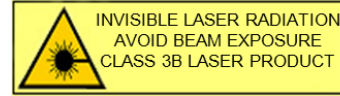


14 Gbps VCSEL 850 nm

1x1/4/12 chip

- Vertical Cavity Surface-Emitting Laser
- Cathode on top side
- Unsealed 85% r.H./85°C certified
- 1x1, 1x4, 1x12 chips



Electro-Optical Characteristics

Chip Temperature = 25°C unless otherwise stated.

PARAMETER	SYMBOL	UNITS	MIN	TYP	MAX	TEST CONDITIONS
Emission wavelength	λ_R	nm	840	850	860	P _{opt} = 1.5 mW
Threshold current	I _{th}	mA		0.60		
Threshold voltage	U _{th}	V	1.40		1.80	
Slope Efficiency	η_s	W/A		0.40		
Variation of η_s over temp.	$\Delta\eta_s/\eta_s/\Delta T$	%/°C		-0.50		T _{chip} = 0..85°C
Laser forward current	I _{op}	mA	3	4.40	6	P _{opt} = 1.5 mW
Differential series resistance	R _{S_25}	Ω		50		P _{opt} = 1.5 mW
3dB modulation bandwidth	V _{3dB}	GHz		11		P _{opt} = 1.5 mW
Rise and fall time	t _R /t _{F 20/80}	ps		30		P _{opt} = 1.5 mW
Relative intensity noise	RIN	dB/Hz			-128	
Wavelength tuning over current		nm/mA		0.30		
Wavelength tuning over temp.		nm/K		0.07		
Thermal resistance	R _{Thermal}	K/mW		2.50		
Beam divergence	θ	°	20		30	1/exp ² , P _{opt} = 1.5mW
Spectral bandwidth	$\Delta\lambda_1$	nm			0.65	P _{opt} = 1.5 mW

NOTICE: Stresses greater than those listed under „Absolute Maximum Ratings“ may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other condition beyond those indicated for extended periods of time may effect device reliability.



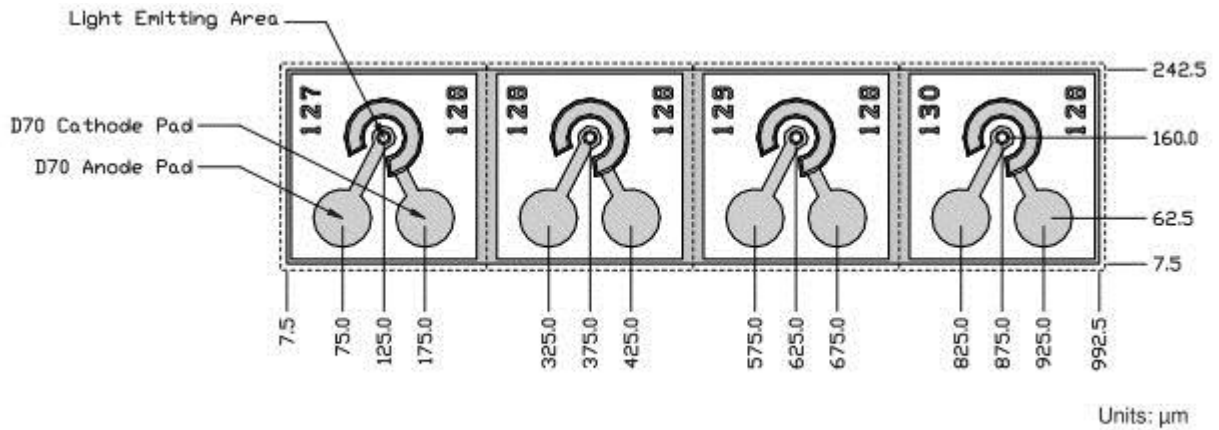
ATTENTION: Electrostatic Sensitive Devices
Observe Precautions for Handling

Absolute Maximum Ratings

Storage temperature	- 40 .. 125°C
Operating temperature	0 .. 85°C
Electrical power dissipation	20 mW
Continuous forward current	12 mA
Reverse voltage	8V
Optical output power	6mW

Single VCSEL chip:

Description	VCSEL chip, single channel
Type:	ULM850-I4-TT-N0101U
Mounting	anode and cathode wire bonding on front side
Dimensions	235 μm x 235 μm
Thickness	150 μm



VCSEL line arrays

Description	1 x 12 VCSEL line array	1 x 4 VCSEL line array
Type:	ULM850-I4-TT-N0112U	ULM850-I4-TT-N0104U
Wiring	common cathodes	common cathodes
Dimensions	235 μm x 2985 μm	235 μm x 985 μm
Thickness:	150 μm	150 μm



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