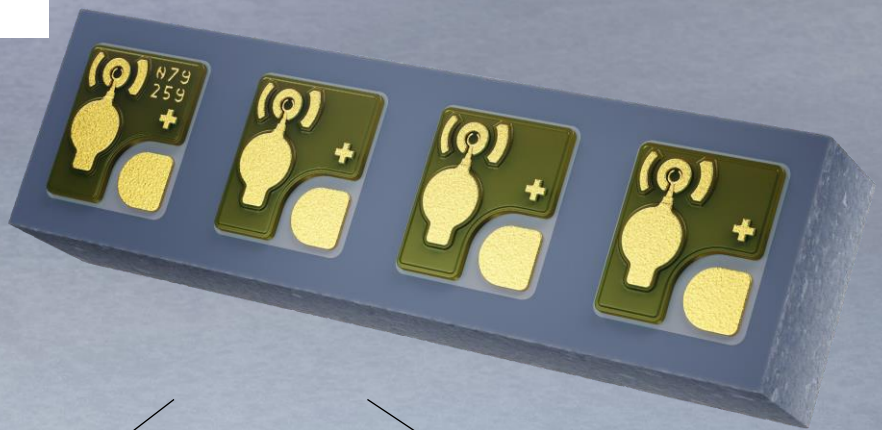


VCSEL

14 Gbps
850 nm



Vertical-Cavity
Surface-Emitting
Laser

High speed up to
14 Gbps

High reliability

Fully
encapsulated chip

Available in
1x1, 1x4, 1x12

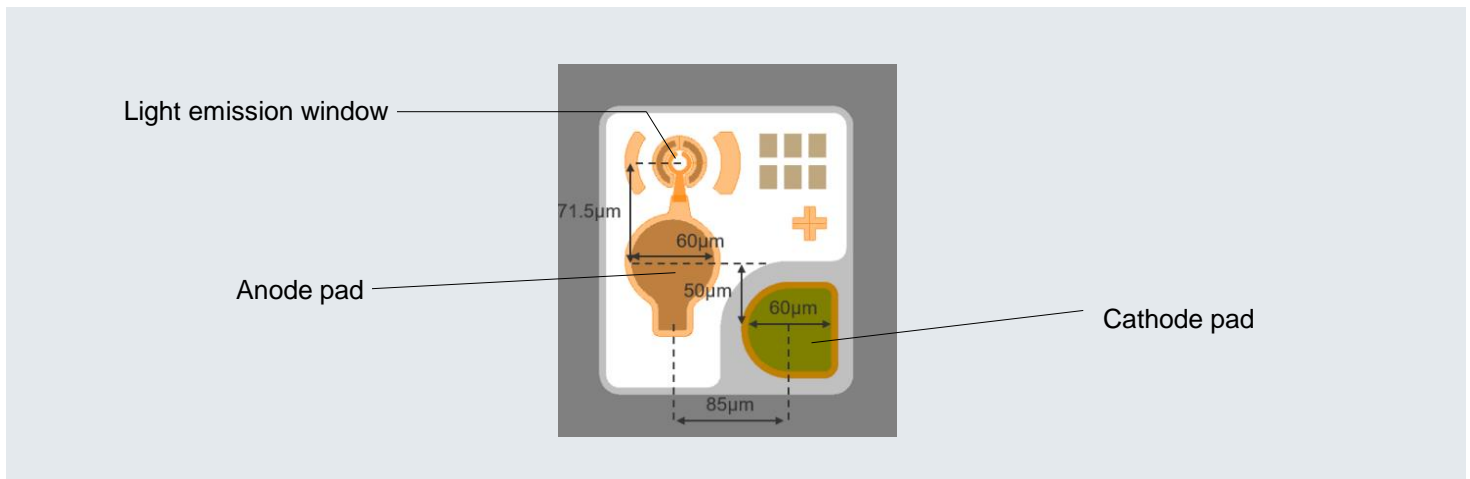
Low power
consumption

Datasheet: 14 Gbps VCSEL

Electro-Optical Characteristics (T = 25°C unless otherwise stated)

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Substrate Temperature	Ts	5	70	75	°C	
Threshold Current	I _{th}	0.5	0.9	1.5	mA	Ts = 70°C
Slope Efficiency	SE	0.4	0.5	0.6	W/A	Ts = 70°C
Slope Efficiency Temperature Variation	$\Delta SE/S$ $E/\Delta T$	—	-0.3	—	%/°C	Ts = 0°C to 85°C
Output Power	LOP	1.9	2.4	2.9	mW	Ts = 70°C, I _f = 6mA
Differential Resistance	R _{diff}	55	75	95	Ω	Ts = 70°C
Average Operating Current	I _f	—	6	—	mA	
Forward Voltage	V _f	1.7	2.1	2.5	V	Ts = 70°C, I _f = 6mA
Center Emission Wavelength	λ	845	851	857	nm	Ts = 70°C, I _f = 6mA
Center Emission Wavelength Temperature Variation	$\Delta\lambda/\Delta T$	—	0.065	—	nm/°C	
Beam divergence	θ	16	21	26	deg	Ts = 70°C, I _f = 6mA, 1/e ² cutoff
Spectral Width (RMS)	RMS	0.2	0.3	0.6	nm	Ts = 70°C, I _f = 6mA
Relative Intensity Noise	RIN	—	-135	-125	dB/Hz	Ts = 70°C, I _f = 6mA
Small Signal Bandwidth	f _{3dB}	11	13	—	GHz	Ts = 70°C, I _f = 6mA

Dimensions of 14G VCSEL:



Product variants

Type	Single chip	1 x 4 line array	1 x 12 line array
Part number	TVT-14(1)-850-B0	TVT-14(04)-850-B0	TVT-14(12)-850-B0
Ordering number	ULM850-14-TT-W0101U	ULM850-14-TT-W0104U	ULM850-14-TT-W0112U
Dimensions	250 x 225 x 150 µm	250 x 975 x 150 µm	235 x 2925 x 150 µm

For more information visit
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

TRUMPF Photonic Components GmbH

Lise-Meitner-Straße 13 · 89081 Ulm · Germany

E-mail: photonic.components@trumpf.com · Homepage: www.trumpf.com/s/VCSEL-solutions

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