


# 850nm 20Gb/s Multimode VCSEL Chip Array

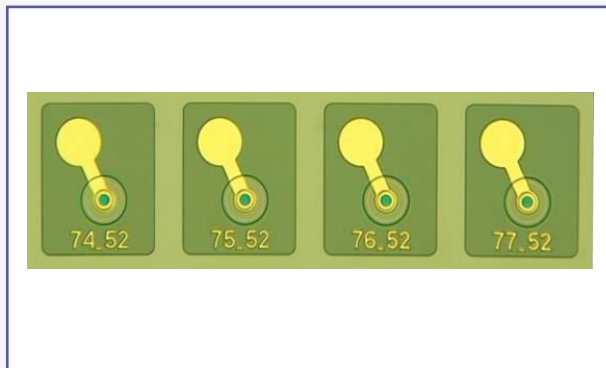
(Preliminary)

## Features:

- 850nm multimode emission
- Low threshold and operation current
- Low electrical parasitics
- Data rates up to 20 Gb/s
- Backside common cathode and topside anode configuration
- Available as 4 and 12 channel array chip
- RoHS compliant 

## Applications:

- Parallel Fiber optical communication links
- Smart cables, consumer applications



## Electro – Optical Characteristics\*

Parameter	Symbol	Conditions	Ratings			Unit
			Min	Typ	Max	
Threshold current	$I_{th}$				1.0	mA
Operating current	$I_{op}$			6.0		mA
Slope efficiency	$\eta$	$I=I_{th}+1\text{mA}$	0.3	0.5	0.8	mW/mA
Optical output power	$P_{out}$	$I=I_{op}$		2.5		mW
Operating voltage	$U_{op}$	$I=I_{op}$		2.0		V
Differential resistance	$R_d$	$I=I_{op}$		70		$\Omega$
Emission wavelength	$\lambda$	$I=I_{op}, T=0^{\circ}\text{C} - 85^{\circ}\text{C}$	830	850	860	nm
Capacitance	$C$			0.2		pF
Modulation bandwidth	$f_{3dB}$	$I=I_{op}$	14	16		GHz
Threshold uniformity	$\Delta I_{th}$				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
Slope efficiency variation $0^{\circ}\text{C} - 85^{\circ}\text{C}$	$\Delta \eta_T$		-0.4		%/K
Thermal impedance	$Z_{th}$		2.5		K/mW

\* $T=25^{\circ}\text{C}$  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	0 to +85	$^{\circ}\text{C}$
Storage temperature	-40 to +100	$^{\circ}\text{C}$
Mounting temperature (max. 1h)	165	$^{\circ}\text{C}$

## Chip Dimensions

Parameter	Min	Typ	Max	Unit
Die length, APA7601040000	960	980	1000	µm
Die length, APA7601120000	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
APA7601040000	20Gb/s	850nm 20G MM 1x4 VCSEL array
APA7601120000	20Gb/s	850nm 20G MM 1x12 VCSEL array

**Contact Information**

[www.oclaro.com](http://www.oclaro.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 Oclaro before they become applicable to any particular order or contract. In accordance with the Oclaro policy of continuous improvement specifications may change without notice. Further details are available from any Oclaro sales representative.



Caution - use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Oclaro APA7601xy0000 V1  
 ©Oclaro 2012. Oclaro the Oclaro, Inc. logo, and all other Oclaro, Inc product names and slogans are trademarks or registered trademarks of Oclaro, Inc. in the U.S.A. or other countries. Products described in this datasheet may be covered by one or more patents in the U.S.A. and abroad. Information in this datasheet is subject to change without notice.