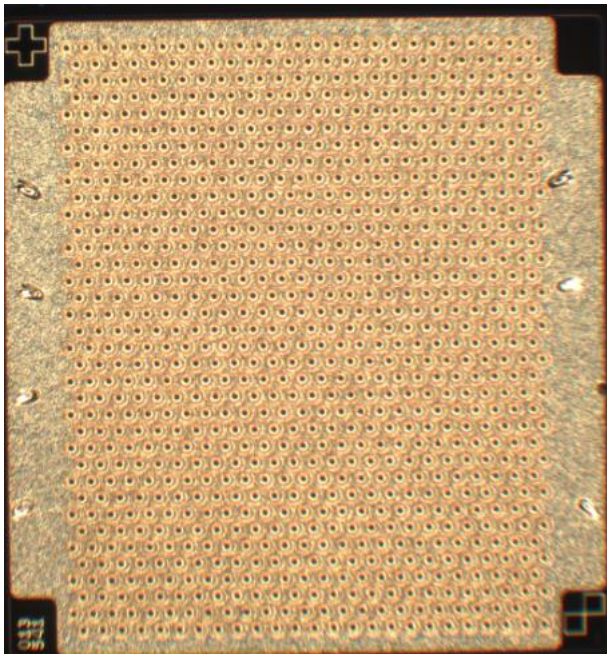


## 940nm Multi Mode High Power VCSEL Array

APS6401010001



II-VI Laser Enterprise's multimode high power VCSEL arrays are designed to meet stringent specifications for a broad range of optical 3D sensing applications. This product offers output powers of typically 3.5W with high efficiency and a rotation symmetrical beam profile. It is optimized for high volume consumer applications.

### Features:

- Optical output power of 3.5W (QCW) at 940nm
- High efficiency and reliability
- Multi transverse mode emission
- Doughnut shaped, symmetrical farfield
- Non-hermetic operation
- Surface mountable

### Applications

- High volume time-of-flight (ToF) 3D sensing
- Illumination
- Industrial

## Electro-Optical Characteristics

All Electro-Optical parameters are specified at 25°C, pulsed (pulse length 2ms, 10% DC), unless otherwise noted.

Parameter	Symbol	Conditions	Ratings			Unit
			Min	Typ	Max	
Threshold Current	$I_{th}$			1		A
Operating Current	$I_{op}$	$P_{op} = 4W$		6	7.5	A
Power at 65°C	$P_{op,65°C}$	$I = I_{op}$		4		W
Operating Voltage	$U_{op}$	$I = I_{op}$		2	2.3	V
Differential Efficiency <sup>1</sup>	$\eta_{diff}$	$I = I_{op}$		0.95		W/A
Power Conversion Efficiency	$PCE_{op}$	$I = I_{op}$	30	38		%
Center Wavelength	$\lambda_{center}$	$I = I_{op}$	930	940	950	nm
Beam Divergence <sup>2</sup>	$\theta_{FW1/e2}$	$I = I_{op}$		24	28	°

<sup>1</sup> Defined as slope around operating current

<sup>2</sup> FW1/e2 = full width 1/e2

## Absolute Maximum Ratings

Parameter	Ratings	Unit	Condition
Continuous Operating Current	8	A	max 10 seconds
Continuous Reverse Voltage	5	V	max 10 seconds
PCB Solder or Reflow Temperature	260	°C	max 10 seconds

### Environmental Exposure Ratings

Parameter	Min	Max	Unit	Condition
<b>Operating Environment</b>				
Operating Temperature	0	65	°C	
Operating Humidity	0	80	%rH	non-condensing
<b>Storage and Transport Environment</b>				
Storage & Transport Temperature	-40	100	°C	
Storage & Transport Humidity	0	80	%rH	non-condensing

### Packaging and Supply

- Sawn wafer on adhesive tape
- Wafer map files describing positions of good dice

### Chip Dimensions

Parameter	Min	Typ	Max	Unit
Chip width		1334		µm
Chip length		1078		µm
Chip thickness	90	100	110	µm

### Typical characteristics

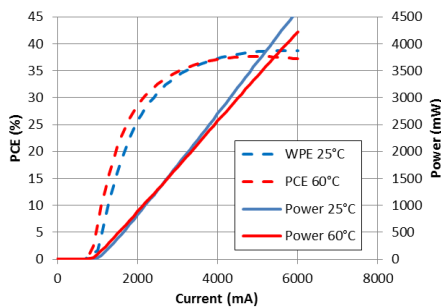


Figure 1: Power and PCE of VCSEL array measured on AlN surmount in pulsed mode at 10% Duty Cycle, 2ms pulse

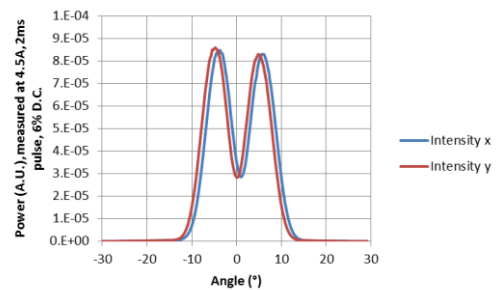


Figure 2: Far Field emission profile at 4.5A, 2ms, 6% Duty Cycle

**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	Description
APS6401010001	940nm Multi Mode High Power VCSEL Array

**Contact Information**

[www.laserenterprise.com](http://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.



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

©II-VI Laser Enterprise 2012. II-VI Laser Enterprise the II-VI Laser Enterprise, Inc. logo, and all other II-VI Laser Enterprise, Inc product names and slogans are trademarks or registered trademarks of II-VI Laser Enterprise, 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..