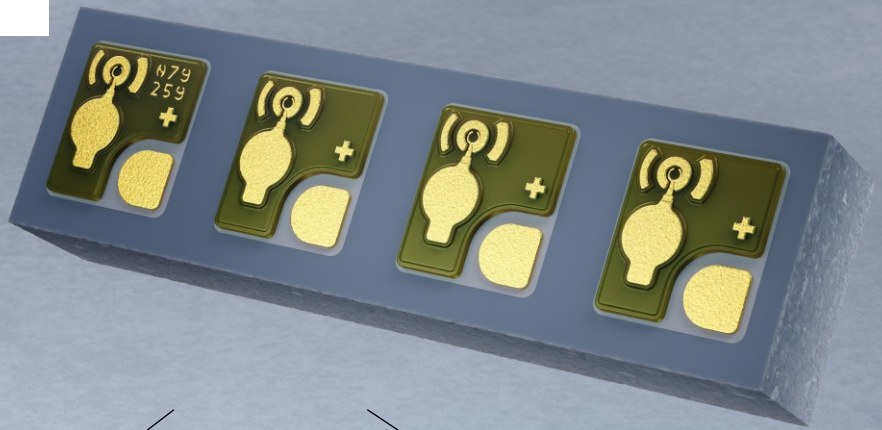


# VCSEL

25 Gbps  
850 nm



Vertical-Cavity  
Surface-Emitting  
Laser

High Speed up to  
25 Gbps

High Reliability

Fully Encapsulated  
Chip

Available in  
1x1, 1x4 and 1x12

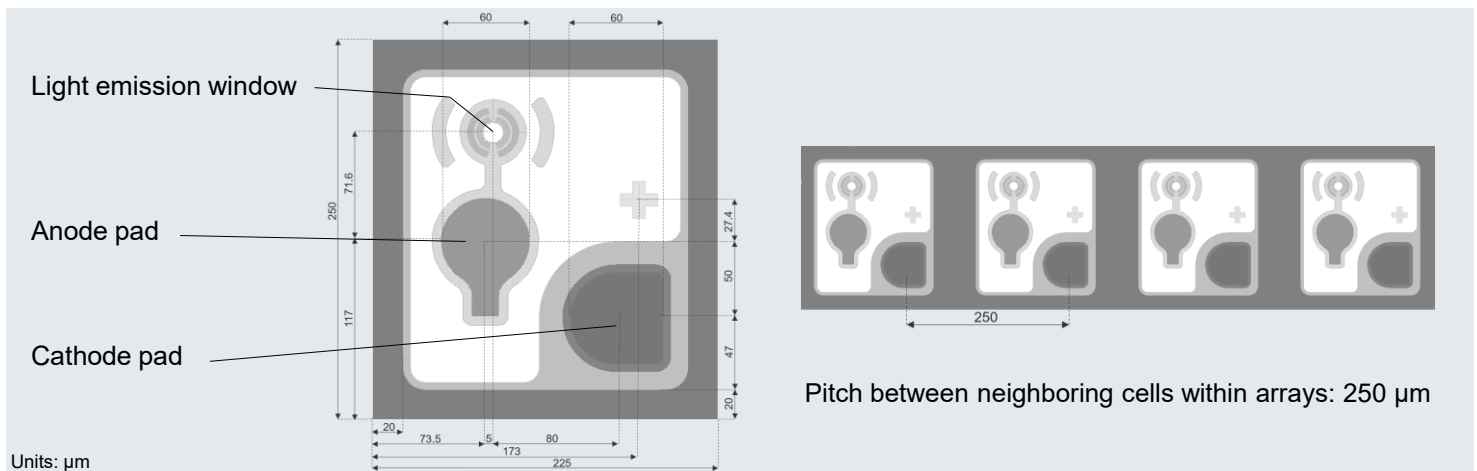
Low Power  
Consumption

# Datasheet: 25 Gbps 850 nm VCSEL

## Electro-Optical Characteristics (If = 7 mA unless otherwise stated)

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Substrate temperature	Ts	0	70	90	°C	
Average operating current	If	—	7	—	mA	
Threshold current	Ith	—	0.9	2	mA	Ts = 0 °C to 90 °C
Slope efficiency	SE	—	0.35	—	W/A	Ts = 70 °C
Slope efficiency temperature variation	$\Delta SE/SE/\Delta T$	—	-0.5	—	%/°C	Ts = 0 °C to 90 °C
Output power	LOP	—	2.1	—	mW	
Differential resistance	Rdiff	—	70	—	$\Omega$	
Forward voltage	Vf	—	2	2.6	V	
Center emission wavelength	$\lambda$	840	851	860	nm	Ts = 0 °C to 90 °C
Center emission wavelength temperature variation	$\Delta\lambda/\Delta T$	—	0.065	—	nm/°C	Ts = 0 °C to 90 °C
Beam divergence (1/e <sup>2</sup> cutoff)	$\theta$	—	21	—	deg	
Spectral width (RMS)	RMS	—	0.3	0.6	nm	
Relative intensity noise	RIN <sub>CW</sub>	—	-137	—	dB/Hz	
Small signal bandwidth	f3dB	12.5	15	—	GHz	

## Dimensions



## Product variants

Type	Single chip	1 x 4 line array	1 x 12 line array
Part number	TVT-25(01)-850-B1	TVT-25(04)-850-B1	TVT-25(12)-850-B1
Ordering number			
Dimensions	250 x 225 x 150 $\mu\text{m}$	250 x 975 x 150 $\mu\text{m}$	250 x 2975 x 150 $\mu\text{m}$

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

### Safety information:

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

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