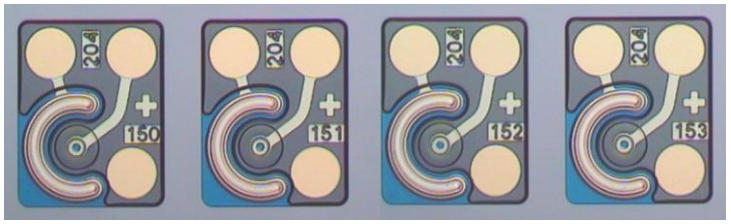
850nm 10Gb/s Multimode Dual Top Contact VCSEL Array

(Preliminary)



Features:

- 850nm multimode emission
- Low threshold and operation current
- High reliability
- Low electrical parasitics
- Data rates from DC to 10 Gb/s
- Flip chip bondable dual top contact configuration
- Common cathode electrodes
- Available as 4 and 12 channel array chip
- RoHS compliant

Applications:

- Parallel fiber optical communication links
- Smart cables, HDMI

Electro – Optical Characteristics*

Parameter	Symbol	Conditions	Ratings			Unit
			Min	Typ	Max	
Threshold current	I_{th}			0.8	1.2	mA
Slope efficiency	η	$I=I_{th}+1mA$	0.3	0.5	0.7	mW/mA
Optical output power	P_{out}	I_{op} = 6.0mA		2.5		mW
Operating voltage	U_{op}	I_{op} = 6.0mA		2.0		V
Differential resistance	R_d	I_{op} = 6.0mA		60	85	Ω
Emission wavelength	λ	I_{op} = 6.0mA, T=-10°C - 85°C	840	850	860	nm
Spectral width, RMS	$\Delta\lambda$	I_{op} = 6.0mA			0.65	nm
Beam divergence	Θ	I_{op} = 6.0mA, Full width $1/e^2$		26	32	°
Capacitance	C	I_{op} = 6.0mA		0.2	0.3	pF
Modulation bandwidth	f_{3dB}	I_{op} = 6.0mA	9			GHz
Rise/fall time	t_r	I_{op} = 6.0mA, ER=5dB, 20% - 80%		30	35	ps
	t_f			40	45	ps
Relative intensity noise	$RIN_{12(OMA)}$	I_{op} = 6.0mA, ER=5dB, 7.73GHz BW			-128	dB/Hz
Threshold uniformity	ΔI_{th}				0.2	mA
Slope efficiency uniformity	$\Delta\eta$				0.05	mW/mA

Thermal Characteristics

Parameter	Symbol	Ratings			Unit
		Min	Typ	Max	
Wavelength tuning coefficient	$\delta\lambda/\delta T$		0.06		nm/K
Threshold current variation -10°C - 85°C	$\Delta I_{th,T}$			0.8	mA
Slope efficiency variation -10°C - 85°C	$\Delta\eta_T$		-0.3		%/K
Thermal impedance	Z_{th}		2.5		K/mW

*T=25°C unless otherwise noted

Absolute Maximum Ratings

Parameter	Rating	Unit
Optical output power	8	mW
Peak forward current	12	mA
VCSEL reverse voltage	5	V
Operating temperature	-10 to +85	°C
Storage temperature	-40 to +100	°C
Mounting temperature (max. 1h)	165	°C

Chip Dimensions

Parameter	Min	Typ	Max	Unit
Die length, APA4301040001	960	980	1000	µm
Die length, APA4301120001	2960	2980	3000	µm
Die width	260	280	300	µm
Die height	135	150	165	µm

RoHS Compliance

Oclaro is fully committed to environment protection and sustainable development and has set in place a comprehensive program for removing polluting and hazardous substances from all of its products. The relevant evidence of RoHS compliance is held as part of our controlled documentation for each of our compliant products. RoHS compliance parts are available to order, please refer to the ordering information section for further details.

Ordering Information:

Product Code	Data Rate	Description
APA4301040001	10Gb/s	850nm 10G MM 1x4 Dual Top Contact VCSEL array
APA4301120001	10Gb/s	850nm 10G MM 1x12 Dual Top Contact VCSEL array

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Safety Labels