

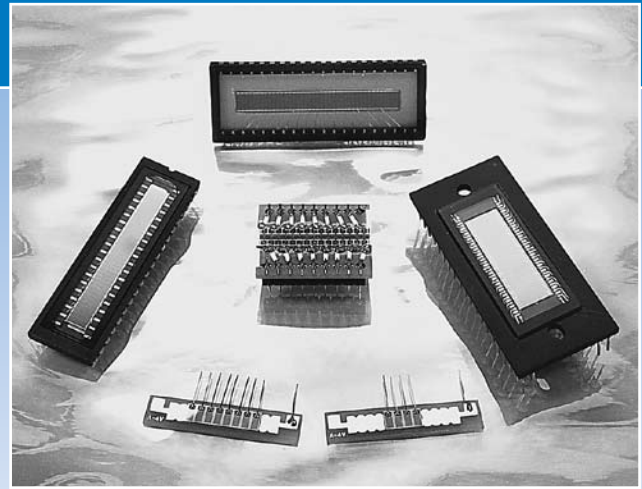
Multi-Element Array Series

Planar Diffused Silicon Photodiodes

Multichannel array photodetectors consist of a number of single element photodiodes laid adjacent to each other forming a one-dimensional sensing area on a common cathode substrate. They can perform simultaneous measurements of a moving beam or beams of many wavelengths. They feature low electrical cross talk and super high uniformity between adjacent elements allowing very high precision measurements. Arrays offer a low cost alternative when a large number of detectors are required. The detectors are optimized for either UV, visible or near IR range.

They can be either operated in photoconductive mode (reverse biased) to decrease the response time, or in photovoltaic mode (unbiased) for low drift applications. A2V-16 can be coupled to any scintillator crystal for measuring high-energy photons in the X-ray and g-ray region of electromagnetic spectrum. In addition, they have been mechanically designed, so that several of them can be mounted end to end to each other in applications where more than 16 elements are needed.

Figure 11 in the "Photodiode Characteristics" section of this catalog provides a detailed circuit example for the arrays.



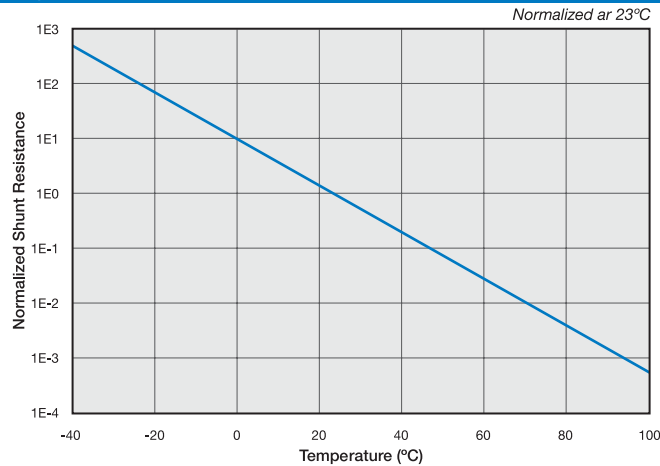
APPLICATIONS

- Level Meters
- Optical Spectroscopy
- Medical Equipment
- High Speed Photometry
- Computed Tomography Scanners
- Position Sensors

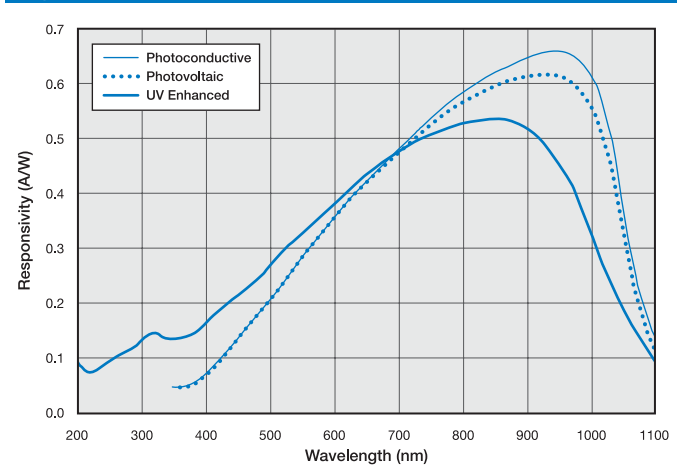
FEATURES

- Common Substrate Array
- Ultra Low Cross Talk
- UV Enhanced (A5V-35UV)
- Low Dark Current
- Low Capacitance
- Solderable

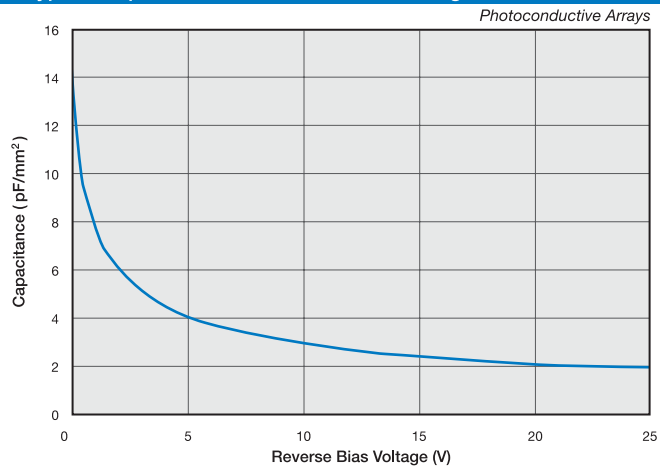
Typical Shunt Resistance vs. Temperature



Typical Spectral Response



Typical Capacitance vs. Reverse Bias Voltage



Multi-Element Array Series

Typical Electro-Optical Specifications at T_A=23°C

Model Number	Number of Elements	Active Area Per Element		Pitch (mm)	Responsivity (A/W)	Shunt Resistance (MΩ)	Dark Current (pF)	Capacitance (pF)		NEP (W / √Hz)		Temp. Range (°C)		Package Style ¶		
		Area (mm ²)	Dimensions (mm)		970nm	-10 mV	-10 V	0 V	-10 V	0 V 970nm	-10 V 970nm	Operating	Storage			
					typ.	typ.	typ.	typ.		min.	typ.					
Photoconductive Arrays																
A5C-35	35	3.9	4.39 x 0.89	0.99	0.65	---	0.05	---	12	---	6.2 e-15	-30 ~ +85	-40 ~ +125	54 / 40 pin DIP		
A5C-38	38													54 / 40 pin DIP		
Photovoltaic Arrays																
A2V-16	16	1.92	1.57 x 1.22	1.59	0.60	1000	---	170	---	4.8 e-15	---			-30 ~ +85	-40 ~ +125	53 / PCB
A5V-35	35	3.9	4.39 x 0.89	0.99	0.60	1000	---	340	---	4.8 e-15	---					54 / 40 pin DIP
A5V-38	38															54 / 40 pin DIP
A2V-76	76	1.8	6.45 x 0.28	0.31	0.50	500	---	160	---	8.2 e-15	---	52 / Ceramic				
UV Enhanced Array (All Specifications @ λ = 254 nm, V_{BIAS} = -10V)																
A5V-35UV	35	3.9	4.39 x 0.89	0.99	0.06**	500	---	340	---	6.8 e-14	---	54 / 40 pin DIP				

Model Number	Number of Elements	Element Size	Active Area per Element	Pitch	Responsivity (A/W)	Open Circuit Voltage/Element (mV)	Shunt Resistance (MΩ)	Capacitance (pF)
		mm (inches)	(mm ²) (inches ²)	mm (inches)	970nm	10 mW/cm ² 2850 °K	-10 mV	0 V
					typ.	typ.	typ.	typ.

Monolithic Solderable Chip Arrays (Typical Electro-Optical Specifications at T_A=23°C)

A4V-2	2	1.52 x 2.79 (0.06 x 0.110)	4.24 (0.007)	1.90 (0.075)	0.6	500	1000	500
A4V-4	4							
A4V-6	6							
A4V-8	8							
A4V-10	10							
A4V-12	12							

The chips are equipped with 2" long bare tinned leads soldered to all anodes and the common cathode.

'V' suffix indicates the device is optimized for 'photovoltaic' operation.

'C' suffix indicates the device is optimized for 'photoconductive' operation.

¶ For mechanical drawings please refer to pages 58 thru 69.

* Non-Condensing temperature and Storage Range, Non-Condensing Environment.

** λ = 254 nm

