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UV Enhanced Response, 20.0mm², Silicon Detector



Silicon Photodiodes

Stock **#54-036** [CONTACT US](#)

⊖ 1 ⊕ **S\$109⁰⁰**

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Volume Pricing	
Qty 1-4	S\$109.90 each
Qty 5-9	S\$96.60 each
Qty 10-24	S\$85.40 each
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General

Unbiased **Type:**

Typical Applications:
Low light levels, wide spectral bandwidth response

2.0 @ 0 V/50 Ω, 254nm **Rise Time (μs):**

UV-20 **Model Number:**

UV Enhanced Response	Note:
Quartz	Protective Window:
TO-8	Package:
Physical & Mechanical Properties	
20.0	Active Area (mm²):
Inversion Layer	Construction:
0.55	Outer Diameter (inches):
1.5	Length of Leads (inches):
Optical Properties	
2.24×10^{12} @ 0 V, 254nm	Detectivity (cmHz^{1/2}/W):
Electrical	
1000 @ 0 V	Terminal Capacitance (pF):
50.00	Shunt Resistance @ V=-10mV (MΩ):
0.14	Responsivity @ 254nm (AW):
2.0×10^{-13}	Noise Equivalent Power NEP (W/Hz^{1/2}):
Environmental & Durability Factors	
-20 to 60	Operating Temperature (°C):
Regulatory Compliance	
View	Certificate of Conformance:

Product Details

- UV Enhanced, Blue Enhanced, and Normal Response Options
- Active Areas from <1 to 100mm²
- [C-Mount and S-Mount Mounting Solutions](#) Available

Through the photovoltaic effect, detectors provide a means of transforming light energy to an electrical current. The root of the theory behind this phenomenon is a small energy gap between the valence and conduction bands of the detector. When light, with enough energy to excite an electron from the valence to the conduction band, is incident upon the detector, the resulting accumulation of charge leads to a flow of current in an external circuit. Since light is not the only source of energy that can excite an electron, detectors will have some amount of current that is not representative of incident light. For example, fluctuations in thermal energy can easily be mistaken for light intensity changes. A variety of these "non-light" contributions are present and, when summed up, make up the total noise within the detector.

The ratio of the overall signal output to the noise level is known as the signal to noise ratio (s/n) and can be used to determine if noise will be a concern within a particular application. While noise is certainly a key means of characterizing detectors, it is only one of the characteristics which should be considered when selecting a detector.

Different Operation Modes

Photovoltaic (Unbiased): During PV operation, no external bias is applied to the photodiode. Since Dark Current is a function of bias magnitude, PV operation eliminates Dark Current as a source of noise. In this case, the NEP will be lower, thereby allowing greater sensitivity at lower wavelengths. This makes it ideal for low signal detection. One disadvantage is the slightly lower responsivity at higher wavelengths (see graph).

Photoconductive (Biased): During PC operation, a reverse bias on the photodiode results in a number of response advantages, such as a faster rise time. This makes this type of operation more suitable for high frequency applications. One inconvenience is that the dark current increases with this applied biased current, so noise is introduced into the system.

Technical Information

T0-8 Mount
 (#54-034, #54-035,
 #54-036, #54-037)



Pin Circle Dia. = 0.295

For:
 #54-034
 #54-035
 #54-036

For:
 #54-037



Units: inches