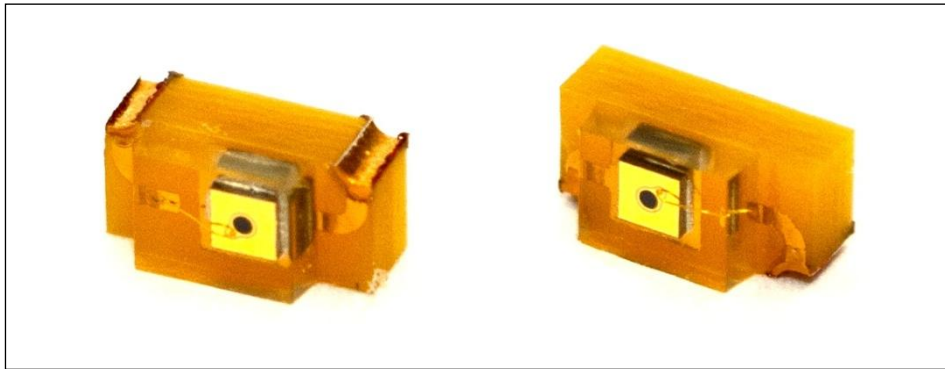


## C30737CH Series

# Silicon Avalanche Photodiodes (APDs) in “Side-looking” LLC SMD Package for High-volume Laser Meter, Range-finding, Area Scanning, and Gesture Recognition Applications



*The large size of the APD's active area allows for easy optical assembly. Excelitas' C30737 Family is available in both “side-looking” LLC SMD and “top-looking” LCC SMD models.*

Excelitas' C30737CH-300-70 APD comes in a unique, laminated leadless carrier (LLC) SMD package, allowing for convenient, automated pick-and-place “side-looker” assembly on printed circuit boards (pcbs). This feature has advantages over traditional thru-hole packaging, and greatly facilitates optical design for laser meter or range-finding applications in the 500 to 1000 nm range. The large size of the Si APD's active-area, 300  $\mu\text{m}$ , allows for an easy optical assembly, while still providing a low capacitance for high-speed and large bandwidths, up to 1 GHz.

The device can be ordered in “Tape-and-Reel” packing format which allows for SMT-compatible, RoHS-compliant reflow soldering. It is an ideal APD device for high-volume, commercial distance-meter, range-finder, and high-speed, 3D laser scanning (LIDAR) applications.

In addition to the C30737CH Series of APDs in LLC SMDs, Excelitas also offers the C30737LH in a “top-looking” ceramic LCC package. It is available with or without a filter option.

Customization of Excelitas' APDs is offered to meet your unique design challenges. Options for these APDs include breakdown voltage selection (binning). They can also be coupled to an amplification circuit to make a higher value-added optical receiver module. Please contact Excelitas to find out more about the various ways in which we can help you integrate these SMD sensors into your high-volume application.

### Key Features and Benefits

- “Side-looking” LLC package – SMT-compatible
- Large size of active area allows for easy optical assembly
- High gain at low bias voltage
- High-speed, large bandwidth
- Fast response,  $T_R \sim 300\text{ps}$
- Low noise
- “Tape-and-Reel” packaging format for automated SMD pick-and-place
- RoHS-compliant

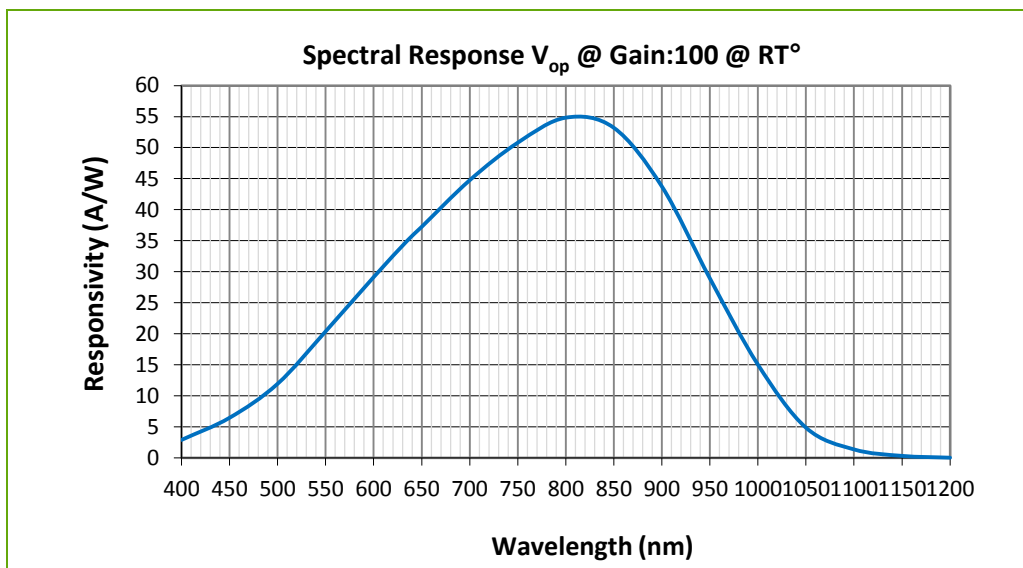
### Applications

- Laser meters for 635 nm or 650 nm
- 905 nm range-finding devices
- Speed guns
- Area scanners for safety, surveillance, and automatic door openers
- Optical communication
- 3D laser scanning (LIDAR)
- Gesture recognition

## Silicon Avalanche Photodiodes in “Side-looking” LLC Package for Laser Meter, Range-finding, Area Scanning, and Gesture Recognition applications

**Table 1. Electrical Characteristics at  $T_A = 22\text{ }^{\circ}\text{C}$ ; at operating voltage- $V_{op}$**

| C30737CH-300-70         |          |                    |     |         |     |                             |
|-------------------------|----------|--------------------|-----|---------|-----|-----------------------------|
| Parameters:             | Symbol   | Unit               | Min | Typical | Max | Comments                    |
| Diameter of active area | $\Phi$   | um                 |     | 300     |     |                             |
| Breakdown voltage       | $V_{br}$ | Volts              | 110 | 130     | 160 |                             |
| Operating voltage       | $V_{op}$ | Volts              | 100 | 120     | 150 | @ $R=35\text{A/W}$ , 635 nm |
| Gain                    | M        | -                  | -   | 100     | -   | $M=1@V_r=10\text{V}$        |
| Responsivity            | S        | A/W                | -   | 35      | -   | @ 635 nm & $V_{op}$         |
| Dark current            | $I_d$    | nA                 | -   | 1       | -   | @ $V_{op}$                  |
| Noise current           | $I_n$    | pA/VHz             | -   | 0.2     | -   | @ $V_{op}$                  |
| Capacitance             | C        | pF                 | 0.6 | 0.7     | 0.8 |                             |
| Bandwidth               | $f_c$    | GHz                | -   | 0.7     | -   |                             |
| Operating temperature   |          | $^{\circ}\text{C}$ | -10 |         | 50  |                             |
| Storage temperature     |          | $^{\circ}\text{C}$ | -20 |         | 70  |                             |



**Figure 1.**  
Typical Spectral  
Response Curve

C30737CH Series

Silicon Avalanche Photodiodes in “Side-looking” LLC Package for Laser Meter, Range-finding, Area Scanning, and Gesture Recognition applications

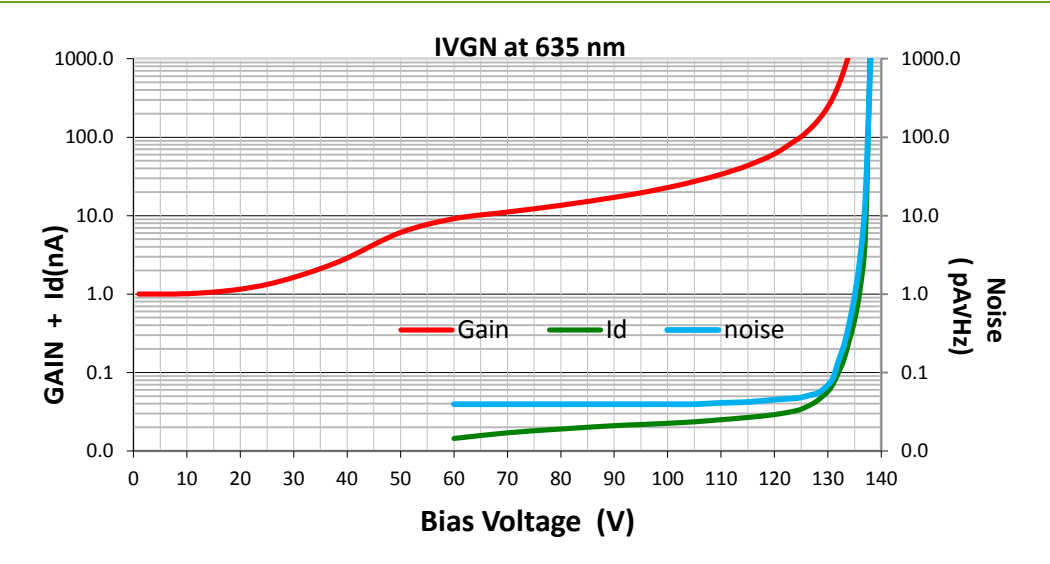


Figure 2.  
Typical Gain,  
dark current and  
noise current vs.  
Bias voltage

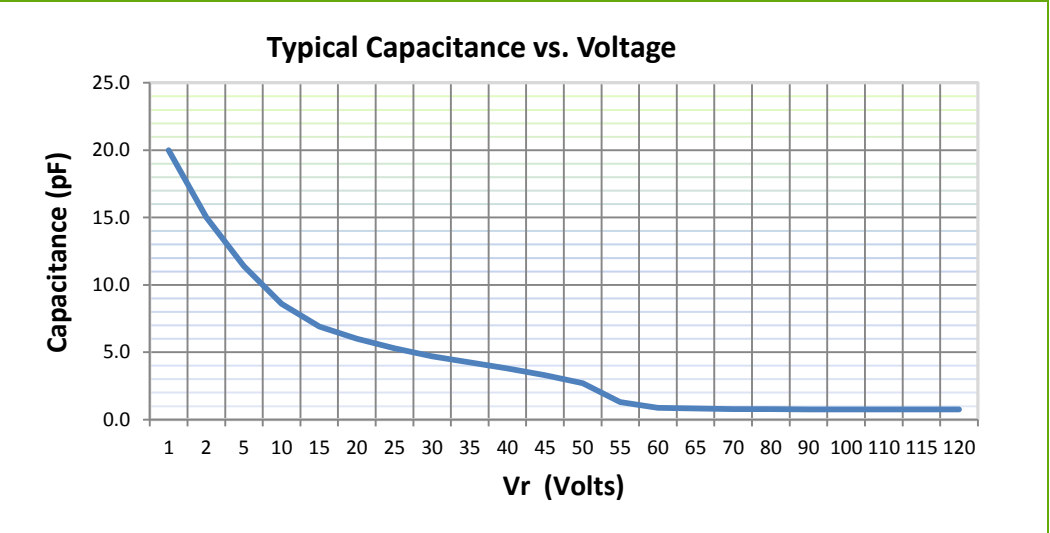


Figure 3.  
Typical Capacitance  
vs. Bias Voltage

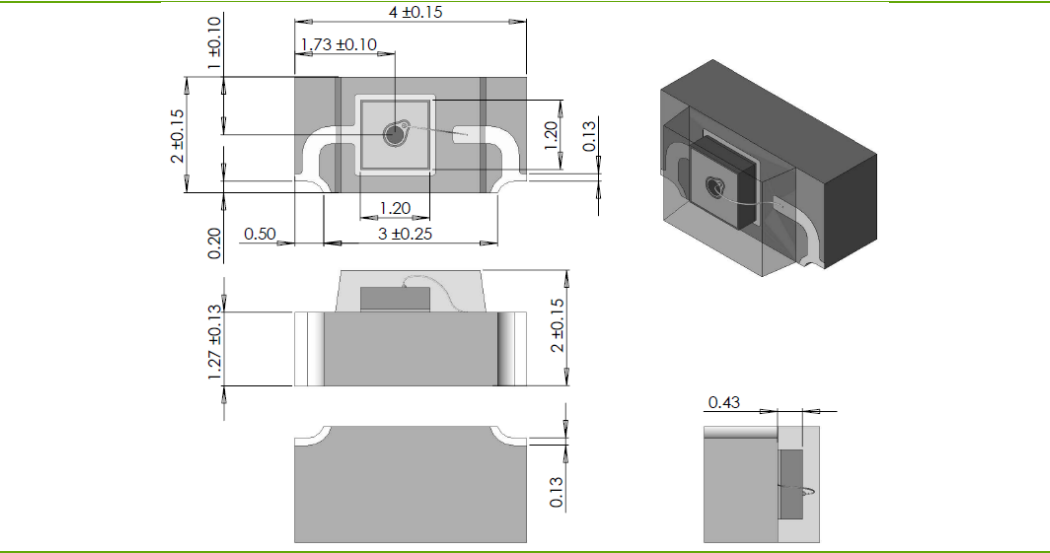
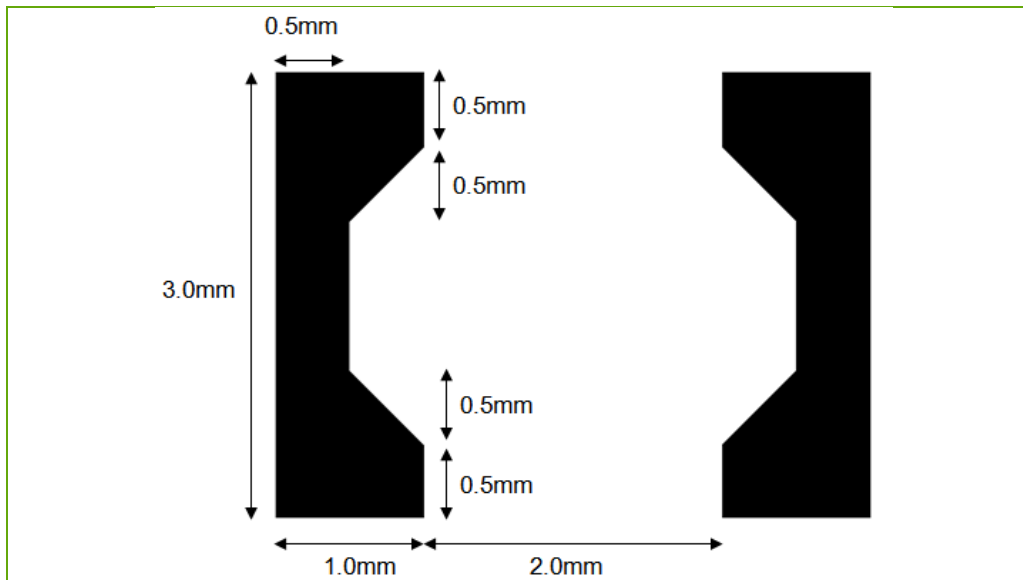


Figure 4.  
Laminite leadless carrier  
(LLC) package dimensions

## Silicon Avalanche Photodiodes in “Side-looking” LLC Package for Laser Meter, Range-finding, Area Scanning, and Gesture Recognition applications



**Figure 5.**  
Laminated leadless  
carrier (LLC)  
device footprint  
for soldering

### “Tape-and-Reel” Shipping Pack Option

The C30737CH Series (LLC SMD Package) is offered in the “Tape-and-Reel” shipping pack option for quantities of 3000 units per reel (Part number: C30737CH-300-70TR). This packing option should be indicated at the time of order placement.

### RoHS Compliance

The C30737CH Series of APDs is designed and built to be fully compliant with the European Union Directive 2002/95/EEC – Restriction of the use of certain Hazardous Substances in Electrical and Electronic equipment.



### About Excelitas Technologies

Excelitas Technologies is a global technology leader focused on delivering innovative, customized solutions to meet the detection, lighting, and other high-performance technology needs of OEM customers.

From safety and security applications to industrial, medical, analytical instrumentation, clinical diagnostics, and aerospace and defense applications, Excelitas Technologies is committed to enabling our customers' success in their end-markets. Excelitas Technologies has approximately 3,000 employees in North America, Europe and Asia, serving customers across the world.

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