

Plastic Encapsulated Series

Lead Frame Molded Photodiodes

OSI Optoelectronics offers a line of high quality and reliability plastic encapsulated photodiodes. These molded devices are available in a variety of shapes and sizes of photodetectors and packages, including industry standard T1 and T13/4, flat and lensed side lookers as well as a surface mount version (SOT- 23). They are excellent for mounting on PCB and hand held devices in harsh environments.

They have an excellent response in the NIR spectrum and are also available with visible blocking compounds, transmitting only in the 700-1100 nm range. They offer fast switching time, low capacitance as well as low dark current. They can be utilized in both photoconductive and photovoltaic modes of operation.



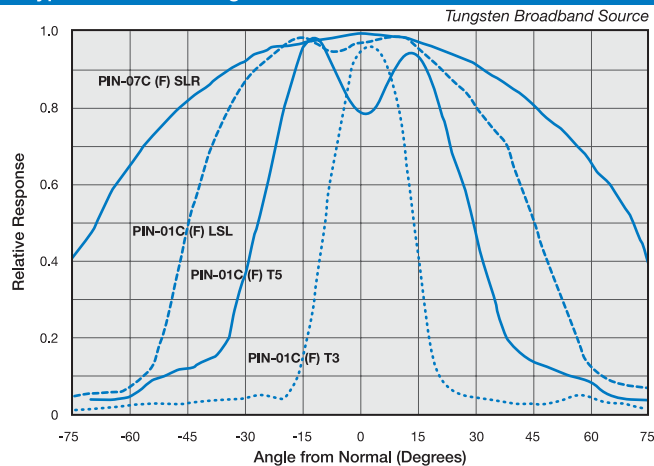
APPLICATIONS

- Bar Code Readers
- Industrial Counters
- Measurement and Control
- IR Remote Control
- Reflective Switches

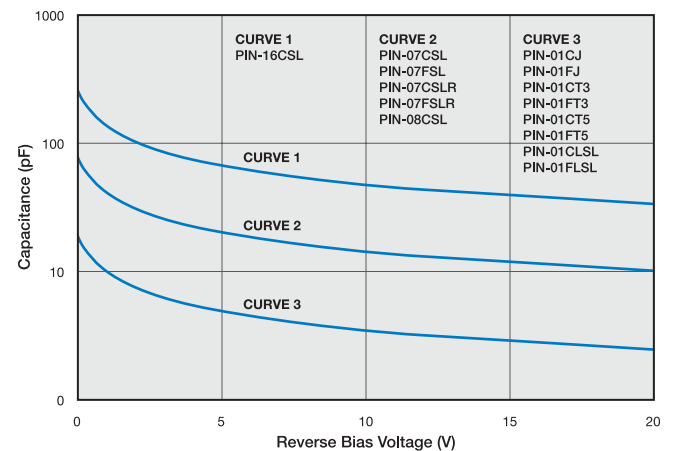
FEATURES

- High Density Package
- Rugged Molded Package
- Low Capacitance
- Low Dark Current
- Lead Frame Standard
- SMT
- Molded Lens Feature
- Side Lookers
- Filter on Chip (700nm Cutoff)

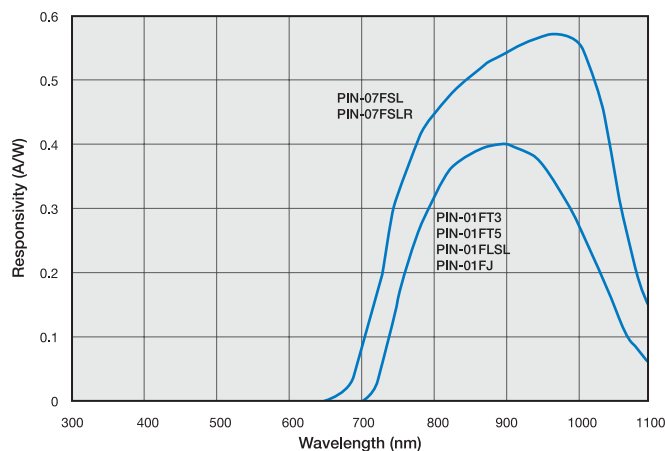
Typical Detection Angular Characteristics



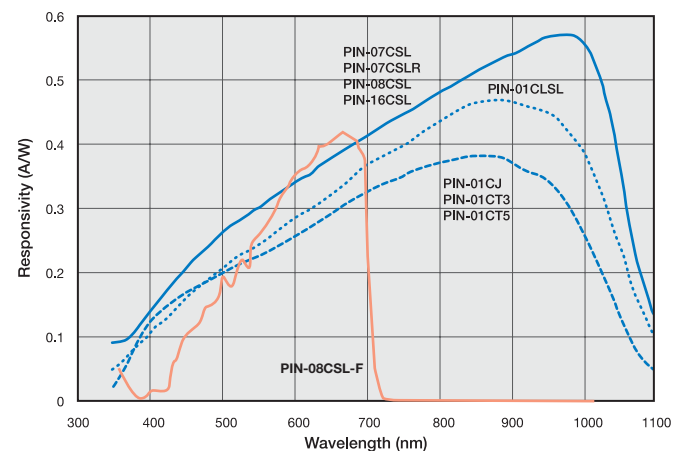
Typical Capacitance vs. Reverse Bias Voltage



Typical Spectral Response



Typical Spectral Response



Plastic Encapsulated Series

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

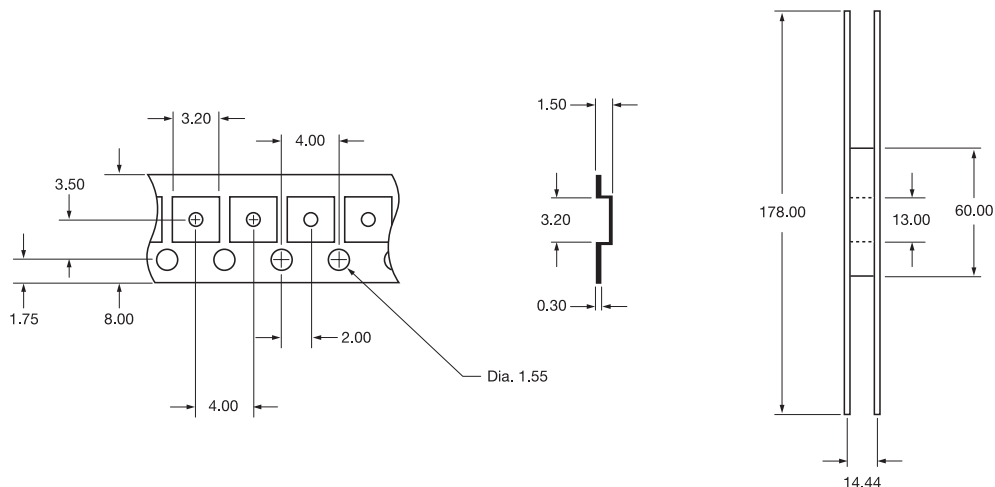
Model Number	Active Area		Spectral Range (nm)	Responsivity $I_p=970\text{nm}$	Capacitance (pF) 1 MHz		Dark Current (nA)		Reverse Voltage (V)	Rise Time (ns)	Temp.* Range ($^{\circ}\text{C}$)		Package Style ¶									
	Area (mm ²)	Dimensions (mm)		(A/W)	0 V	-10 V	-10 V			-10 V peak λ 50 Ω	Operating	Storage										
				typ.	typ.	typ.	typ.	max.		max.				typ.								
PIN-01-CJ	0.2	0.4 Sq	350-1100	0.40	21	4	2	30	20	11	-25 ~ +85	-40 ~ 100	59 / Resin Molded									
PIN-01-FJ			700-1100																			
PIN-01-CT3	0.2	0.4 Sq	350-1100																			
PIN-01-FT3			700-1100																			
PIN-01-CT5	0.2	0.4 Sq	350-1100																			
PIN-01-FT5			700-1100																			
PIN-01-CLSL	0.2	0.4 Sq	350-1100										0.45									
PIN-01-FLSL			700-1100										0.40									
PIN-0.81-LLS	0.81	1.02	350-1100										0.55	10	2	5	30	20	50	-25 ~ +85	-40 ~ 100	62 / Leadless Ceramic
PIN-0.81-CSL																						60 / Resin Molded
PIN-4.0-LLS	3.9	2.31x1.68	350-1100	60	10																	
PIN-4.0-CSL				60 / Resin Molded																		
PIN-07-CSL	8.1	2.84 Sq	350-1100	85	15																	
PIN-07-FSL			700-1100																			
PIN-07-CSLR	8.1	2.84 Sq	350-1100	85	15																	
PIN-07-FSLR			700-1100																			
PIN-08-CSL-F	8.4	2.90 Sq	350-720	0.43@660nm	..	25	..	10	75	50	-25 ~ +85	-40 ~ 100										60 / Resin Molded
PIN-8.0-LLS	8.4	2.90 Sq	350-1100	0.55	100	25	10	30														
PIN-8.0-CSL									62 / Leadless Ceramic													
PIN-16-CSL									16	4.00 Sq	330	55	5	100	60 / Resin Molded							

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

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

The "CSL-F" series is homogeneous silicon photodiode and optical filter combination device. The filter coating is directly deposited onto the chip during wafer process.

Tape and Reel Specifications for Surface Mount PIN-01(C)J and PIN-01(F)J



■ Photodiode Care and Handling Instructions

AVOID DIRECT LIGHT

Since the spectral response of silicon photodiode includes the visible light region, care must be taken to avoid photodiode exposure to high ambient light levels, particularly from tungsten sources or sunlight. During shipment from OSI Optoelectronics, your photodiodes are packaged in opaque, padded containers to avoid ambient light exposure and damage due to shock from dropping or jarring.

AVOID SHARP PHYSICAL SHOCK

Photodiodes can be rendered inoperable if dropped or sharply jarred. The wire bonds are delicate and can become separated from the photodiode's bonding pads when the detector is dropped or otherwise receives a sharp physical blow.

CLEAN WINDOWS WITH OPTICAL GRADE CLOTH / TISSUE

Most windows on OSI Optoelectronics photodiodes are either silicon or quartz. They should be cleaned with isopropyl alcohol and a soft (optical grade) pad.

OBSERVE STORAGE TEMPERATURES AND HUMIDITY LEVELS

Photodiode exposure to extreme high or low storage temperatures can affect the subsequent performance of a silicon photodiode. Storage temperature guidelines are presented in the photodiode performance specifications of this catalog. Please maintain a non-condensing environment for optimum performance and lifetime.

OBSERVE ELECTROSTATIC DISCHARGE (ESD) PRECAUTIONS

OSI Optoelectronics photodiodes, especially with IC devices (e.g. Photops) are considered ESD sensitive. The photodiodes are shipped in ESD protective packaging. When unpacking and using these products, anti-ESD precautions should be observed.

DO NOT EXPOSE PHOTODIODES TO HARSH CHEMICALS

Photodiode packages and/or operation may be impaired if exposed to CHLOROTHENE, THINNER, ACETONE, or TRICHLOROETHYLENE.

INSTALL WITH CARE

Most photodiodes in this catalog are provided with wire or pin leads for installation in circuit boards or sockets. Observe the soldering temperatures and conditions specified below:

Soldering Iron:	Soldering 30 W or less Temperature at tip of iron 300°C or lower.
Dip Soldering:	Bath Temperature: 260±5°C. Immersion Time: within 5 Sec. Soldering Time: within 3 Sec.
Vapor Phase Soldering:	DO NOT USE
Reflow Soldering:	DO NOT USE

Photodiodes in plastic packages should be given special care. Clear plastic packages are more sensitive to environmental stress than those of black plastic. Storing devices in high humidity can present problems when soldering. Since the rapid heating during soldering stresses the wire bonds and can cause wire to bonding pad separation, it is recommended that devices in plastic packages to be baked for 24 hours at 85°C.

The leads on the photodiode **SHOULD NOT BE FORMED**. If your application requires lead spacing modification, please contact OSI Optoelectronics Applications group at (310)978-0516 before forming a product's leads. Product warranties could be voided.

1. Parameter Definitions:

A = Distance from top of chip to top of glass.

a = Photodiode Anode.

B = Distance from top of glass to bottom of case.

c = Photodiode Cathode

(Note: cathode is common to case in metal package products unless otherwise noted).

W = Window Diameter.

F.O.V. = Field of View (see definition below).

2. Dimensions are in inches (1 inch = 25.4 mm).

3. Pin diameters are 0.018 ± 0.002" unless otherwise specified.

4. Tolerances (unless otherwise noted)

General: 0.XX ±0.01"

0.XXX ±0.005"

Chip Centering: ±0.010"

Dimension 'A': ±0.015"

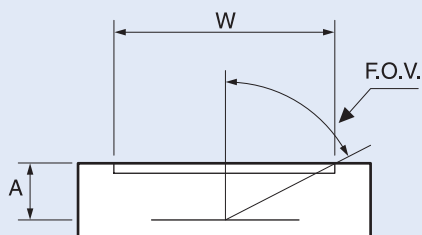
5. Windows

All '**UV**' Enhanced products are provided with QUARTZ glass windows, 0.027 ± 0.002" thick.

All '**XUV**' products are provided with removable windows.

All '**DLS**' PSD products are provided with A/R coated glass windows.

All '**FIL**' photoconductive and photovoltaic products are epoxy filled instead of glass windows.



$$F.O.V. = \tan^{-1} \left(\frac{W}{2A} \right)$$



For Further Assistance
Please Call One of Our Experienced
Sales and Applications Engineers

310-978-0516

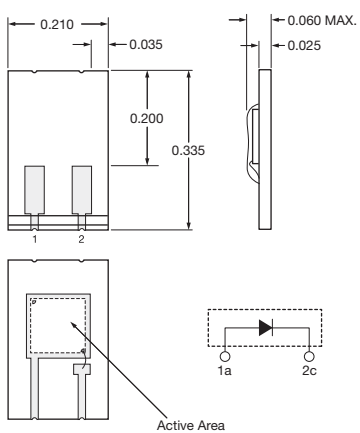
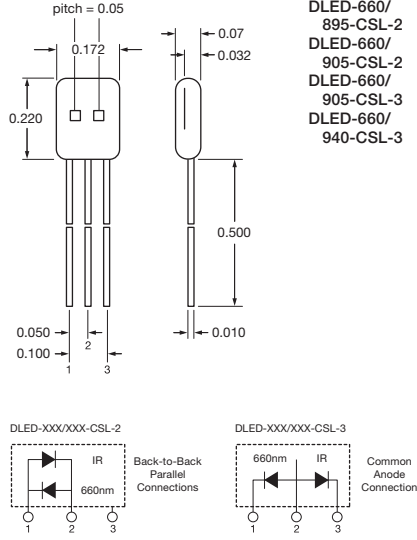
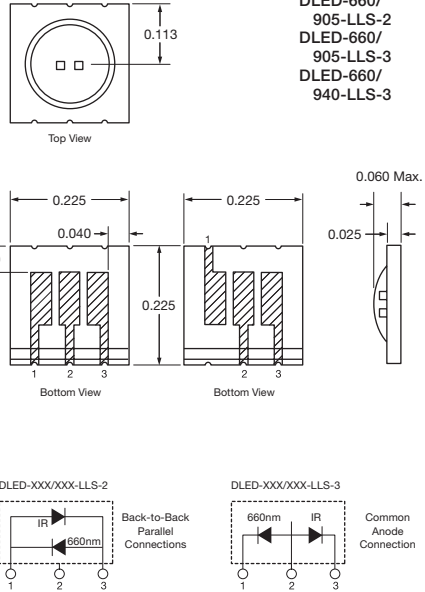
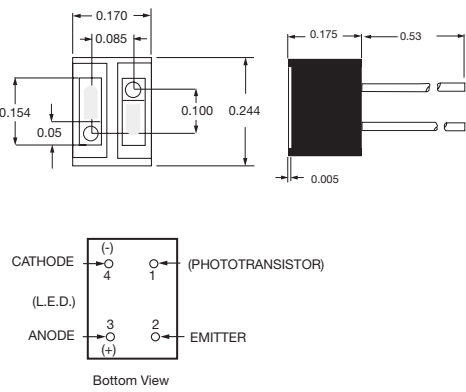
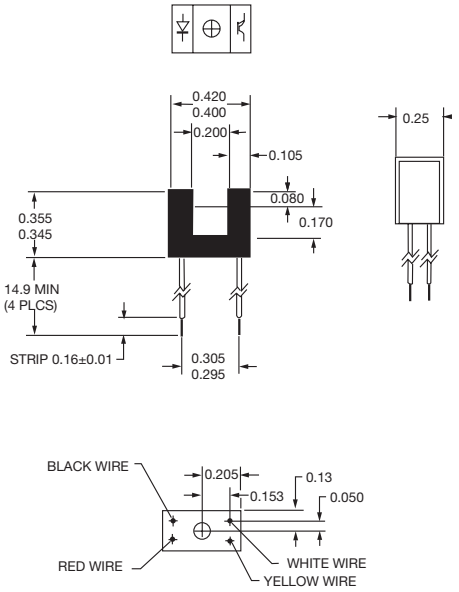
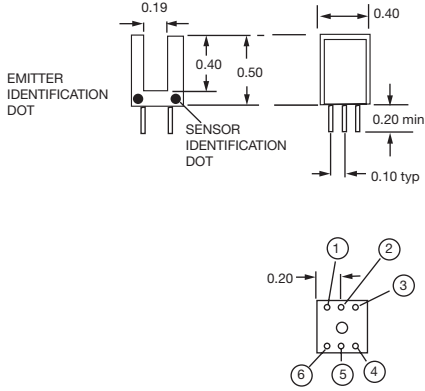


- Or -
On the Internet at

www.osioptoelectronics.com

Mechanical Specifications

All units in inches.

62 Leadless Ceramic	63 Lead Frame Moulded	64 Leadless Ceramic														
<p>Products:</p> <p>PIN-0.81-LLS PIN-4.0-LLS PIN-8.0-LLS</p>  <p>Active Area</p>	<p>Products:</p> <p>DLED-660/ 880-CSL-2 DLED-660/ 895-CSL-2 DLED-660/ 905-CSL-2 DLED-660/ 905-CSL-3 DLED-660/ 940-CSL-3</p>  <p>Back-to-Back Parallel Connections</p> <p>Common Anode Connection</p>	<p>Products:</p> <p>DLED-660/ 880-LLS-2 DLED-660/ 895-LLS-2 DLED-660/ 905-LLS-2 DLED-660/ 905-LLS-3 DLED-660/ 940-LLS-3</p>  <p>Back-to-Back Parallel Connections</p> <p>Common Anode Connection</p>														
65 Plastic Moulded	66 Plastic Moulded	67 Plastic Moulded														
<p>Products:</p> <p>OS-P085</p>  <p>Bottom View</p> <p>CATHODE (-) 4 ANODE (+) 3 PHOTOTRANSISTOR 1 EMITTER 2</p>	<p>Products:</p> <p>OS-W200A OS-W200B</p>  <p>BLACK WIRE</p> <p>RED WIRE</p> <p>WHITE WIRE</p> <p>YELLOW WIRE</p>	<p>Products:</p> <p>OS-P-190</p>  <p>EMITTER IDENTIFICATION DOT</p> <p>SENSOR IDENTIFICATION DOT</p> <p>Pinout</p> <table border="1"> <thead> <tr> <th>PIN</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Emitter Cathode</td> </tr> <tr> <td>2</td> <td>Emitter Anode</td> </tr> <tr> <td>3</td> <td>Emitter Anode</td> </tr> <tr> <td>4</td> <td>Phototransistor Collector</td> </tr> <tr> <td>5</td> <td>Phototransistor Emitter</td> </tr> <tr> <td>6</td> <td>Phototransistor Emitter</td> </tr> </tbody> </table>	PIN	Description	1	Emitter Cathode	2	Emitter Anode	3	Emitter Anode	4	Phototransistor Collector	5	Phototransistor Emitter	6	Phototransistor Emitter
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