

Avalanche Photodiodes

AVALANCHE PHOTODIODES ■

Avalanche Photodiodes
1060 nm NIR Enhanced Si APDs

1064 nm NIR Enhanced Si APDs

Applications

- Range finding
- LiDAR (Light Detection And Ranging)
- YAG laser detection

Features and Benefits

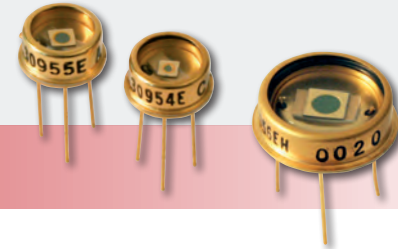
- High quantum efficiency at 1060 nm
- Fast response time
- Wide operating temperature range
- Low capacitance
- Hermetically-sealed packages
- RoHS compliant
- Customization available upon request

Product Description

The C30954EH, C30955EH, and C30956EH are general purpose silicon avalanche photodiodes made using a double-diffused "reach-through" structure. The APD design is optimized for 1064nm operation.

These APDs have quantum efficiency of up to 40% at 1064 nm. At the same time, the diodes retain the low noise, low capacitance, and fast rise and fall times characteristics.

To help simplify many design needs, these APDs are also available in Excelitas' high-performance hybrid preamplifier module type C30659 series, as well as the preamplifier and TE cooler incorporated module type LLAM series. In addition, these APDs are also available with built-in thermo-electric cooler for easier temperature control. Please refer to the respective sections in this catalog.



Product Table

Si APDs – NIR Enhanced

Part Number Unit	Photo Sensitive Diameter mm	Typical Responsivity @ 1060 nm A/W	Typical Dark Current nA	Spectral Noise Current pA/√Hz	Capacitance @ 100 KHz pF	Response Time ns	NEP @ 1060 nm fW/√Hz	Vop Range V
C30954EH	0.8	36	50	1.0	2	2	28	300 - 475
C30955EH	1.5	34	100	1.0	3	2	29	315 - 490
C30956EH	3.0	25	100	1.1	10	2	44	325 - 500

TC stands for single stage cooler, operating temperature 0° C
DTC stands for double stage cooler, operating temperature -20° C

Figure 1

Package Drawing – C30954EH, C30955EH

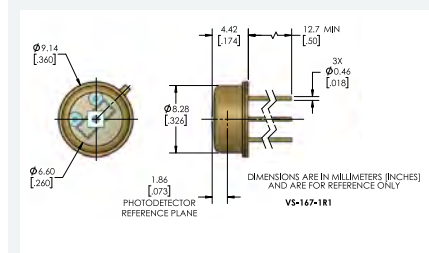
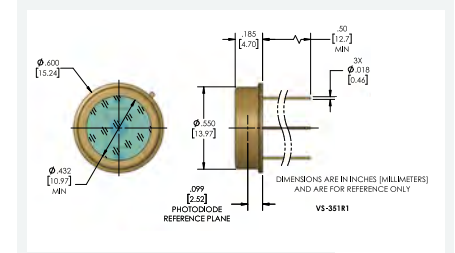


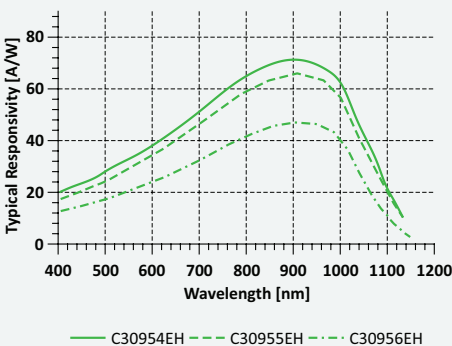
Figure 2

Package Drawing – C30956EH



Graph 1

Spectral Responsivity Characteristics



*Note: Package dimensions for indication only. Exact package dimensions can be found on products datasheets.

Product Table

Silicon APD – TE-Cooled

Unit	Active Diameter mm	Active Area mm ²	Total Capacitance pF	Rise/Fall Time ns	Dark Current nA	Breakdown Voltage min V	Breakdown Voltage max V	Temperature Coefficient	Typical Gain	Responsivity 830 nm A/W	Responsivity 900 nm A/W	Responsivity 1060 nm A/W	Noise Current pA/√Hz	Package
C30954EH-TC	0.8	0.5	2	2	8	300	475	2.4	120	-	75	36	0.2	TO-8 flange
C30955EH-TC	1.5	1.8	3	2	15	315	490	2.4	100	-	70	34	0.2	TO-8 flange
C30956EH-TC	3	7	10	2	15	325	500	2.4	75	-	45	25	0.2	TO-8 flange