

# BI-CELL AND QUADRANT PHOTODIODES

## SPECIFICATIONS (PER ELEMENT)

Responsivity: 0.32 A/W min., 0.38 A/W typ. @ 632.8nm; 0.50 A/W min., 0.62 A/W typ. @ 900nm

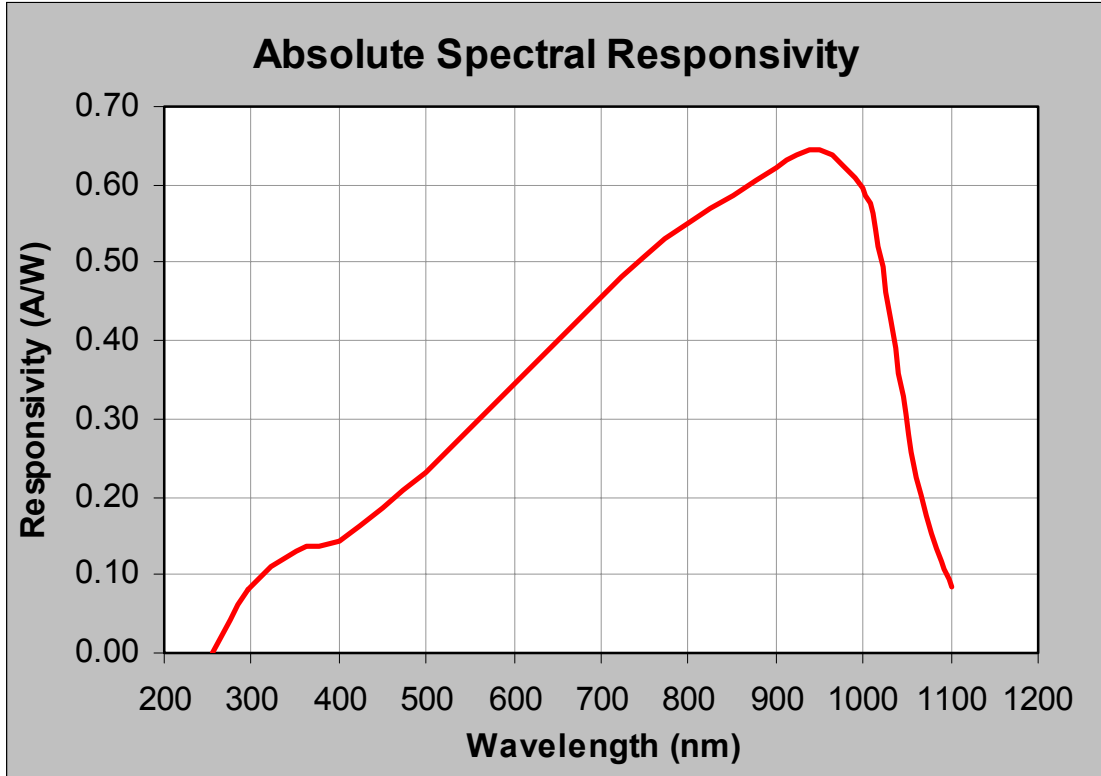
Non-uniformity between elements: 5% deviation max., 1% typ.

Part Number	Total Area per Element (mm <sup>2</sup> )	Shunt Resistance <sup>1</sup>		Dark Current <sup>1</sup> at 5V		Breakdown Voltage <sup>2</sup> at 10 $\mu$ A Typ. (V)	Capacitance <sup>3</sup> Typ.		NEP <sup>4</sup> at 632.8nm Typ. (W/ $\sqrt$ Hz)	NEP <sup>5</sup> at 950nm Typ. (W/ $\sqrt$ Hz)	Light <sup>6</sup> Power Density Typ. (mW/cm <sup>2</sup> )	Response Time <sup>7</sup> at 10V Typ. (ns)
		Min. (M $\Omega$ )	Max. (M $\Omega$ )	Typ. (nA)	Max. (nA)		at 0V (pF)	At 10V (pF)				
<b>Bi-Cell (Two Element Detectors)</b>												
SD 066-24-21-011	0.67	500	0.2	1.0	50	15	3	2.1x10 <sup>-14</sup>	1.2x10 <sup>-14</sup>	10	7	
SD 113-24-21-021	3.1	250	0.9	5.0	50	60	13	4.3x10 <sup>-14</sup>	2.5x10 <sup>-14</sup>	10	8	
SD 160-24-21-021	2.3	300	0.7	3.5	50	45	9	4.3x10 <sup>-14</sup>	2.5x10 <sup>-14</sup>	10	7	
SD 385-24-21-041	18.5	40	6.0	31.0	50	390	85	5.0x10 <sup>-14</sup>	2.9x10 <sup>-14</sup>	10	32	
<b>Quadrant (Four Element Detectors)</b>												
SD 055-23-21-011	0.25	800	0.1	0.4	50	15	3	2.1x10 <sup>-14</sup>	1.2x10 <sup>-14</sup>	10	7	
SD 085-23-21-021	2.25	350	0.6	3.5	50	45	9	4.3x10 <sup>-14</sup>	2.5x10 <sup>-14</sup>	10	7	
SD 118-23-21-021	1.61	450	0.5	2.5	50	35	7	4.3x10 <sup>-14</sup>	2.5x10 <sup>-14</sup>	10	7	
SD 197-23-21-041	4.79	175	1.4	7.5	50	100	20	4.3x10 <sup>-14</sup>	2.5x10 <sup>-14</sup>	10	8	
SD 225-23-21-040	5.4	100	1.2	6.5	50	102	24	4.3x10 <sup>-14</sup>	2.5x10 <sup>-14</sup>	10	8	
SD 380-23-21-051	17.8	100	5.0	27.0	50	375	75	5.2x10 <sup>-14</sup>	3.0x10 <sup>-14</sup>	10	30	

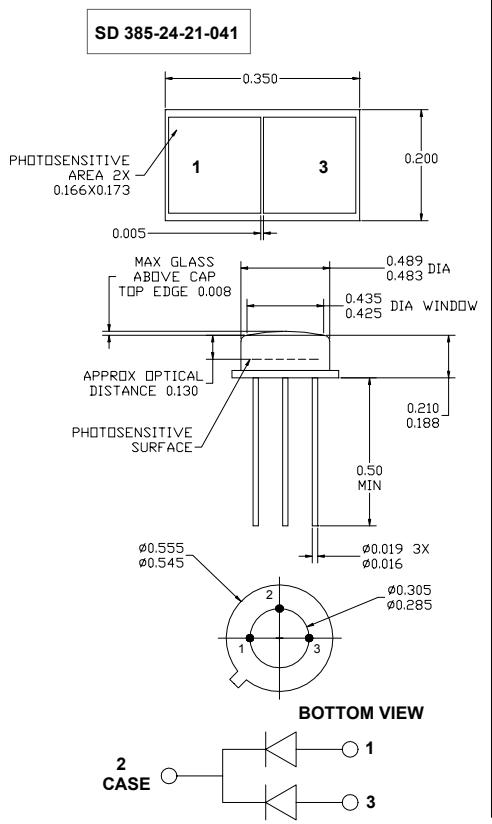
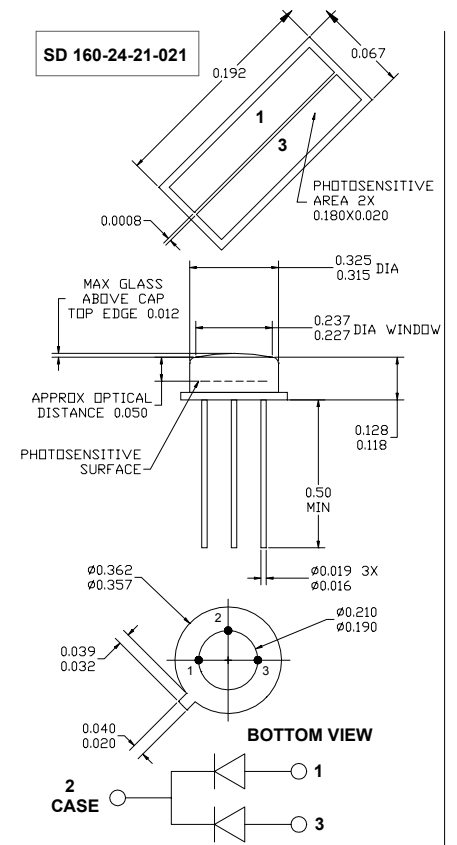
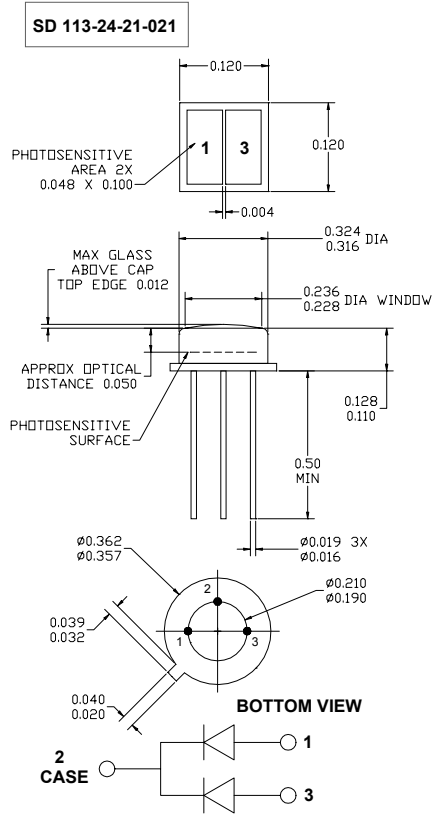
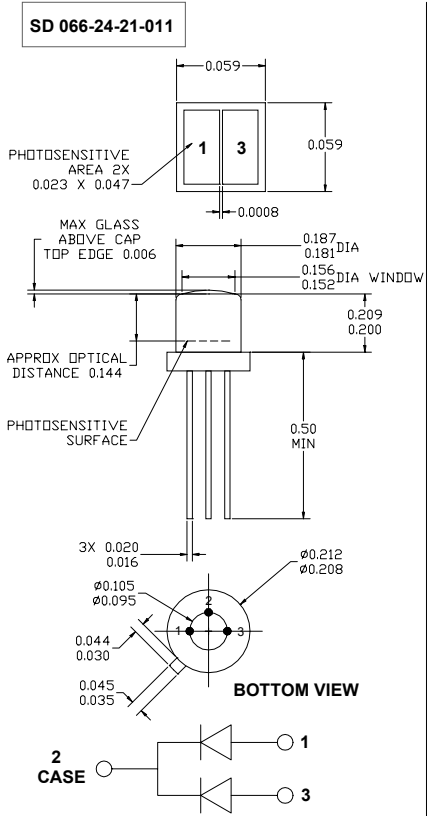
\* All specifications are per element. All values at 23°C

- Dark Current and Shunt Resistance vary with temperature as follows; for T $\neq$ 23°C,  $I_{DT} = I_{D23} * 1.09^{\Delta T}$ ,  $R_{SHT} = R_{SH23} * 0.9^{\Delta T}$ , where  $\Delta T = (T - 23)$  and  $I_{D23}$  and  $R_{SH23}$  are values at 23°C.
- Typical values listed. Minimum value shall be 50% of typical.
- Typical values listed. Maximum value shall be 20% higher than the typical.
- Test conditions are  $V_B = 10$ mV, and 632.8 nm.
- Test conditions are  $V_B = 10$ mV, and 950 nm.
- In photovoltaic mode. Maximum linear current specifies the level at which the output current characteristic deviates more than 10% from the straight line. The short circuit current saturates at approximately 10 times this level.
- Response Time (transition time between 10% and 90% of the output signal amplitude) measured at 670 nm with a 50 $\Omega$  load. Shorter wavelengths will result in faster rise and fall times.

Storage and Operating Temperature Range for all photodiodes is -40°C to 110°C, except for the SD 225-23-21-040, which is -25°C to 100°C.



# Bi-Cell Dimensional Outlines



# Quadrant Dimensional Outlines

