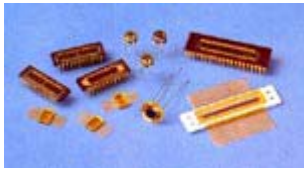


# General Purpose Silicon Sensors (Series 5T)



The Centronic **Series 5T** detectors offer high blue sensitivity coupled with high shunt resistance and low dark leakage current. They are particularly suited to low light level applications from 430-900 nm where the highest signal to noise ratio is important. They may be operated photovoltaically or with a reverse bias of up to 12V where lower capacitance is needed. The 5T range provides the most economic solution for all applications where high speed of response above 800 nm is not critical.

## Electrical / Optical Specifications

Characteristics measured at 22°C (±2) ambient, and a reverse bias of 12 volts, unless otherwise stated. Shunt Resistance measured at ± 10mV.

For rise time on Quadrants, Linear and Matrix Arrays take figures for single element diodes having equivalent active area

### Single Elements

| Type No.  | Active Area     |             | Responsivity A/W<br>$\lambda = 436 \text{ nm}$ |      | Dark Current (nA) |      | NEP $\text{WHz}^{-1/2}$<br>$\lambda = 436 \text{ nm}$<br>Typ. | Capacitance pF |                | Shunt Resistance<br>Meg. ohms |      | Risetime ns<br>$\lambda = 820 \text{ nm}$<br>RL = 50 $\Omega$ Typ. | Package |
|-----------|-----------------|-------------|--|------|-------------------|------|---|----------------|----------------|-------------------------------|------|--|---------|
|           | mm <sup>2</sup> | mm          | Min.   | Typ. | Max.              | Typ. |   | Vr=0 V<br>Max. | Vr=12V<br>Max. | Min.                          | Typ. |  |         |
| OSD1-5T   | 1               | 1.13 dia    | 0.18   | 0.21 | 1                 | 0.2  | 2.5e-14   | 35             | 7              | 250                           | 1000 | 7  | 1       |
| OSD3-5T   | 3               | 2.16 x 1.4  | 0.18   | 0.21 | 2                 | 0.5  | 3.0e-14   | 80             | 20             | 100                           | 700  | 9  | 1       |
| OSD5-5T   | 5               | 2.52 dia    | 0.18   | 0.21 | 2                 | 0.5  | 3.3e-14   | 130            | 35             | 100                           | 600  | 9  | 3       |
| OSD7.5-5T | 7.5             | 2.75 x 2.75 | 0.18   | 0.21 | 3                 | 1    | 4.6e-14   | 180            | 40             | 60                            | 300  | 10   | 3       |
| OSD15-5T  | 15              | 3.8 x 3.8   | 0.18   | 0.21 | 5                 | 1    | 5.5e-14   | 390            | 80             | 50                            | 200  | 12   | 3       |
| OSD35-5T  | 35              | 5.9 x 5.9   | 0.18   | 0.21 | 10                | 2    | 7.5e-14   | 950            | 200            | 20                            | 100  | 20   | 8 / 23  |
| OSD50-5T  | 50              | 7.98 dia    | 0.18   | 0.21 | 15                | 5    | 1.6e-13   | 1300           | 270            | 5                             | 25   | 26   | 9       |
| OSD60-5T  | 62              | 7.9 x 7.9   | 0.18   | 0.21 | 25                | 6    | 2.3e-13   | 1800           | 310            | 3                             | 12   | 30   | 9       |
| OSD100-5T | 100             | 11.3 dia    | 0.18   | 0.21 | 30                | 8    | 2.1e-13   | 2500           | 520            | 2                             | 15   | 45   | 13      |
| OSD300-5T | 300             | 19.54 dia   | 0.18   | 0.21 | 200               | 30   | 3.5e-13   | 7500           | 1500           | 1                             | 5    | 125  | 15      |

### Quadrants (Values given are per element unless otherwise stated)

| Type No. | Active Area (Total) |          |         | Responsivity A/W<br>$\lambda = 436 \text{ nm}$ |      | Dark Current (nA) |      | NEP $\text{WHz}^{-1/2}$<br>$\lambda = 436 \text{ nm}$<br>Typ. | Capacitance pF |                | Shunt Resistance<br>Meg. ohms |      | Crosstalk%<br>$\lambda = 900 \text{ nm}$ |      | Package |
|----------|---------------------|----------|---------|--|------|-------------------|------|---|----------------|----------------|-------------------------------|------|--|------|---------|
|          | mm <sup>2</sup>     | mm       | Sep. mm | Min.   | Typ. | Max.              | Typ. |   | Vr=0 V<br>Max. | Vr=12V<br>Max. | Min.                          | Typ. | Max.                                     | Typ. |         |
| QD7-5T   | 7                   | 2.99 dia | 0.2     | 0.18   | 0.21 | 6                 | 2    | 2.3e-14   | 50             | 15             | 80                            | 1200 | 5  | 1    | 7       |
| QD50-5T  | 50                  | 7.98 dia | 0.2     | 0.18   | 0.21 | 30                | 3    | 4.6e-14   | 330            | 80             | 10                            | 300  | 5  | 1    | 10      |
| QD100-5T | 100                 | 11.3 dia | 0.2     | 0.15   | 0.18 | 50                | 5    | 7.0e-14   | 650            | 130            | 5                             | 100  | 5  | 1    | 11      |

### Linear Arrays (Values given are per element unless otherwise stated)

| Type No.      | No. of Elements | Array Dimensions        |             |             |            | Responsivity A/W<br>$\lambda = 436 \text{ nm}$ |      | Shunt Resistance<br>Megohms |      | NEP $\text{WHz}^{-1/2}$<br>$\lambda = 436 \text{ nm}$ | Capacitance pF |                | Dark Current<br>nA |      | Package |
|---------------|-----------------|-------------------------|-------------|-------------|------------|--|------|-----------------------------|------|---|----------------|----------------|--------------------|------|---------|
|               |                 | Area<br>mm <sup>2</sup> | Width<br>mm | Lgth.<br>mm | Sep.<br>mm | Min.   | Typ. | Min.                        | Typ. |   | Vr=0V<br>Min.  | Vr=12V<br>Typ. | Max.               | Typ. |         |
| LD2A-5T       | 2               | 1.00                    | 2.0         | 0.5         | 0.05       | 0.18   | 0.21 | 100                         | 1000 | 2.5e-14   | 30             | 6              | 2                  | 0.7  | 4       |
| LD2B-5T       | 2               | 2.02                    | 1.422       | 1.422       | 0.45       | 0.18   | 0.21 | 50                          | 1000 | 2.5e-14   | 60             | 12             | 5                  | 1    | 4       |
| LD2C-5T       | 2               | 0.483                   | 1.27        | 0.38        | 0.05       | 0.15   | 0.18 | 100                         | 1000 | 2.9e-14   | 15             | 4              | 2                  | 0.5  | 2       |
| LD4C-5T       | 4               | 0.64                    | 0.8         | 0.8         | 0.3        | 0.15   | 0.18 | 40                          | 500  | 4.0e-14   | 38             | 10             | 10                 | 1    | 6       |
| LD12A-5T      | 12              | 0.25                    | 0.5         | 0.5         | 0.05       | 0.15   | 0.18 | 100                         | 2000 | 2.0e-14   | 10             | 3              | 5                  | 0.5  | 21      |
| LD16C-5T      | 16              | 0.035                   | 0.2         | 0.175       | 0.025      | 0.15   | 0.18 | 100                         | 2000 | 2.0e-14   | 10             | 2              | 5                  | 0.5  | 20      |
| LD16(1.8)-5T  | 16              | 1.8                     | 2.1         | 0.9         | 0.1        | 0.18   | 0.21 | 100                         | 1500 | 2.0e-14   | 60             | 11             | 5                  | 0.5  | 16      |
| LD16(2.5)-5T  | 16              | 2.5                     | 2.5         | 1           | 0.5        | 0.18   | 0.21 | 100                         | 1500 | 2.0e-14   | 80             | 14             | 5                  | 0.5  | 16      |
| LD20-5T       | 20              | 3.60                    | 4.0         | 0.90        | 0.05       | 0.18   | 0.21 | 100                         | 1000 | 2.5e-14   | 130            | 20             | 5                  | 0.5  | 16      |
| LD20(0.36)-5T | 20              | 0.36                    | 0.6         | 0.6         | 0.1        | 0.18   | 0.21 | 100                         | 2000 | 1.7e-14   | 15             | 5              | 5                  | 0.5  | 16      |
| LD35-5T       | 35              | 4.42                    | 4.6         | 0.96        | 0.03       | 0.18   | 0.21 | 40                          | 2000 | 1.7e-14   | 130            | 25             | 5                  | 0.5  | 17      |

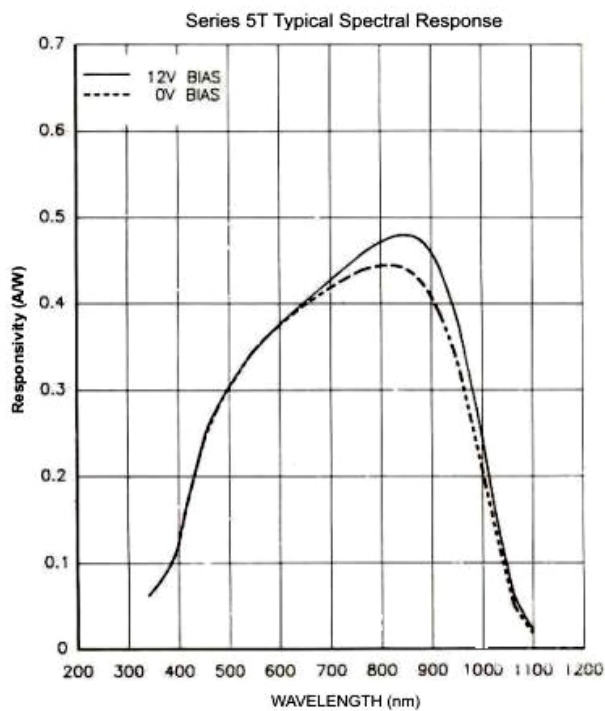
### Matrix Arrays (Values given are per element unless otherwise stated)

|         |       |      |     |     |     |      |      |   |     |         |     |    |    |   |    |
|---------|-------|------|-----|-----|-----|------|------|---|-----|---------|-----|----|----|---|----|
| MD25-5T | 5 x 5 | 7.99 | 2.7 | 2.7 | 0.1 | 0.15 | 0.18 | 5 | 200 | 6.4e-14 | 240 | 47 | 50 | 5 | 18 |
|---------|-------|------|-----|-----|-----|------|------|---|-----|---------|-----|----|----|---|----|

Note: Recommended operating voltage range 0 to 12 volts, for all Series 5T Detectors.

Highlighted items are Centronic standard products generally available from stock

## Series 5T Spectral Response Graph



## Capacitance versus Bias Voltage

