

# Pyroelectric Detectors

## Ideally Suited for Human Body Sensing and Simplified Analytical Instruments

- Broad Spectral Response
- Operates at room temperature
- Low cost

### Thermally-Compensated Types (Single Element)

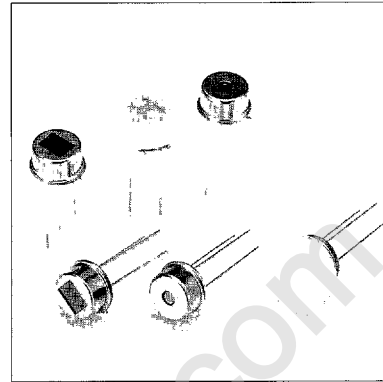
Including a thermal compensation element in the same package, these types can minimize noise fluctuation caused by changes in the ambient temperature. Suited for simplified analytical instruments.

### Dual Element Types

Optimized specifically for human body sensing. Two families are available: the P2288 series with wide fields of view and the P3514 series with a lens cap that provides limited fields of view.

### Single Element Types

A single pyroelectric element is used, being suitable for general-purpose infrared detection.

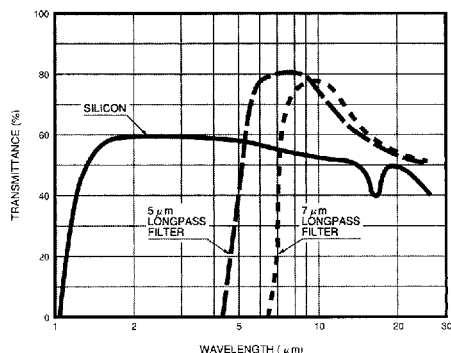


(Typical data unless otherwise specified, Ta=25°C)

Type No.	Window Material	Active Area (mm)	Spectral Response Range $\lambda_p$ (°C)	Photo sensitivity S (500, 1) ( $\mu\text{m}$ )	Noise Max. ( $\mu\text{V}/\text{Hz}^{1/2}$ )	D* (500, 1, 1) ( $\text{W}/\text{Hz}^{1/2}$ )	NEP (500, 1, 1) ( $\text{cm}\cdot\text{Hz}^{1/2}/\text{W}$ )	Rise Time $t_r$ 0 to 63% (ms)	Temp. Coefficient of Responsivity Max. (%/°C)	Supply Voltage (V)	Offset Voltage $R_L=22\text{k}\Omega$ (V)	Operating Temperature $T_{opr}$ (°C)	Storage Temperature $T_{stg}$ (°C)						
<b>Thermally-Compensated Types (Single Element)</b>																			
P3782	Silicon	2 dia.	2 to 20	1500	15	$1.7 \times 10^8$	$8.5 \times 10^{-10}$	100	0.2	3 to 15	0.2 to 1.0	-20 to +60	-30 to +85						
P3782-01	7 $\mu\text{m}$ longpass filter	2 dia.	7 to 20	1300	15	$1.5 \times 10^8$	$1.0 \times 10^{-9}$												
P3782-02	4.3 $\mu\text{m}$ bandpass filter	2 dia.	4.3(HW=80nm)	3900(A)	15	$3.0 \times 10^8$	$5.0 \times 10^{-10}$												
P3782-03	8-14 $\mu\text{m}$ bandpass filter	2 dia.	8 to 14	900	15	$2.0 \times 10^8$	$1.0 \times 10^{-9}$												
P3782-05	5 $\mu\text{m}$ longpass filter	2 dia.	5 to 20	1500	15	$1.7 \times 10^8$	$8.5 \times 10^{-10}$												
P3782-12	4.4 $\mu\text{m}$ bandpass filter	2 dia.	4.4(HW=650nm)	4100(A)	15	$3.0 \times 10^8$	$5.0 \times 10^{-10}$												
P4736	Silicon	2 dia.	2 to 20	1500	15	$1.7 \times 10^8$	$8.5 \times 10^{-10}$												
P4736-01	7 $\mu\text{m}$ longpass filter	2 dia.	7 to 20	1300	15	$1.5 \times 10^8$	$1.0 \times 10^{-9}$												
P4736-05	5 $\mu\text{m}$ longpass filter	2 dia.	5 to 20	1500	15	$1.7 \times 10^8$	$8.5 \times 10^{-10}$												
P4736-12	4.4 $\mu\text{m}$ bandpass filter	2 dia.	4.4(HW=650nm)	4100(A)	15	$3.0 \times 10^8$	$5.0 \times 10^{-10}$												
<b>Dual Element Types</b>																			
P2288	7 $\mu\text{m}$ longpass filter	2 $\times$ 1 ( $\times$ 2)	2 to 20	1300	15	$1.5 \times 10^8$	$1.0 \times 10^{-9}$							100	0.2	3 to 15	0.2 to 1.0	-20 to +60	-30 to +85
P2288-02	5 $\mu\text{m}$ longpass filter		5 to 20	1500	15	$1.7 \times 10^8$	$8.5 \times 10^{-10}$												
P2288-09	7 $\mu\text{m}$ longpass filter		7 to 20	1300	15	$1.5 \times 10^8$	$1.0 \times 10^{-9}$												
P2288-10	5 $\mu\text{m}$ longpass filter		5 to 20	1500	15	$1.7 \times 10^8$	$8.5 \times 10^{-10}$												
<b>Dual Element Types with Lens Cap</b>																			
P3514	7 $\mu\text{m}$ longpass filter	2 $\times$ 1 ( $\times$ 2)	7 to 20	450	15	$1.0 \times 10^8$	$1.5 \times 10^{-9}$	100	0.2	3 to 15	0.2 to 1.0	-20 to +60	-30 to +85						
P3514-01																			
<b>Single Element Types</b>																			
P2613	Silicon	2 dia.	2 to 20	1800	15	$2.0 \times 10^8$	$1.0 \times 10^{-9}$	100	0.2	3 to 15	0.2 to 1.0	-20 to +60	-30 to +85						
P2613-01	7 $\mu\text{m}$ longpass filter	2 dia.	7 to 20	1500	15	$2.0 \times 10^8$	$1.0 \times 10^{-9}$												
P2613-02	4.3 $\mu\text{m}$ bandpass filter	2 dia.	4.3(HW=80nm)	3900(A)	15	$3.0 \times 10^8$	$5.0 \times 10^{-10}$												
P2613-03	8-14 $\mu\text{m}$ bandpass filter	2 dia.	8 to 14	900	15	$2.0 \times 10^8$	$1.0 \times 10^{-9}$												
P2613-12	4.4 $\mu\text{m}$ bandpass filter	2 dia.	4.4(HW=650nm)	4100(A)	15	$3.0 \times 10^8$	$5.0 \times 10^{-10}$												

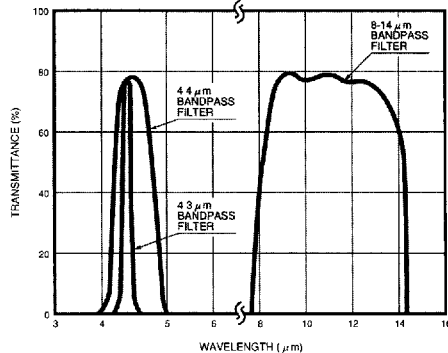
(A) Measured at 4.3  $\mu\text{m}$  or 4.4  $\mu\text{m}$ .

● Transmittance of Window Materials (1)



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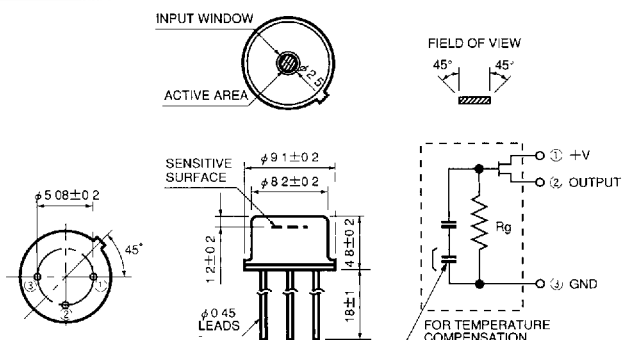
● Transmittance of Window Materials (2)



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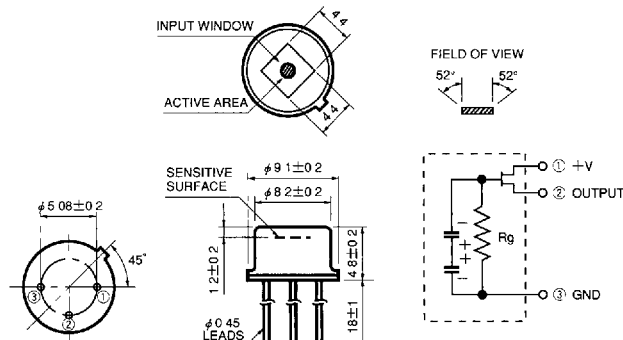
● Dimensional Outlines (Unit: mm)

**P3782 Series**



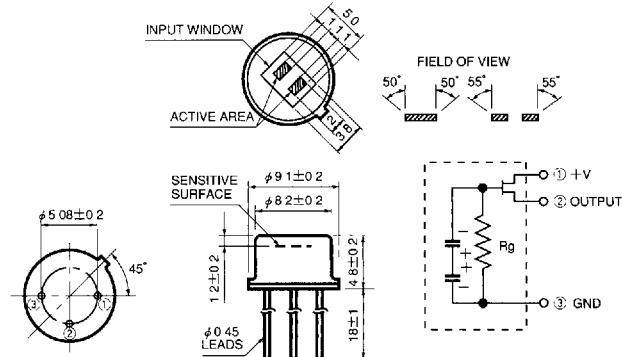
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**P4736 Series**



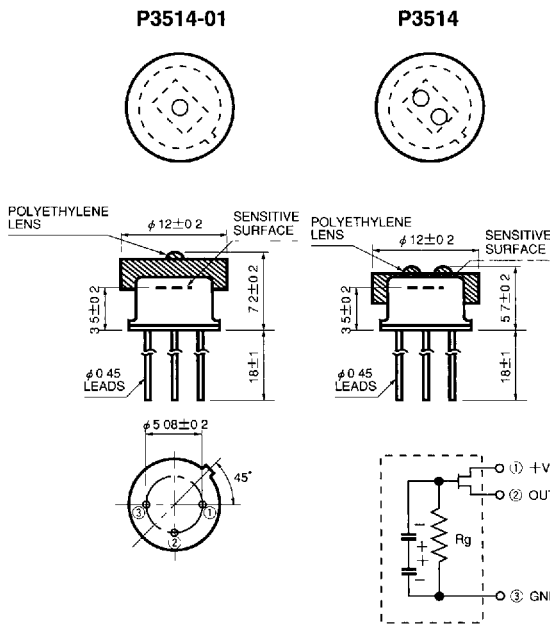
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**P2288 Series**



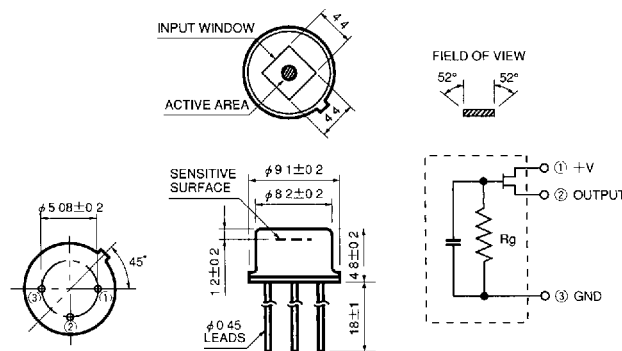
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**P3514 Series**



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**P2613 Series**



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