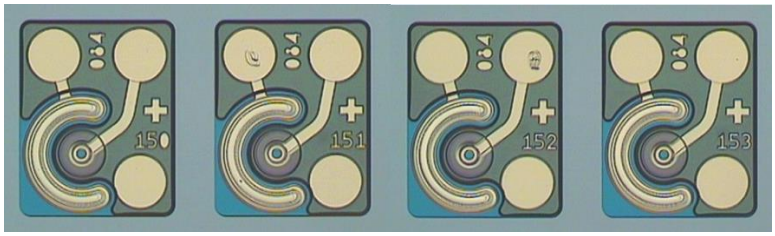
Data Sheet

850nm 14Gb/s Multimode Dual Top Contact VCSEL Array

APA4301040003



Features:

- 850nm multimode emission
- Low spectral width
- Low threshold and operation current
- High reliability
- High humidity robustness compliant with GR468
- Low electrical parasitics
- Data rates from DC to 14 Gb/s
- Dual top contact 1x4 array with common cathode electrodes
- RoHS compliant

Applications

- Parallel fiber optical communication links at 14Gb/s
- Smart cables, HDMI

Electro-Optical Characteristics

T=25°C unless otherwise noted

Parameter	Symbol	Conditions	Ratings			Unit
			Min	Typ	Max	
Threshold current	I_{th}			0.8	1.0	mA
Slope efficiency	η	I=4mA	0.34	0.43	0.52	mW/mA
Optical output power	P_{out}	I_{op}=5mA	1.4	1.8	2.2	mW
Operating voltage	U_{op}	I_{op}=5mA		1.9	2.1	V
Differential resistance	R_d	I_{op}=5mA	45	60	75	Ω
Emission wavelength	λ	I_{op}=5mA, T=-10°C - 85°C	840	850	860	nm
Spectral width, RMS	$\Delta\lambda$	I_{op}=5mA, T=-10°C - 85°C			0.4	nm
Modulation bandwidth	f_{3dB}	I_{op}=5mA	10			GHz
Capacitance	C	I_{op}=5mA		0.2	0.3	pF
Beam divergence	Θ	I_{op}=5mA, Full width 1/e2		24	30	°
Relative Intensity Noise	RIN(OMA)	Iop = 5mA, ER=5dB, 7.7GHz bandwidth			-128	dB/Hz
Threshold uniformity	ΔI_{th}	Range across 1x4 and 1x12 array chips			0.15	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
Slope efficiency variation 25°C - 85°C	$\Delta\eta_T$	-0.5	-0.3	-0.1	%/K
Thermal impedance	Z_{th}		3.0		K/mW

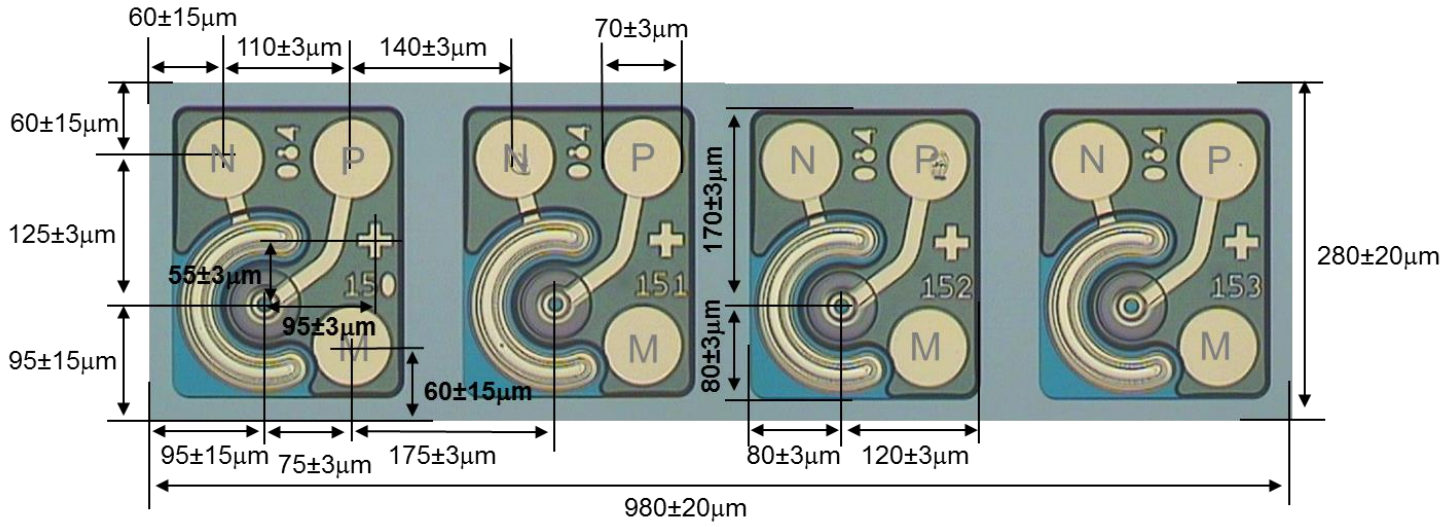
Absolute Maximum Ratings

Parameter	Rating	Unit
Optical output power	8	mW
Peak forward current (max. 10sec)	12	mA
VCSEL reverse voltage	5	V
Operating temperature	-10 to +85	°C
Storage temperature	-40 to +100	°C
Mounting temperature (max. 10sec)	260	°C

Chip Outer Dimensions

Parameter	Min	Typ	Max	Unit
Die length	960	980	1000	µm
Die width	260	280	300	µm
Die height	135	150	165	µm

Chip Layout



N: n-contact (common cathode)
P: p-contact (anode)
M: mechanical pad

RoHS Compliance

II-VI Laser Enterprise 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	Shipment Packaging
APA4301040003	14Gb/s	850nm 14G MM 1x4 DTC VCSEL array	Diced wafer on metal lead frame [1]

[1] Full diced 3'' wafer on UV tape on metal lead frame Ø 230mm, electronic wafermap provided (standard high volume)

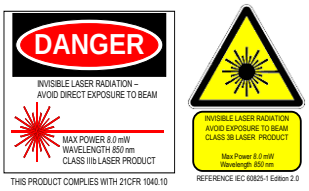
Contact Information

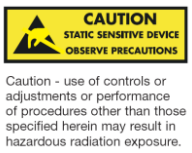
www.laserenterprise.com

Important Notice

Performance figures, data and any illustrative material provided in this data sheet are typical and must be specifically confirmed in writing by II-VI Laser Enterprise before they become applicable to any particular order or contract. In accordance with the II-VI Laser Enterprise policy of continuous improvement specifications may change without notice. Further details are available from any II-VI Laser Enterprise sales representative.

Safety Labels





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