

AVALANCHE PHOTODIODES FOR RANGE FINDING APPLICATIONS

PHOTODIODES FOR HIGH-PERFORMANCE APPLICATIONS ■

Right: TO-C30737PH Series
T-1 $\frac{3}{4}$ (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 900 and 800 nm peak sensitivity
- Standard versions with 500 and 230 μ m active diameter
- Various package types: hermetic TO, plastic TO, SMD
- High gain at low bias voltage
- Low breakdown voltage
- Fast response, $t_r \sim 300$ ps
- Low noise, in ~ 0.2 pA/ $\sqrt{\text{Hz}}$
- RoHS compliant

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. The C30724 as a low gain APD can be operated at fixed voltage without the need of a temperature compensation.

Standard versions are available in two active area sizes: 0.23 and 0.5 mm diameter. They are offered in the traditional hermetic TO housing (“E”), in cost effective plastic through-hole T-1 $\frac{3}{4}$ (TO-like, “P”) packages, and in leadless ceramic carrier (LCC, “L”) package for surface mount technology. All listed varieties are ideally suited for high-volume, low cost applications.

Customization of these APDs is offered to meet your design challenges. Operation 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	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%)
		design	design	typ	min	max	typ	typ	typ	typ	typ	typ	typ	
		nm	μ m	λ_{peak}	V_{BR}	V_{BR}	V/ $^{\circ}$ C	M	M	I_b	I_b	pA/ $\sqrt{\text{Hz}}$	C_D	ns
C30737EH-230-80	TO	-	230	800	120	200	0.5	100	50	2.5	10	0.1	1.0	0.22
C30737PH-230-80	T-1 $\frac{3}{4}$	-	230	800	120	200	0.5	100	50	2.5	10	0.1	1.0	0.22
C30737LH-230-80	LCC	-	230	800	120	200	0.5	100	50	2.5	10	0.1	1.0	0.22
C30737LH-230-81	LCC	635	230	635	120	200	0.5	100	35	2.5	10	0.1	1.0	0.22
C30737EH-500-80	TO	-	500	800	120	200	0.5	100	50	5	20	0.3	2.0	0.30
C30737PH-500-80	T-1 $\frac{3}{4}$	-	500	800	120	200	0.5	100	50	5	20	0.3	2.0	0.30
C30737LH-500-80	LCC	-	500	800	120	200	0.5	100	50	5	20	0.3	2.0	0.30
C30737LH-500-81	LCC	635	500	800	120	200	0.5	100	35	5	20	0.3	2.0	0.30
C30737EH-230-90	TO	-	230	900	180	260	1.3	100	60	2.5	10	0.2	0.6	0.50
C30737PH-230-90	T-1 $\frac{3}{4}$	-	230	900	180	260	1.3	100	60	2.5	10	0.2	0.6	0.50
C30737PH-230-90	LCC	-	230	900	180	260	1.3	100	60	2.5	10	0.2	0.6	0.50
C30737PH-230-92	LCC	905	230	905	180	260	1.3	100	60	2.5	10	0.2	0.6	0.50
C30737EH-500-90	TO	-	500	900	180	260	1.3	100	60	5	20	0.4	1.0	0.60
C30737PH-500-90	T-1 $\frac{3}{4}$	-	500	900	180	260	1.3	100	60	5	20	0.4	1.0	0.60
C30737LH-500-90	LCC	-	500	900	180	260	1.3	100	60	5	20	0.4	1.0	0.60
C30737LH-500-92	LCC	905	500	905	180	260	1.3	100	60	5	20	0.4	1.0	0.60
C30724EH	TO	-	500	920	-	350	-	15	8.5	20	40	0.1	1.0	5
C30724PH	T-1 $\frac{3}{4}$	-	500	920	-	350	-	15	8.5	20	40	0.1	1.0	5

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