



## Multi-Element Arrays Series

### Planar Diffused Silicon Photodiodes

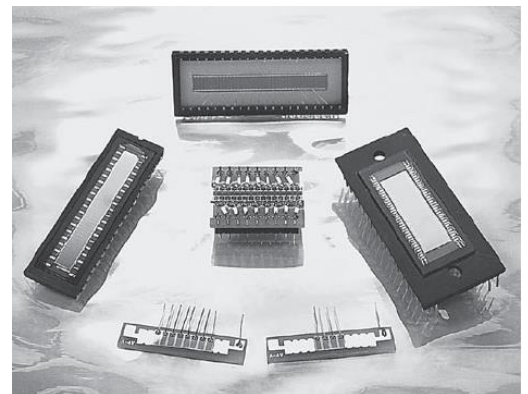
#### Features

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

#### Applications

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

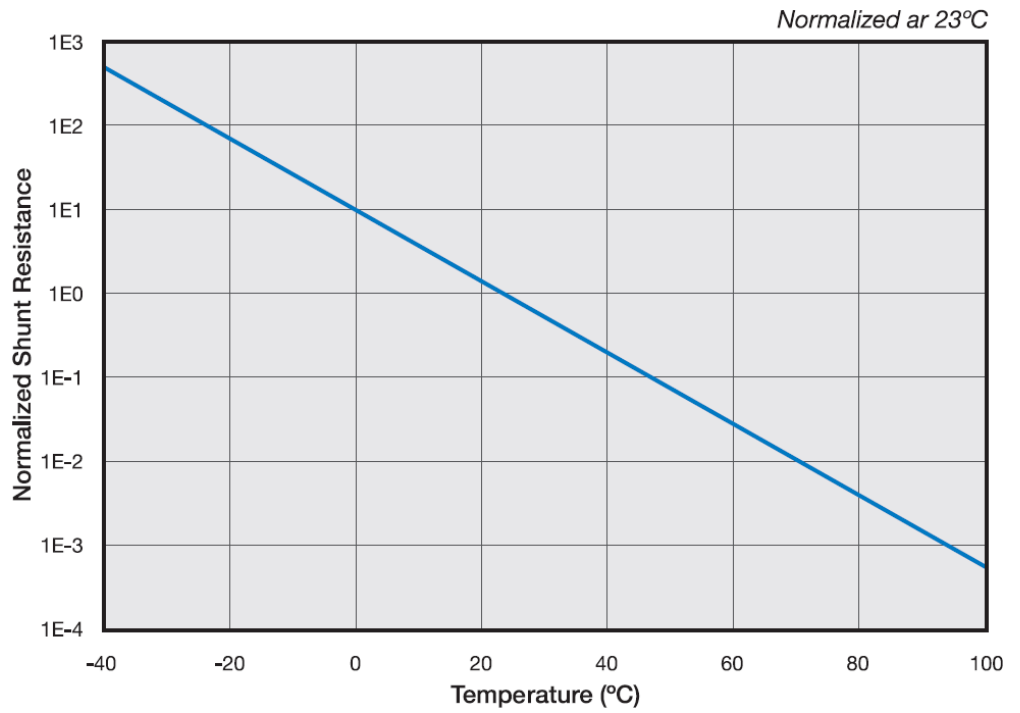
Multichannel array photodetectors consist of a number of single element photodiodes laid adjacent to each other forming a one-dimensional sensing area on a common cathode substrate. They can perform simultaneous measurements of a moving beam or beams of many wavelengths. They feature low electrical cross 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.



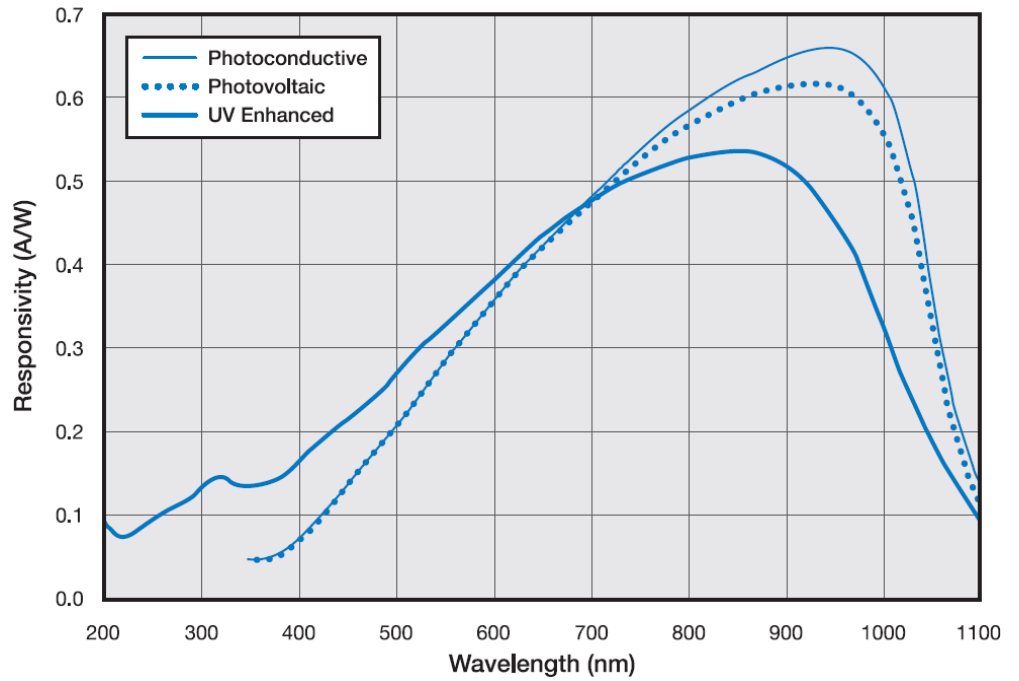
They can be either operated in photoconductive mode (reverse biased) to decrease the response time, or in photovoltaic mode (unbiased) for low drift applications. A2V-16 can be coupled to any scintillator crystal for measuring high-energy photons in the X-ray and g-ray region of electromagnetic spectrum. 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.

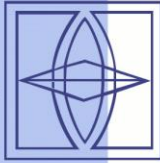


### Typical Shunt Resistance vs. Temperature

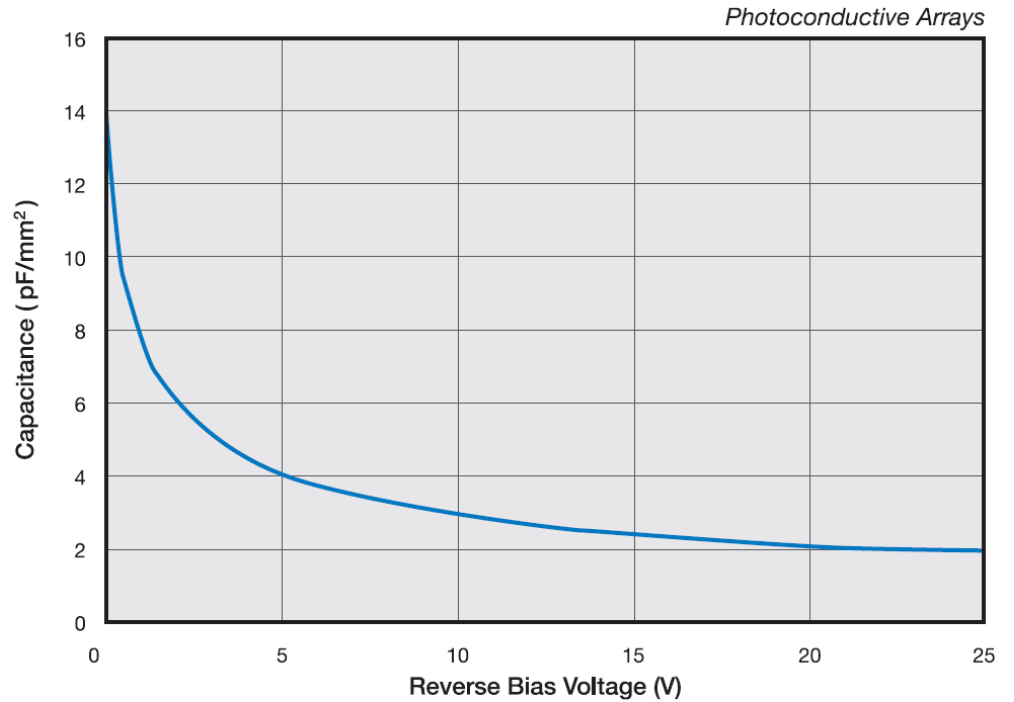


### Typical Spectral Response





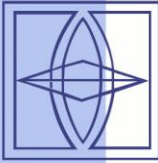
## Typical Capacitance vs. Reverse Bias Voltage



## Typical Electro-Optical Specifications (at $T_A = 23^\circ\text{C}$ )

| Model Number                                                                                                                    | Number of Elements | Active Area per Element |                 | Pitch (mm) | Responsivity (A/W) 970nm | Shunt Resistance (M $\Omega$ ) -10mV |
|---------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------------|-----------------|------------|--------------------------|--------------------------------------|
|                                                                                                                                 |                    | Area (mm <sup>2</sup> ) | Dimensions (mm) |            | Typ                      | Typ                                  |
| <b>Photoconductive Arrays</b>                                                                                                   |                    |                         |                 |            |                          |                                      |
| A5C-35                                                                                                                          | 35                 | 3.9                     | 4.39 x 0.89     | 0.99       | 0.65                     | ---                                  |
| A5C-38                                                                                                                          | 38                 |                         |                 |            |                          |                                      |
| <b>Photovoltaic Arrays</b>                                                                                                      |                    |                         |                 |            |                          |                                      |
| A2V-16                                                                                                                          | 16                 | 1.92                    | 1.57 x 1.22     | 1.59       | 0.60                     | 1000                                 |
| A5V-35                                                                                                                          | 35                 | 3.9                     | 4.39 x 0.89     | 0.99       | 0.60                     | 1000                                 |
| A5V-38                                                                                                                          | 38                 |                         |                 |            |                          |                                      |
| A5V-76                                                                                                                          | 76                 | 1.8                     | 6.45 x 0.28     | 0.31       | 0.50                     | 500                                  |
| <b>UV Enhanced Array (all Specifications @ <math>\lambda = 254\text{nm}</math>, <math>V_{\text{BIAS}} = -10\text{V}</math>)</b> |                    |                         |                 |            |                          |                                      |
| A5V-35UV                                                                                                                        | 35                 | 3.9                     | 4.39 x 0.89     | 0.99       | 0.06*                    | 500                                  |

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| Model Number                                                                                                                    | Dark Current (pF) | Capacitance (pF) |                | NEP (W/√Hz) |             | Temp. Range (°C) |            | Package Style     |
|---------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------|----------------|-------------|-------------|------------------|------------|-------------------|
|                                                                                                                                 | -10V              | Typ              |                | 0V, 970nm   | -10V, 970nm | Operating        | Storage    |                   |
|                                                                                                                                 | Typ               | 0V               | -10V           | Min         | Typ         |                  |            |                   |
| <b>Photoconductive Arrays</b>                                                                                                   |                   |                  |                |             |             |                  |            |                   |
| A5C-35                                                                                                                          | 0.05              | ---              | 12             | ---         | 6.2 e-15    | -30 ~ +85        | -40 ~ +125 | 54/ 40<br>PIN DIP |
| A5C-38                                                                                                                          |                   |                  |                |             |             |                  |            |                   |
| <b>Photovoltaic Arrays</b>                                                                                                      |                   |                  |                |             |             |                  |            |                   |
| A2V-16                                                                                                                          | ---               | 170              | ---            | 4.8 e-15    | ---         | -30 ~ +85        | -40 ~ +125 | 53/ PCB           |
| A5V-35                                                                                                                          | ---               | 340              | ---            | 4.8 e-15    | ---         |                  |            | 54/ 40<br>PIN DIP |
| A5V-38                                                                                                                          | ---               |                  | 52/<br>Ceramic |             |             |                  |            |                   |
| A5V-76                                                                                                                          | ---               | 160              | ---            | 8.2 e-15    | ---         |                  |            |                   |
| <b>UV Enhanced Array (all Specifications @ <math>\lambda = 254\text{nm}</math>, <math>V_{\text{BIAS}} = -10\text{V}</math>)</b> |                   |                  |                |             |             |                  |            |                   |
| A5V-35UV                                                                                                                        | ---               | 340              | ---            | 6.8 e-14    | ---         | -30 ~ +85        | -40 ~ +125 | 54/ 40<br>PIN DIP |

| Model Number                             | Number of Elements | Element Size                  | Active Area per Element                | Pitch           | Responsivity (A/W) 970nm |
|------------------------------------------|--------------------|-------------------------------|----------------------------------------|-----------------|--------------------------|
|                                          |                    | mm (inches)                   | mm <sup>2</sup> (inches <sup>2</sup> ) | mm (inches)     | Typ                      |
| <b>Monolithic Solderable Chip Arrays</b> |                    |                               |                                        |                 |                          |
| A4V-2                                    | 2                  | 1.52 x 2.79<br>(0.06 x 0.110) | 4.24<br>(0.007)                        | 1.90<br>(0.075) | 0.6                      |
| A4V-4                                    | 4                  |                               |                                        |                 |                          |
| A4V-6                                    | 6                  |                               |                                        |                 |                          |
| A4V-8                                    | 8                  |                               |                                        |                 |                          |
| A4V-10                                   | 10                 |                               |                                        |                 |                          |
| A4V-12                                   | 12                 |                               |                                        |                 |                          |

| Model Number                             | Open Circuit Voltage/ Element (mV) | Shunt Resistance (M $\Omega$ ) -10mV | Capacitance (pF) 0V |
|------------------------------------------|------------------------------------|--------------------------------------|---------------------|
|                                          | 10 mW/cm <sup>2</sup> 2850°K       |                                      |                     |
|                                          | Typ                                | Typ                                  | Typ                 |
| <b>Monolithic Solderable Chip Arrays</b> |                                    |                                      |                     |
| A4V-2                                    | 500                                | 1000                                 | 500                 |
| A4V-4                                    |                                    |                                      |                     |
| A4V-6                                    |                                    |                                      |                     |
| A4V-8                                    |                                    |                                      |                     |
| A4V-10                                   |                                    |                                      |                     |
| A4V-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.

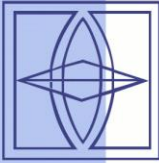
'C' suffix indicates the device is optimized for 'photoconductive' operation.

\*  $\lambda = 254\text{nm}$

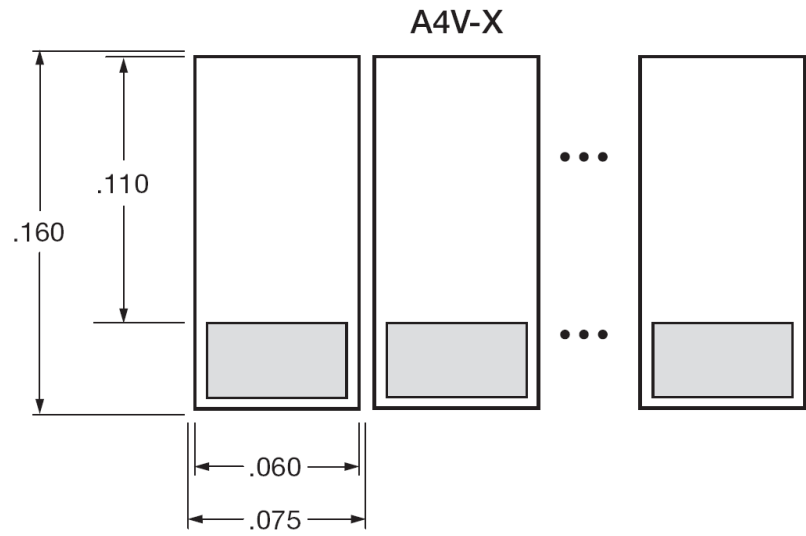
For mechanical drawings please refer to "Mechanical Drawings".

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### Dimensions



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