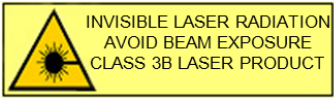


I 4 Gbps VCSEL 850 nm

I x I / 4 / I 2 chip

- Vertical Cavity Surface-Emitting Laser
- Cathode on top side
- Unsealed 85% r.H./85°C certified
- I x I, I x 4, I x I 2 chips



Preliminary

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	I = 6 mA
Threshold current	I_{th}	mA	0.3	0.6	0.8	
Voltage drop	U_{th}	V	1.7	1.85	2.2	I = 6 mA
Slope Efficiency	η_s	W/A	0.32	0.4	0.55	
Variation of η_s over temp.	$\Delta\eta_s/\eta_s/\Delta T$	%/°C		-0.45		Tchip = 0...85°C
Differential series resistance	R_{S_25}	Ω	50	70	80	I = 6 mA
3dB modulation bandwidth	ν_{3dB}	GHz	10			I = 6 mA
Beam divergence	θ	°	20		32	I/exp², I = 6 mA
Spectral bandwidth	$\Delta\lambda_I$	nm	0.2	0.5	0.65	I = 6 mA
Wavelength tuning over current		nm/mA		0.3		
Wavelength tuning over temp.		nm/K		0.07		
Thermal resistance	$R_{thermal}$	K/mW		2.5		

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
Continuous forward current	10 mA
Reverse voltage	8V
Optical output power	6mW
Soldering temperature	10 s @ 330°C

Single VCSEL chip:

Description	VCSEL chip, single channel
Type	ULM850-14-TT-F0101U
Mounting	anode and cathode wire bonding on front side
Bondpad diameter	70 μm
Length	$235 \pm 5 \mu\text{m}$
Width	$235 \pm 5 \mu\text{m}$
Thickness	$150 \pm 15 \mu\text{m}$

VCSEL line arrays

Description	1 x 4 VCSEL line array	1 x 12 VCSEL line array
Type	ULM850-14-TT-F0104U	ULM850-14-TT-F0112U
Wiring	electrically separated channels	electrically separated channels
Length	$985 \pm 5 \mu\text{m}$	$2985 \pm 5 \mu\text{m}$
Width	$235 \pm 5 \mu\text{m}$	$235 \pm 5 \mu\text{m}$
Thickness	$150 \pm 15 \mu\text{m}$	$150 \pm 15 \mu\text{m}$

