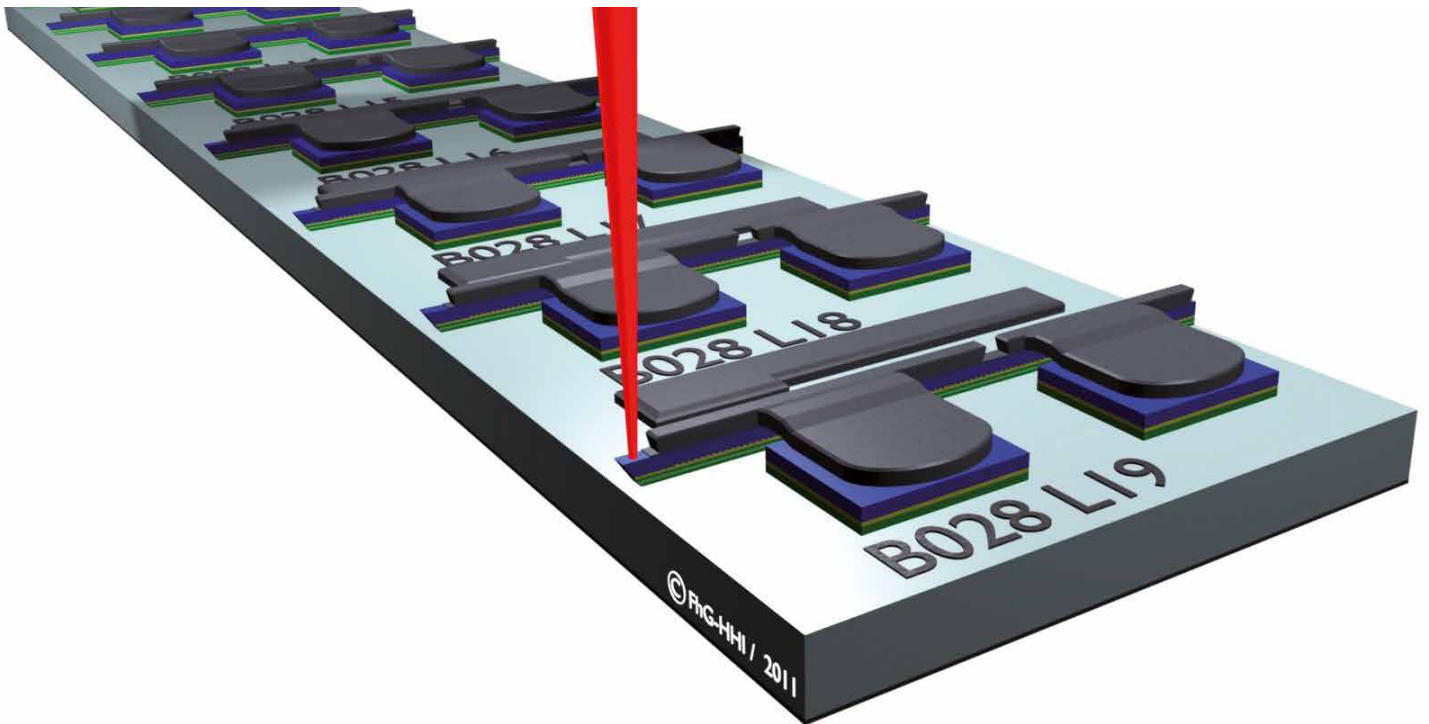


SURFACE-EMITTING DFB LASER ARRAYS



AT A GLANCE

Horizontal cavity surface emitting DFB laser (HCSEL) arrays

Features

- DFB laser like characteristics
- Integrated monitor diode
- Customized wavelengths
- Customized output power
- Customized output angle
- Uncooled 2.5 – 10 Gb/s operation
- „On-wafer“ testable

Applications

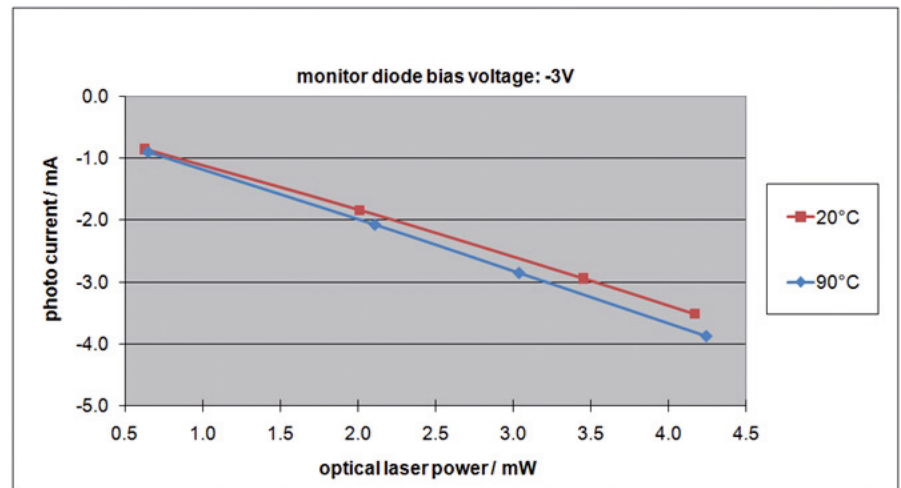
- Datacom/telecom
- Optical sensors

Technical Background

- InGaAsP MQW device
- n-InP substrate

Parameter	Symbol	Min	Typ	Max	Unit	NOTE
Threshold current	I_{th}	2 6	3 7	4 10	mA	$T=20^{\circ}\text{C}$ $T=90^{\circ}\text{C}$
Optical output power	P		3 1.5		mW	$I_{th} + 20\text{mA @ } 20^{\circ}\text{C}$ $I_{th} + 20\text{mA @ } 90^{\circ}\text{C}$
Operating voltage	V_f		1.2		V	$I_{th} + 20\text{mA}$
Slope efficiency	SLE		0.2		mW/mA	$20^{\circ}\text{C @ } 1\text{mW}$
Wavelength	λ	1487	1490	1493	nm	other wavelengths on request
Side-mode suppression	SMSR	30	35		dB	
Modulation bandwidth (-3dB)	BW		9		GHz	$I_{th} + 16\text{mA @ } 20^{\circ}\text{C}$
Beam divergence	$\Theta_{vert} \times \Theta_{hor}$		28 x 25		deg	FWHM
Monitor current	I_{MPD}		1.2		mA	$P = 1\text{mW}$
Chip dimensions	LxW		310 x 250		μm	

Preliminary data sheet of 1490 nm HCSEL



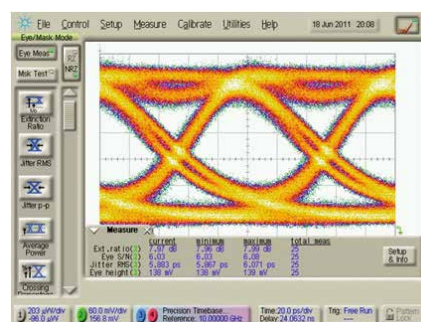
Response of integrated monitor photodiode

Dr. Martin Möhrle
Photonic Components

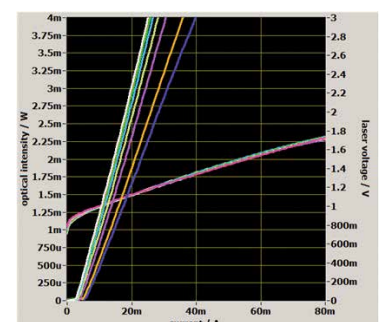
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Eye diagram (PRBS-7) at 10 Gbps, 90°C



P-I-V characteristics from 20°- 90°C
(10K steps)