

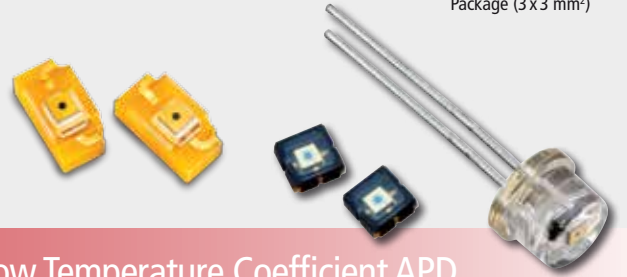
Avalanche Photodiodes

For Range Finding Applications

AVALANCHE PHOTODIODES ■

Right: TO-C30737PH Series
T-1¼ (TO-like) Through-Hole
Package (4.9 mm Diameter)

Left: C30737LH Series
Leadless Ceramic Carrier
Package (3 x 3 mm²)



C30737 High Speed, Low Voltage APD – C30724 Low Temperature Coefficient APD

Applications

- Laser range finding for 600 to 950 nm range
- Optical communication
- Analytical Instrumentation

Features and Benefits

- Optimized versions for peak responsivity at 900 nm or high bandwidth operation
- Standard versions with 500 and 230 µm active diameter
- Various package types: hermetic TO, plastic TO, SMD top-and side-looking
- High gain at low bias voltage
- Low breakdown voltage
- Fast response, $t_R \sim 300$ ps
- Low noise, in ~ 0.2 pA/√Hz
- RoHS compliant
- Customization available upon request

Product Description

The Excelitas C30737 series silicon APDs provide high responsivity between 500 nm and 1000 nm as well as extremely fast rise times at all wavelengths, with a frequency response above 1 GHz for bandwidth-optimised versions. The C30724, as a low gain APD, can be operated at a fixed voltage without the need for temperature compensation.

Standard versions of the 737 are available in three active area sizes: 0.23, 0.3 and 0.5 mm diameter. They are offered in the traditional hermetic TO housing ("E"), in cost-effective plastic through-hole T-1¼ (TO-like, "P") packages, in leadless ceramic carrier (LCC, "L") top-looking package and laminated leadless ceramic (LLC, "C") side-looking package for surface mount use. All listed varieties are ideally suited for high-volume, low cost applications.

Customization of these APDs is offered to meet your design challenges. Operating voltage selection and binning or specific wavelength filtering options are among many of the application-specific solutions available.

Product Table

C30737 Epitaxial Silicon APD – C30724 Low-Gain APD

Part Number	Package	Optical Bandpass Filter	Active Area Diam.	Peak Sensitivity Wavelength	Breakdown Voltage		Temp. Coeff. Of V_{OP} , for Constant M	Gain@ λ_{peak}	Responsivity @ λ_{peak}	Total Dark Current (Bulk + Surface)		Noise Current, (f = 10 kHz, $\Delta f = 1$ Hz)	Capacitance	Rise & Fall Time, (RL = 50 Ω , 10% - 90% - 10% Points)	
		design	design	typ	min	max	typ	typ	typ	typ	typ		typ		
Unit		nm	μ m	λ_{peak}	V_{BR}	V_{BR}	$V/^\circ C$	M	M	I_D	I_D	pA/√Hz	C_D	ns	
C30737EH-230-80	TO	-	230	800	120	200	0.5	100	50	0.05	0.5	0.1	1.0	0.2	
C30737PH-230-80	T-1¼	-	230	800	120	200	0.5	100	50	0.05	0.5	0.1	1.0	0.2	
C30737LH-230-80	LCC	-	230	800	120	200	0.5	100	50	0.05	0.5	0.1	1.0	0.2	
C30737LH-230-81	LCC	635	230	635	120	200	0.5	100	35	0.05	0.5	0.1	1.0	0.2	
C30737LH-230-83	LCC	650	230	650	120	200	0.5	100	35	0.05	0.5	0.1	1.0	0.2	
C30737CH-230-80	LLC	-	230	800	120	200	0.5	100	50	0.05	0.5	0.1	1.0	0.2	
For the remaining 737 family APDs only a generic package and filter part number will be shown, just to show the different APD chip characteristics															
C30737XH-300-7X	LLC, LCC	635, 650	300	800	110	160	-	100	50	0.1	1	0.1	0.7	0.5	
C30737XH-500-8X	all	635, 650	500	800	120	200	0.5	100	50	0.1	1	0.1	2.0	0.9	
C30737XH-230-9X	all	905	230	900	180	260	1.3	100	60	0.05	0.5	0.1	0.6	0.9	
C30737XH-500-9X	all	905	500	900	180	260	1.3	100	60	0.1	1	0.1	1.0	0.9	
C30724EH	TO	-	500	920	-	350	-	15	8.5	20	40	0.1	1.0	5	
C30724PH	T-1¼	-	500	920	-	350	-	15	8.5	20	40	0.1	1.0	5	

Electrical Characteristics at $T_{Ambient} = 22^\circ C$; at operating voltage, V_{Op}