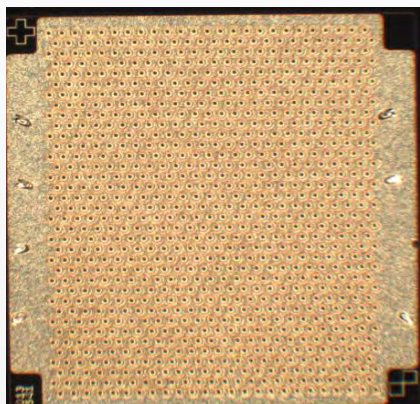


II-VI



APS6401010001

## 940nm Multi Mode High Power VCSEL Array

II-VI'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

# 940nm Multi Mode High Power VCSEL Array

## 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	$P_{op,65^{\circ}C}$	$I = I_{op}$		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	Rating	Unit	Condition
Continuous Operating Current	0.8	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	Typ	Max	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

# 940nm Multi Mode High Power VCSEL Array

## 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

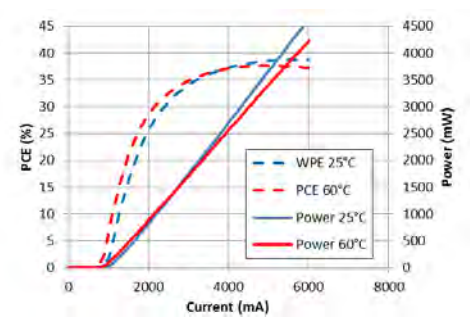


Figure 1: Power and PCE of VCSEL array measured on AlN surmount in pulsed mode at 10% Duty Cycle, 2ms pulse

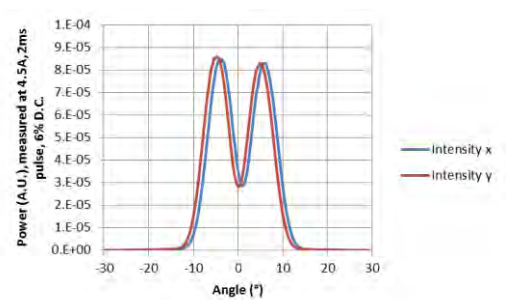


Figure 2: Far Field emission profile at 4.5A, 2ms, 6% Duty Cycle

# 940nm Multi Mode High Power VCSEL Array

## RoHS Compliance

II-VI 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

## 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 before they become applicable to any particular order or contract. In accordance with the II-VI policy of continuous improvement specifications may change without notice. Further details are available from any II-VI sales representative.

## Safety Labels

