

PIN Photodiodes For Industrial Applications

PIN PHOTODIODES ■

PIN Photodiodes
InGaAs and Si PIN Diodes,
Quadrant Detectors,
UV-Enhanced



InGaAs and Si PIN Diodes – Quadrant Detectors – UV-Enhanced

Applications

- LiDAR
- Telecom
- Instrumentation
- Photometry
- Laser power monitoring
- Fiber optic test equipment
- High speed switching
- Spot tracking
- Laser range finders
- Missile guidance
- Laser warning system

Features and Benefits

- High speed
- High responsivity
- Hermetically-sealed
- Large area available
- High shunt resistance, low dark current
- Customization available upon request

Product Description

Silicon PIN photodiodes are available in a wide variety of active areas to accommodate a large range of applications. The PIN structure allows high quantum efficiency and fast response for detection of photons in the 400 nm to 1100 nm range.

The YAG series offers an exceptional 0.4 A/W at 1060 nm by using a thick silicon material. Designed with a guard ring to collect current generated outside of the active area, they are the detectors of choice when the entire chip is illuminated by reducing unwanted carriers responsible for noise. Precise beam positioning can be achieved by using our quadrant detectors. They are designed with 4 pie-shaped quadrant sections created via the doping process, thus reducing the "dead" space between each quadrant to almost zero. Each quadrant is then connected to an isolated lead.

The C30741 provides fast response and good quantum efficiency in the spectral range between 300 nm to 1100 nm. Designed for high-speed, high-volume production and cost-sensitive applications, these photodiodes are offered in plastic TO-style packages with a visible blocking filter option.

Our UV series are high quality Si PIN photodiodes in hermetically-sealed TO packages designed for the 220 nm to 1100 nm wavelength region with enhanced operation in the UV range. Low noise detection is achieved by operating the UV series in photovoltaic mode (0 V bias).

The InGaAs PIN detectors provide high quantum efficiency from 800 nm to 1700 nm. They feature low capacitance for extended bandwidth, high resistance for high sensitivity, high linearity, and uniformity within 2 % across the detector active area.

Product Table

InGaAs PIN, High Speed, Peak Wavelength at 1550 nm

Unit	Active Diameter	Responsivity Peak	Capacitance	Bw	Dark Current	Breakdown Voltage	Operating Voltage	Package
	µm	A/W	pF	GHz	nA	V	V	
C30617BH	100	0.95	0.8	3.5	<1	100	5	TO-18, ball lens
C30617BFCH	100	0.95	0.8	3.5	<1	100	5	TO-18, FC receptacle
C30617BSCH	100	0.95	0.8	3.5	<1	100	5	TO-18, SC receptacle
C30617BQC-04-XX	100	0.95	0.8	3.5	<1	100	5	TO-18 ST receptacle
C30617ECERH	100	0.95	0.6	3.5	<1	100	5	Ceramic carrier
C30617L-100	100	0.95	0.6	3.5	<1	100	5	SMT
C30618BFCH	350	0.95	4	0.75	1	100	5	TO-18, FC receptacle
C30618GH	350	0.95	4	0.75	1	100	5	TO-18
C30618ECERH	350	0.95	4	0.75	1	100	5	Ceramic carrier
C30618L-350	350	0.95	4	0.75	1	100	5	SMT

Product Table

InGaAs PIN, Large Area, Peak Wavelength at 1550 nm

Unit	Active Diameter	Responsivity Peak	Capacitance	Shunt Resistance	B _w	Dark Current	Breakdown Voltage	Operating Voltage	Package
	mm	A/W	pF	Mega Ohm	MHz	nA	V	V	
C30619GH	0.5	0.95	8	250	750	1	80	0-10	TO-18
C30641EH-TC	1	0.95	8	50	350	1	80	0-5	TO-8, flange, TE-cooled
C30641EH-DTC	1	0.95	40	50	75	5	80	0-5	TO-8, flange, dual TE
C30641GH	1	0.95	40	50	75	5	80	0-5	TO-18
C30642GH	2	0.95	150	25	20	10	50	0-5	TO-5
C30665GH	3	0.95	200	10	3	25	50	0-5	TO-5
C30723GH	5	0.95	950	5	3	-	50	0-5	TO-5

Product Table

Silicon PIN

Unit	Active Diameter	Active Area	Responsivity Peak	Peak Wavelength	Capacitance	Rise Time	Dark Current	Shunt Resistance	Breakdown Voltage	Operating Voltage	Package
	mm	mm ²	A/W	nm	pF	ns	nA	MΩ	V	V	
C30741PH-15S	1.5 x 1.5	2.25	0.47	800	11	2	0.05	-	300	10	Plastic T-1¾ through-hole
C30741PFH-15S	1.5 x 1.5	2.25	0.47	800	11	2	0.05	-	300	10	T-1¾ visible blocking
C30807EH	1	0.8	0.6	900	2.5	5	10	-	>100	45	TO-18
C30808EH	2.5	5	0.6	900	5	12	30	-	>100	45	TO-5
C30809EH	8	50	0.6	900	25	12	25	-	>100	45	TO-8
C30810EH	11	100	0.6	900	45	15	83	-	>100	45	TO, 1.25 inch dia.
C30822EH	5	20	0.6	900	12	12	50	-	>100	45	TO-8
FFD-100H	2.5	5.1	0.6	850	8.5	3.5	5	-	>125	15	TO-5
FFD-200H	5	20	0.6	850	30	5	10	-	>125	15	3 pin, 0.6 inch dia.
FND-100GH	2.5	5.1	0.64	920	8.5	<1n	10	-	150	90	TO-5
FND-100QH	2.5	5.1	0.64	920	8.5	<1n	10	-	150	90	TO-5, response down to 200 nm
UV-040BQH	1	0.81	0.62	900	25	-	-	>2000	-	0	TO-5, response down to 200 nm
UV-100BQH	2.5	5.1	0.62	900	120	-	-	>1000	-	0	TO-5, response down to 200 nm
UV-215BGH/340	5.5	23.4	0.6	900	450	-	-	>250	-	0	TO-5, response down to 250 nm
UV-215BQH	5.5	23.4	0.62	900	450	-	-	>215	-	0	TO-5, response down to 200 nm
UV-245BGH	5	18.5	0.62	900	375	-	-	>375	-	0	TO-5, response down to 250 nm
UV-245BQH	5	18.5	0.62	900	375	-	-	>375	-	0	TO-5, response down to 200 nm
YAG-100AH	2.5	5.1	0.7	1000	12	5	<20	-	>200	180	TO-5
YAG-200H	5	20	0.7	1000	12	5	<100	-	>200	180	TO-8
YAG-444AH	11.3	100	0.7	1000	13	5	<200	-	>200	180	TO-36

Product Table

Specialty Silicon Detectors

Unit	Description	Active Diameter	Active Area	Capacitance	Rise/Fall Time	Dark Current	Breakdown Voltage min	Responsivity 900 nm	Responsivity 1060 nm	Noise Current	Package
		mm	mm ²	pF	ns	nA	V	A/W	A/W	pA/sqrt(Hz)	
C30845EH	900 nm Quadrant PIN	8	50	8	12	70 nA	100	0.6	0.17	0.26	TO-8
YAG-444-4AH**	1064 nm Quadrant PIN	11.5	100	9	12	30	200	0.6	0.5	0.2	Custom
YAG-444N-4AH	1064 nm Quadrant PIN	11.5	100	9	12	30	200	0.6	0.5	0.1	Custom
YAG-555-4AH	1064 nm Quadrant PIN	14.1	156	12	12	50	200	0.6	0.5	0.2	Custom
YAG-555N-4AH	1064 nm Quadrant PIN	14.1	156	12	12	50	50	0.6	0.5	0.1	Custom
C30665GH-4A	1550 nm Quadrant PIN	3	7	115	14	2		0.8	1.05	0.08	TO-5

* Responsivity is measured at 900 and 1064 nm for 1064 nm quadrant PINs, and 1064 and 1550 nm for 1550 nm quadrant PINs.

** The YAG series of quadrant PIN photodiodes are available with built-in heater package, upon request.