

Datasheet

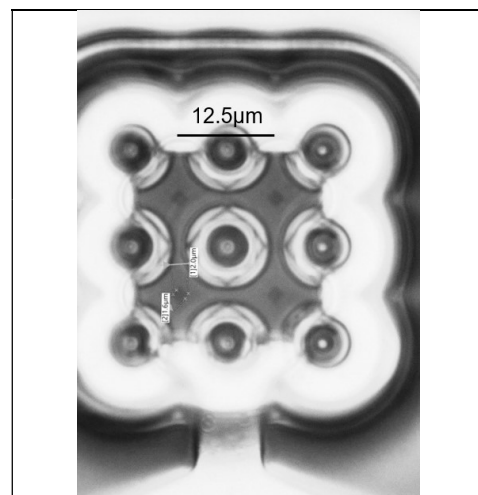
S-940MC46



Vertically Integrated Systems

Up to 40GBaud

Product Code: S-940MC46 1x1 chip



Actual product may vary in appearance.

Product Description

These compact and high modulation rate top-emitting 940nm GaAs-based vertical cavity surface emitting laser (VCSEL) chips for applications in sensing and wireless and fiber optical data communication

Features

- Chip size 250 x 250 µm
- Suitable for wire bonding GSG

Applications

- Sensing
- Optical data communication

Parameter	Typical	Notes
Emission wavelength	940 nm	range 934 – 948 nm
Data rate	Up to 40GBaud	
Threshold current	< 0.5 mA	
Peak output power	4 mW	

All product specifications and descriptions are subject to change without notice.

Please contact our sales department for additional information and to receive a quotation: sales@v-i-systems.com

www.v-i-systems.com

VI Systems GmbH Hardenbergstrasse 7 D-10623 Berlin

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Electro-optical characteristics (T = 0 to 85 °C)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Data rate	BR	PAM-4		50	56	GBaud/s
Optical bandwidth	BW (f_{3dB})	10 mA	13	14	16	GHz
Slope efficiency	η	5 mA		0.4		W/A
Threshold current	I_{th}			0.8	1.2	mA
Differential resistance	R_d	5-10 mA		40		Ω
Beam divergence	θ	FWFM (86%)	16	18	18	°
Output power	P_{max}	10mA		3.0	3.5	mW
Spectral bandwidth (RMS)	$\Delta\lambda_{RMS}$	10mA		0.1	0.2	nm

Absolute Maximum Ratings

Parameter	Symbol	Test Condition	Min	Max	Unit
Peak forward current	I_f			8	mA
Maximum reverse voltage	V_{rv}			5	V
Operating temperature	T_{op}			85	°C
Storage temperature	T_{st}		-40	100	°C
Soldering temperature	T_{sl}	max 260 sec		150	°C

Mechanical Dimensions

Parameter	Type	Min	Typ	Max	Unit
Length 1x1 VCSEL chip			210	250	μm
	All	140	150	160	μm
Height	All		210	250	μm

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February 2021

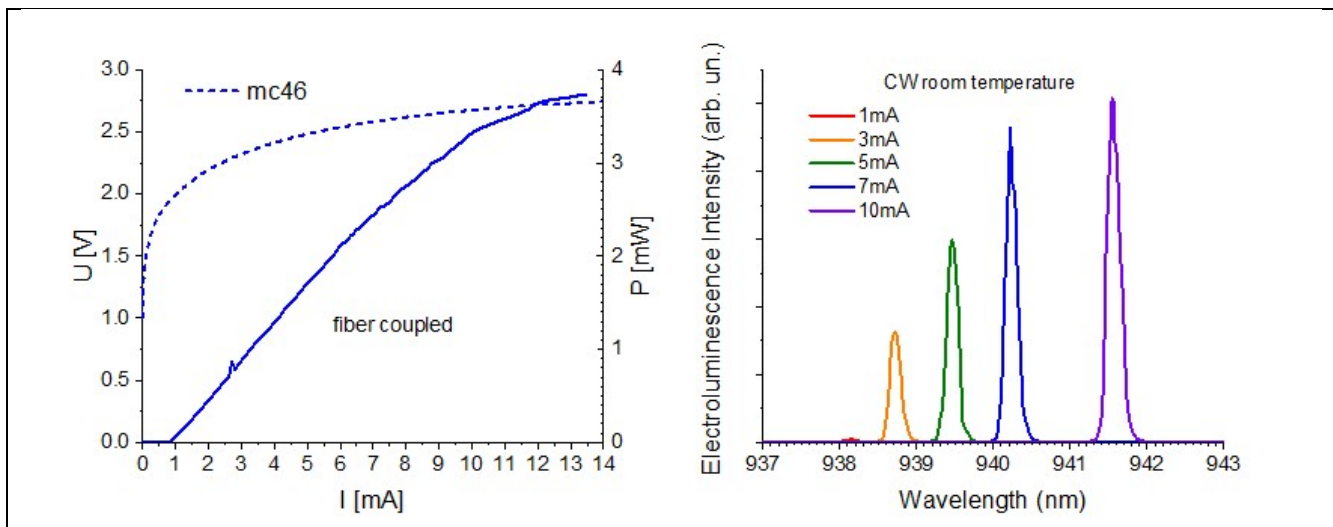
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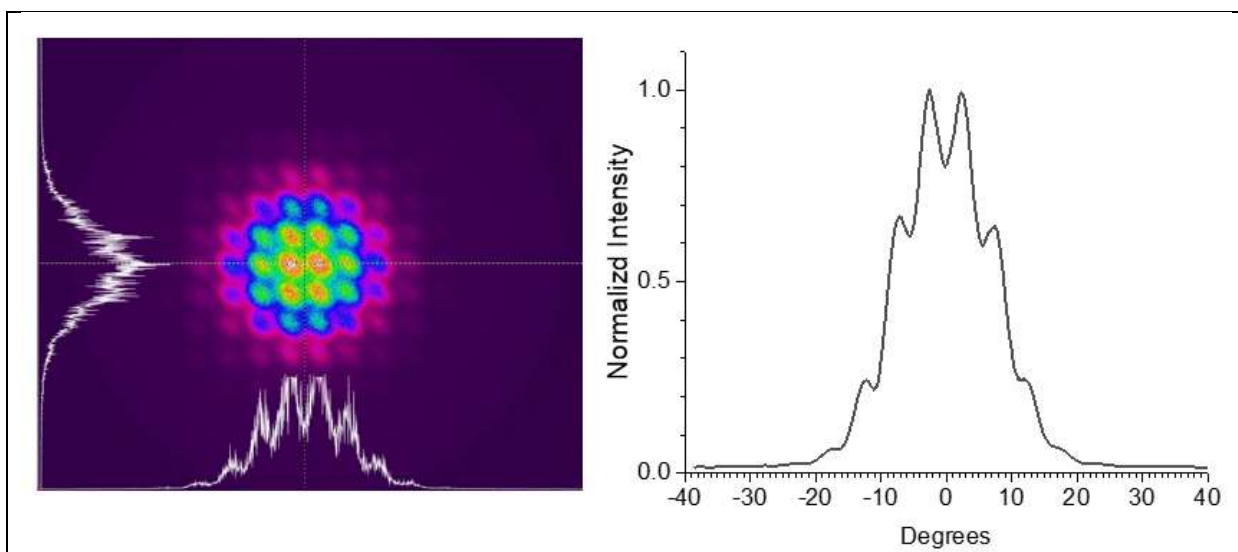


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LIV and Spectra



Far Field



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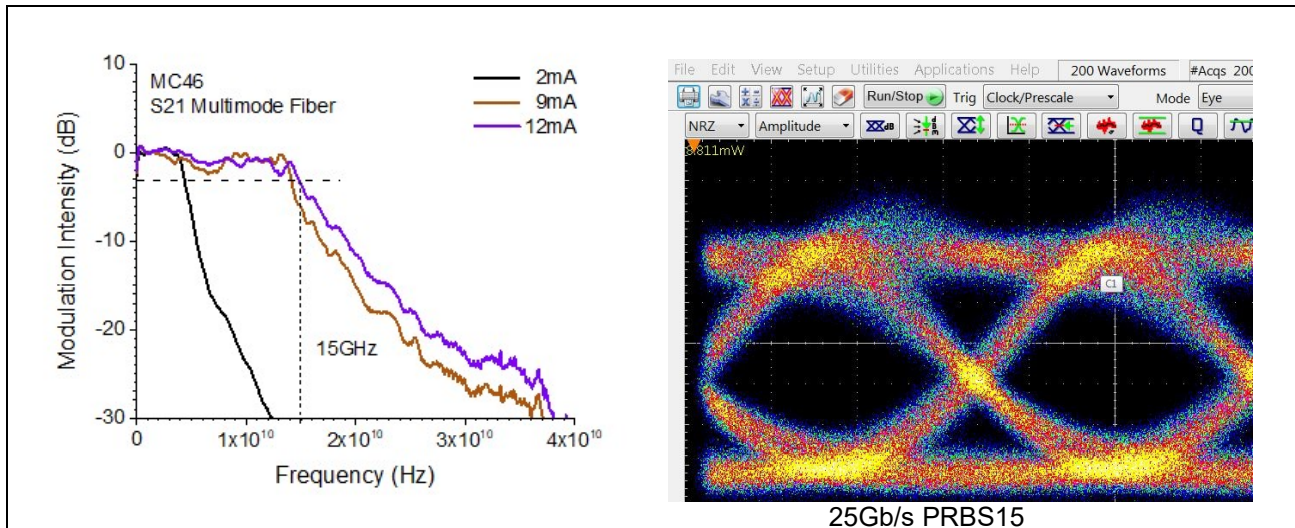
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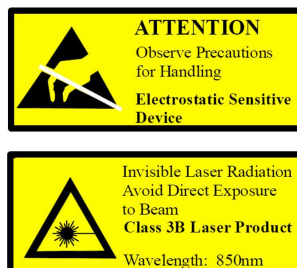
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Modulation Bandwidth



Qualification Notification

The S-940-MC46 chip series has been tested to meet specifications outlined in this data sheet at room temperature. However, it has not undergone qualification testing or characterization in the final version and therefore may not meet the performance specifications over all extremes.



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