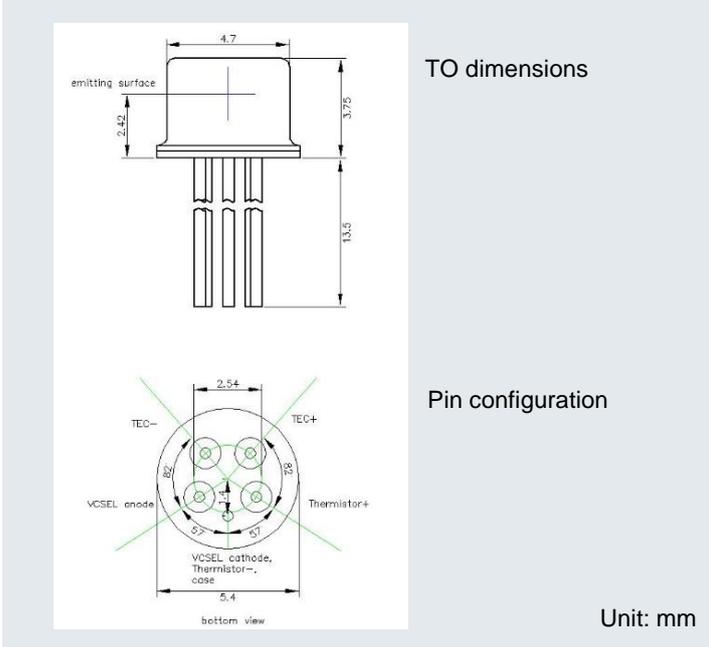
> TO46 with TEC  
NTC and ESD  
protection diode

# Datasheet: 850 nm Single-Mode VCSEL TO46

Electro-optical characteristics						
T = 20°C unless stated otherwise						
Parameter	Symbol	Units	Min	Typ	Max	Test Conditions
Emission wavelength	$\lambda_R$	nm	830		870	$P_{OP} = 2 \text{ mW}$
Threshold current	$I_{TH}$	mA			2	
Output power	$P_{opt}$	mW	2	2.5		$I_{OP} = 6 \text{ mA}$
Laser current	$I_{OP}$	mA			6	$P_{opt} = 2 \text{ mW}$
Laser voltage	$U_{OP}$	V			2.6	$P_{opt} = 2 \text{ mW}$
Slope efficiency	$\eta_s$	W/A	0.5		1	
Differential series resistance	$R_S$	$\Omega$	50		200	$P_{opt} = 2 \text{ mW}$
Wavelength tuning over temperature		nm/K		0.06		
Side mode suppression ratio	SMSR	dB	10			$P_{opt} = 2 \text{ mW}$
Beam divergence	$\Theta$	°	10		20	$P_{opt} = 2 \text{ mW}$ , full width $1/e^2$
Parameter	Symbol	Units	Min	Typ	Max	Test Conditions
ESD damage threshold		V	2000*			human body model
Parameter	Symbol	Units	Min	Typ	Max	Test Conditions
TEC current		mA	-150 (heating)		+300 (cooling)	Proper heatsink required
Parameter	Symbol	Units	Min	Typ	Max	Test Conditions
NTC Thermistor Resistance		k $\Omega$	9.5	10.0	10.5	T = 25°C
NTC Temperature Dependence		k $\Omega$	$10/\exp[3892 \cdot (1/298K - 1/T_{op})]$			

\*for TO package with integrated ESD protection diode

## Dimensions



Type	Packaged chip
Ordering number	ULM850-B2-PL-S46FTT

### Safety information:

- Invisible laser radiation / avoid beam exposure / class 3B laser product
- Electrostatic sensitive devices / observe precautions for handling

For more information visit  
[www.trumpf.com/s/VCSEL-solutions](http://www.trumpf.com/s/VCSEL-solutions)