ultraviolet detectors

Features

- High sensitivity
- Low temperature dependence
- Available in TO-5, TO-18 and miniature housing
- Various selective filter window options
- Radiation resistant types
- Built-in lens types
- Built-in amplifier types
- Long-term stability at high radiation intensity
- High temperature resistivity

Typical Applications

- Solar Measurement
- Sterilization
- Burner Controls
- Industrial Controls

Datasheets available upon request

Description

PerkinElmer Optoelectronics offers a range of selective sensors for ultraviolet radiation. This sensor series can be equipped with an integrated amplifier and is perfectly suited for the detection of any radiation ranging from 200 nm to 400 nm. High sensitivity, hermetic encapsulation, small dimension (TO-5) and low cost structure provide suitability for both industrial and consumer applications.

UV Detector Basics

UV detectors from PerkinElmer Optoelectronics are based on silicon-carbide, a material that offers new performance features at reasonable cost. Silicon-carbide provides a unique sensitivity in the spectral range from 200 to 400 nm (peak at 280 nm).

Standard UV Detectors

PerkinElmer Optoelectronics' range of standard ultraviolet detectors comprises different housings and window options. Detectors of this 'S' type contain the UV-sensitive photodiode only, and the signal output represents an intensity-dependent photodiode current.

As a default, the standard window (>210 nm) will be applied. Other windows with more selective wavelengths are A1, A2, A0, C1.

Standard UV Detectors With Built-in Lens

Products can be supplied with a standard window or built-in lens.

Amplified Output Types

Sensors of this 'T' type consist of an additional transimpedance amplifier of certain amplification, and the sensor output represents an intensity-dependent voltage.

E'xx' corresponds to the power of ten of the amplification factor ranging between $10^{7}(E07)$ and $10^{10}(E10)$. Optional versions are available on request only.

Different housings and window options are available. As a default, the standard window will be applied. Other windows with more selective wavelengths are A1, A2, A0, C1.

Amplified Output Types With Built-in Lens

Products can be supplied with a standard window or built-in lens.



Ultraviolet Detectors

General Data

Max. Operating Temperature:
-20 to +80°C
Max. Storage Temperature:
-20 to +80°C
Spectral Response: 210-380 nm

TO-5 Types

Standard UV Detectors

Technical Specification									
Part Number	Housing	Radiant Sensitivity mA/W	Pk. Response Wavelength nm	Sensitive Area mm ²	Selectivity	Dark Current fA	Junction Capacitance pF	Temperature Coefficient %/K	
UV10SF	TO-5	140	280	5.4x10 ⁻²	>10-5	0.2	21	-0.5	
UV10SL	TO-5	25	280	12.5	>10-5	0.2	21	-0.5	
UV20SF	TO-18	140	280	5.4x10 ⁻²	<10-5	0.2	21	-0.5	
UV21SF*	TO-18	140	280	5.4x10 ⁻²	>10-5	0.2	21	-0.5	
UV30SFA2	Mini	110	310	5.4x10 ⁻²	>10-5	0.2	21	-0.5	

Test conditions: T = $25^{\circ}C$

L types are with lens built in

* Radiation resistant version

Radiant Sensitivity: Standard Window

Responsivity: Standard Window

Sensitive Area: Active Diode Area For Types Without Lens Selectivity: 400-2000 nm

Rise Time: t (63%)

Amplified Output Detectors

Technical Specification										
Part Number	Housing	Radiant Sensitivity V/nW	Responsivity V/mW/mm²	Sensitive Area mm²	Selectivity	Operating Voltage V	Dark Offset Voltage mV	Rise Time ms	Temperature Coefficient %/K	
UV10T2E10F	TO-5	4	0.25	5.4x10 ⁻²	>10 ⁻⁵	2.5-5	<5	10	<-0.3	
UV10T2E10L	TO-5	1	10	12.5	>10 ⁻⁵	2.5-5	<5	10	<-0.3	
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Test conditions: $T = 25^{\circ}C$ L types are with lens built in 2E10 is the built-in amplification. Other options on request Radiant Sensitivity. Standard Window

Responsivity: Standard Window

Sensitive Area: Active Diode Area For Types Without Lens Selectivity: 400-2000 nm Rise Time: t (63%)