

photodiodes



Features

- Low-cost visible and near-IR photodetector
- Excellent linearity in output photocurrent over 7 to 9 decades of light intensity
- Fast response times
- Available in a wide range of packages including epoxy-coated, transfer-molded, cast, and hermetic packages, as well as in chip form or surface mounting technology
- Low noise
- Mechanically rugged, yet compact and lightweight
- Available as duals, quads or as linear arrays
- Usable with almost any visible or near-infrared light source such as solid state laser diodes, LEDs, neon, fluorescent, incandescent bulbs, lasers, flame sources, sunlight, etc.
- Can be designed and tested to meet the requirements of your application



Typical Applications

- Fiber-optic communications
- Instrumentation
- High-speed switching
- Spot position tracking and measurement
- Photometry
- Data transmission
- UV light meters
- Fluorescent light detection
- Laser range finding
- Barcode scanning
- Laser safety scanning
- Distance measurement

Datasheets available upon request.

Description

PerkinElmer Optoelectronics offers a broad array of Silicon and InGaAs PIN and APDs.

InGaAs Avalanche Photodiodes

The high-quality InGaAs avalanche photodiodes (APDs) are packaged in hermetically sealed TO cans and ceramic blocks designed for the 900 to 1700 nm wavelength region.

InGaAs PIN Photodiodes

High-quality Indium Gallium Arsenide photodiodes designed for the 900 to 1700 nm wavelength region, these photodiodes are available in standard sizes ranging from 50 microns to 5 mm in diameter. Packages include ceramic submount, TO packages, and chip form.

Silicon Avalanche Photodiodes

These are reliable, high-quality detectors in hermetically sealed TO packages designed for high-speed and high-gain applications. A “reach-through” structure is utilized which provides very low noise performance at high gains and a full range of active areas.

Silicon PIN Photodiodes

Offered for low- to high-speed applications, these PINs are designed for the 250 nm to 1100 nm range. Standard sizes range from 100 microns to 10 mm in diameter.

Silicon PN Photodiodes

This format includes a variety of high-volume, low-cost silicon photodiodes that meet the demanding requirements of today’s commercial and consumer markets.

Selective Photodiodes

These GaP and GaAlAs-based photodiodes provide high sensitivity and a narrow spectral response without additional filtering. As SMD components they are ready for automated treatment.

Alternate Source/Second Source Photodiodes

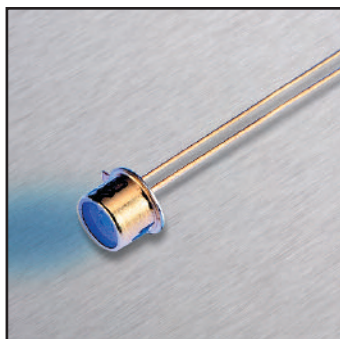
PerkinElmer’s nearest equivalent devices are selected on the basis of general similarity of electro-optical characteristics and mechanical configuration. Interchangeability in any particular application is not guaranteed, suitability should be determined by the customer’s own evaluation.

Detector Modules

Preamplifier modules are hybrid devices with a photodiode and a matching amplifier in a compact hermetic TO package. An integral amplifier allows for better ease of use and noise bandwidth performance. 14-pin, DIL, and/or fibered packaged modules are available on a custom basis.

All photodiodes are RoHS compliant.

photodiodes



Indium Gallium Arsenide PIN Photodiodes, Large-Area, and Small-Area Indium Gallium Arsenide APDs

- High responsivity
- Low capacitance for high bandwidths
- Available in various hermetic packages

InGaAs APDs—900 nm to 1700 nm

Technical Specification

Part Number	Standard Package	Photo Sens. Diam. μm	Resp. A/W @1300 nm	Resp. A/W @1550 nm	Dark Curr. Id (nA)	Spect. Noise Curr. Dens. In (pA/√Hz)	Cap. @100 kHz Cd (pF)	Bandwidth GHz into 50 Ω	NEP @ 1550 nm pW/√Hz	VOP for Gain=10 V
C30645EH	TO window	80	8.4	9.4	10	0.25	1.2	1	0.13	40–70
C30645ECERH	Ceramic	80	8.4	9.4	10	0.25	1	1	0.13	40–70
C30662EH	TO window	200	8.4	9.4	50	1	2.5	0.2	0.15	40–70
C30662ECERH	Ceramic	200	8.4	9.4	50	1	2.5	0.2	0.15	40–70

Test conditions: T = 22°C

InGaAs PIN Large-Area—900 nm to 1700 nm

Technical Specification

Part Number	Standard Package	Photo Sens. Diam. mm	Resp. A/W @850 nm	Resp. A/W @1300 nm	Resp. A/W @1550 nm	Dark Curr. Id (nA)	NEP @ 1300 nm pW/√Hz	Cap. @100 kHz Cd (pF)	Bandwidth MHz into 50 Ω	Max. Power for .15 dB Linearity (dBm)	Bias Volt for These Specs V
C30619GH	TO-18	0.5	0.2	0.86	0.95	5	<0.1	8	350	>+13	5
C30641GH	TO-18	1	0.2	0.86	0.95	5	<0.1	40	75	>+13	2
C30642GH	TO-5	2	0.2	0.86	0.95	10	0.1	350	20	+11	0
C30665GH	TO-5	3	0.2	0.86	0.95	25	0.2	1000	3	+11	0
C30723GH	TO-8	5	0.2	0.86	0.95	30	0.3	2500	2.5	+11	0

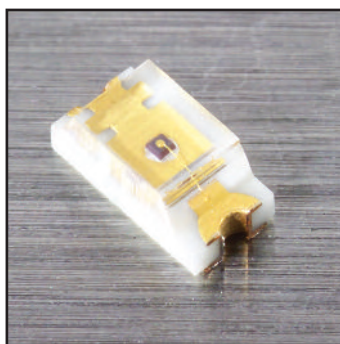
Test conditions: T = 22°C

InGaAs PIN Small-Area—900 nm to 1700 nm

Technical Specification

Part Number	Standard Package	Photo Sens. Diam. μm	Resp. A/W @1300 nm	Resp. A/W @1550 nm	Dark Curr. Id (nA)	Spect. Noise Curr. Dens. In (pA/√Hz)	Cap. @100 kHz Cd (pF)	Bandwidth GHz into 50 Ω	NEP @ 1550 nm pW/√Hz	Bias Volt for These Specs V
	Ceramic	50	0.86	0.95	0.5	<0.02	0.35	>3.5	<0.02	5
C30637ECERH	Ceramic	75	0.86	0.95	0.8	<0.02	0.4	3.5	<0.02	5
C30617ECERH	Ceramic	100	0.86	0.95	1	<0.02	0.55	3.5	<0.02	5
C30617BH	Ball lens	100	0.8	0.9	1	<0.02	0.8	3.5	<0.02	5
C30618ECERH	Ceramic	350	0.86	0.95	2	0.02	4	0.8	0.02	5
C30618GH	TO window	350	0.86	0.95	2	0.02	4	0.8	0.02	5

Test conditions: T = 22°C



Selective Photodiode SR10SPD 470-0.9

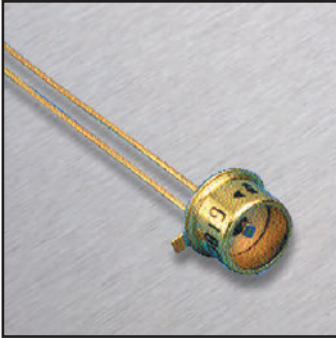
- Surface mounting device
- High sensitivity
- Narrow spectral response without additional filtering

Selective Photodiodes Based on III-V Materials

Technical Specification

Part Number	Package*	Reverse Voltage (V)	Dark Current (nA)	Active Area (mm ²)	Sensitivity (A/W)	Rise/Fall Time tr/ta (us)	Spectral Range @0.5 max. (nm)
SR10SPD 470-0.9	SMD (A3)	10	0.03	0.7	0.18	N/A	425–585
SR10SPD 525-0.9	SMD (A3)	5	0.005	0.73	0.25	N/A	480–560
SR10SPD 660-0.9	SMD (A3)	10	0.04	0.62	0.42	0.027	620–700
SR10SPD 880-0.9	SMD (A3)	5	0.001	0.73	0.25	N/A	820–935

* All packages are listed on our website.



Silicon Avalanche Photodiodes

- Hermetically sealed packages

Si APD—Standard Types—400 nm to 1100 nm

Technical Specification

Part Number	Standard Package	Photo Sens. Diam. mm	Resp. 900 nm A/W	Dark Curr. Id (nA)	Spect. Noise Curr. Dens. In (pA/√Hz)	Cap. @100 kHz Cd (pF)	Resp. Time tr (ns)	NEP @ 900 nm fW/√Hz	VOP Range V
C30817EH	TO-5	0.8	75	50	0.5	2	2	7	275–425
C30872EH	TO-8	3	45	100	0.5	10	2	11	275–425
C30902EH	TO-18	0.5	77 (@ 830 nm)	15	0.2	1.6	0.5	3 (@ 830 nm)	180–250
C30902SH	TO-18	0.5	128 (@ 830 nm)	15	0.1	1.6	0.5	0.86 (@ 830 nm)	180–250
C30916EH	TO-5	1.5	70	100	0.5	3	2	8	275–425

Test conditions: T = 22°C

Si APD—Arrays Quadrant and Linear—400 nm to 1100 nm

Technical Specification

Part Number	Standard Package	Photo Sens. Diam. mm	Resp. A/W	Dark Curr. Id (nA)	Spect. Noise Curr. Dens. In (pA/√Hz)	Cap. @100 kHz Cd (pF)	Resp. Time tr (ns)	NEP fW/√Hz	VOP Range V
C30927EH-01	TO-8	1.5 total	15 (@1060 nm)	25	0.5	1	3	33 (@1060 nm)	275–425
C30927EH-02	TO-8	1.5 total	62 (@900 nm)	25	0.5	1	3	8 (@900 nm)	275–425
C30927EH-03	TO-8	1.5 total	55 (@830 nm)	25	0.5	1	3	9 (@830 nm)	275–425
C30985EH	Custom	0.3 pitch	31 (@830 nm)	1	0.1	0.5	2	3 (@830 nm)	250–425

Test conditions: T = 22°C

Si APD—Low Cost, High Volume—400 nm to 1000 nm

Technical Specification

Part Number	Standard Package	Photo Sens. Diam. mm	Resp. @900 nm A/W	Dark Curr. Id (nA)	Spect. Noise Curr. Dens. In (pA/√Hz)	Cap. @100 kHz Cd (pF)	Resp. Time tr (ns)	NEP @ 900 nm fW/√Hz	VOP Range V
C30724EH	TO-18	0.5	9 (@ M=15)	25	0.1	1	5	11	120–200
C30724PH	Plastic	0.5	9 (@ M=15)	25	0.1	1	5	11	120–200
C30737EH-500	TO-18	0.5	47 (@ I=800 nm M=100)	20	0.3	2.5	0.3	6.4 (@ 800 nm M=100)	120–200

Test conditions: T = 22°C

Si APD—TE-Cooled

Technical Specification

Part Number	Standard Package	Photo Sens. Diam. mm	Resp. @830 nm A/W	Dark Curr. Id (nA)	Spect. Noise Curr. Dens. In (pA/√Hz)	Cap. @100 kHz Cd (pF)	Resp. Time tr (ns)	NEP @ 830 nm fW/√Hz	ADP VOP Range V
C30902SH-TC	TO-66	0.5	128	2	0.04	1.6	0.5	0.3	160–250
C30902SH-DTC	TO-66	0.5	128	1	0.02	1.6	0.5	0.16	160–250

Test conditions: T = 0°C for -TC and -20°C for -DTC

ADP VOP Range: temperature dependent

photodiodes



Silicon Avalanche Photodiodes

- Low cost, high volume

Si APD—NIR-Enhanced—400 nm to 1100 nm

Technical Specification

Part Number	Standard Package	Photo Sens. Diam. mm	Resp. @1060 nm A/W	Dark Curr. Id (nA)	Spect. Noise Curr. Dens. In (pA/√Hz)	Cap. @100 kHz Cd (pF)	Resp. Time tr (ns)	NEP @ 900 nm m=15 fW/√Hz	VOP Range V
C30954EH	TO-5	0.8	36	50	0.5	2	2	14	275–425
C30955EH	TO-5	1.5	34	100	0.5	3	2	15	275–425
C30956EH	TO-8	3	25	100	0.5	10	2	20	275–425

Test conditions: T = 22°C

Si APD—Lightpipe

Technical Specification

Part Number	Standard Package	Photo Sens. Diam. mm	Resp. @830 nm A/W	Dark Curr. Id (nA)	Spect. Noise Curr. Dens. In (pA/√Hz)	Cap. @100 kHz Cd (pF)	Resp. Time tr (ns)	NEP @ 830 nm fW/√Hz	VOP Range V
C30921EH	TO-18	0.5	77	15	0.23	1.6	0.5	3	180–250
C30921SH	TO-18	0.5	128	15	0.11	1.6	0.5	0.86	180–250

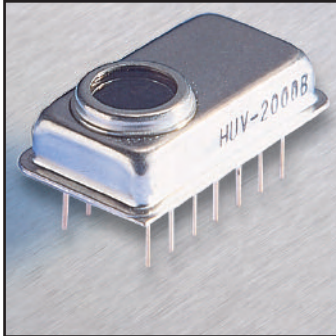
Test conditions: T = 22°C

Si APD—Radiation Detection

Technical Specification

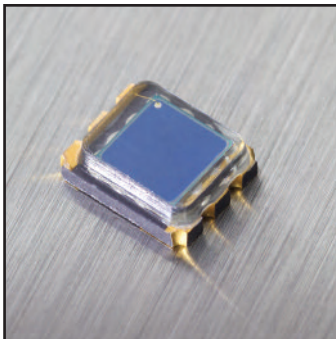
Part Number	Photo Sens. Diam. mm	Resp. A/W	Dark Curr. Id (nA)	Spect. Noise Curr. Dens. In (pA/√Hz)	Cap. @100 kHz Cd (pF)	Resp. Time tr (ns)	NEP @ Peak fW/√Hz	VOP Range V
C30626FH	5x5	22 (@900 nm)	250	0.5	30	5	23 (@900 nm)	275–425
C30703FH	10x10	16 (@530 nm)	10	0.7	120	5	40 (@530 nm)	275–425

Test conditions: T = 22°C



Silicon PIN Photodiodes and Modules

- Broad range of photosensitive areas
- Low operating voltage
- Hermetically sealed packages
- SMD-devices



Si PIN – Surface Mounting Device CFD10

- Large radiant sensitivity area



CR50DE

- Solid state ceramic chip
- High thermal conductivity
- Special type (CR50DE-DLF) with daylight filter on request

Si PINs—Window and Lightpipe Packages, Fast Response—400 nm to 1100 nm

Technical Specification

Part Number	Standard Package	Photo Sens. Diam. mm	Resp. @830 nm A/W	Dark Curr. Id nA	Spect. Noise Curr. Dens. In (fA/√Hz)	Cap. @100 kHz Cd (pF)	Resp. Time tr (ns)	NEP @ 830 nm fW/√Hz	Bias Volt for These Specs V
C30971EH	TO-18	0.5	0.5	10	57	1.6	0.5	113	100

Test conditions: T = 22°C

Si PINs—Large Area, Fast Response—400 nm to 1100 nm

Technical Specification

Part Number	Standard Package	Photo Sens. Diam. mm	Resp. @900 nm A/W	Dark Curr. Id nA	Spect. Noise Curr. Dens. (fA/√Hz)	Cap. @100 kHz Cd (pF)	Resp. Time tr (ns)	NEP @ 900 nm fW/√Hz	Bias Volt for These Specs V
FFD-100H	TO-5	2.5	0.58	2	25	8.5	3.5	44	15
FFD-200H	TO-8	5.1	0.58	4	36	30	5	62	15

Test conditions: T = 22°C

Si PINs—Quadrant—220 nm to 1100 nm

Technical Specification

Part Number	Standard Package	Photo Sens. Diam. total mm	Resp. @900 nm A/W	Dark Curr. Id nA	Spect. Noise Curr. Dens. In (fA/√Hz)	Cap. @100 kHz Cd (pF)	Resp. Time tr (ns)	NEP @ 900 nm fW/√Hz	Bias Volt for These Specs V
C30845EH	TO-5	8	0.6	7	47	8	6	79	45
YAG-444-4AH	Custom	11.4	0.4 @1.06 μm	40	118	9	25	295	180

Test conditions: T = 22°C

Si PINs—Standard N-Type—400 nm to 1100 nm

Technical Specification

Part Number	Standard Package	Photo Sens. Diam. mm	Resp. @900 nm A/W	Dark Curr. Id nA	Spect. Noise Curr. Dens. In (fA/√Hz)	Cap. @100 kHz Cd (pF)	Resp. Time tr (ns)	NEP @ 900 nm fW/√Hz	Bias Volt for These Specs V
C30807EH	TO-18	1	0.6	1	18	2.5	3	30	45
C30808EH	TO-5	2.5	0.6	3	31	6	5	52	45
C30822EH	TO-8	5	0.6	5	40	17	7	67	45
C30809EH	TO-8	8	0.6	7	47	35	10	79	45
C30810EH	Custom	11.4	0.6	30	98	70	12	163	45

Test conditions: T = 22°C

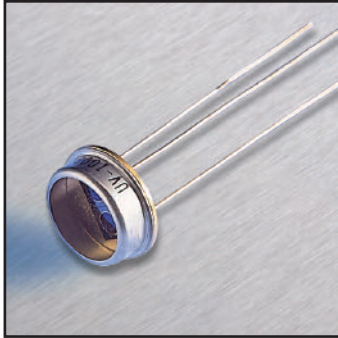
Si PIN-Diodes—Surface Mounting Devices

Technical Specification

Part Number	Package*	Reverse Voltage (V)	Dark Current (nA)	Active Area (mm²)	Sensitivity (A/W)	Rise/Fall Time tr/ff (us)	Capacitance (pf)
PF10	SMD (D)	32	5	6.71	0.6	200	25
CR10DE	Ceramic SMD (A1)	50	0.5	0.31	0.5	3	2.5
CR50DE	Ceramic SMD (A2)	50	0.5	0.31	0.5	3	2.5
SR10BP	SMD (A3)	170	10	0.65	N/A	10	10
SR10BP-B	SMD (A3)	170	10	0.65	N/A	10	10

* All packages are listed on our website.

photodiodes



Silicon PINs—UV Enhanced

Si PINs—UV Enhanced, Low Noise—220 nm to 1100 nm

Technical Specification

Part Number	Standard Package	Photo Sens. Diam. mm	Resp. A/W		Shunt Resis. Rd MW	Spect. Noise Curr. Dens.: In (fW/√Hz)	Cap. @100 kHz: Cd (pF)	NEP @ 900 nm fA/√Hz
			@250 nm	@900 nm				
UV-040BQH	TO-8	1	0.12	0.58	2000	3	25	5
UV-100BQH	TO-8	2.5	0.12	0.58	1000	4	120	7
UV-215BQH	TO-8	5.4	0.12	0.58	250	8	450	25
UV-245BQH	TO-8	4.4x4.7	0.12	0.58	375	7	375	20

Test conditions: T = 22°C

Si PIN Modules—Low Bandwidth—1 kHz to 50 kHz

Technical Specification

Part Number	Standard Package	Photo Sens. Diam. mm	Resp. MV/W		Spect. Noise Volt. Dens. Vn (μV/√Hz)	NEP @ 900 nm pW/√Hz	Bandwidth kHz into 50 Ω	Bias Volt for These Specs V
			@250 nm	@900 nm				
HUV-2000BH	Custom	5.4	24	116	2.5	0.02	2	0
HUV-1100BGH	TO-5	2.5	24	116	20	0.17	20	0

Test conditions: T = 22°C

Si PIN & APD Modules—High Bandwidth—40 MHz to 100 MHz

Technical Specification

Part Number	PIN or APD Used	Standard Package	Photo Sens. Diam. mm	Resp. @900 nm kV/W	Lin. Volt. Out. Swing (V) 50 Ω	Spect. Noise Volt. Dens. Vn (nV/√Hz)	NEP @900 nm pW/√Hz	Bandwidth MHz (3 dB, into 50 Ω)	Photo. Diod. Bias Volt V
C30608EH	C30971 (Si PIN)	P	0.5	32 (@830 nm)	0.7	60	1.8 (@830 nm)	50	12
C30950EH	C30817 (Si APD)	L	0.8	560	0.7	20	0.036	50	275–425
C30919EH (temp. compens.)	C30817 (Si APD)	N	0.8	1000	0.7	25	0.025	40	275–425

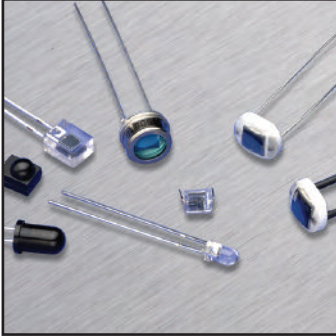
Typical Characteristics @ T = 22°C

Si InGaAs APD Modules—High Bandwidth—50 MHz to 200 MHz

Technical Specification

Part Number	APD Chip	Optimum Resp. λ	Standard Package	Photo Sens. Diam. mm	Resp. @ λ of APD (kv/W)	Lin. Volt. Out. Swing (V)	Spect. Noise Volt. Dens. Vn (nV/√Hz)	NEP @ λ fW/√Hz	Bandwidth MHz (-3 dB)	Photo. Diod. Bias Volt V
C30659-900-R5BH	C30902E (Si APD)	900	L	0.5	400	0.7	15	40	200	180–260
C30659-900-R8AH	C30817E (Si APD)	900	L	0.8	3000	0.7	35	12	50	275–435
C30659-1060-R8BH	C30954E (Si APD)	1060	L	0.8	200	0.7	20	100	200	275–425
C30659-1060-3AH	C30956E (Si APD)	1060	L	3	280	0.7	25	90	50	275–425
C30659-1550-R08BH	C30645E (InGaAs APD)	1550	L	0.08	90	0.7	20	220	200	40–70
C30659-1550-R2AH	C30662E (InGaAs APD)	1550	L	0.2	340	0.7	45	130	50	40–70

Typical Characteristics @ T = 22°C, 50 Ω load



Silicon PN Photodiodes

Table Key VTS Series

I_{SC}	Short-Circuit Current H=1000 lux, 2850 K
$TC I_{SC}$	I_{SC} Temperature Coefficient H=1000 lux, 2850 K
I_D	Dark Current H=0, $V_R=100$ mV
$TC I_D$	I_D Temperature Coefficient H=0, $V_R=100$ mV
R_{SH}	Shunt Resistance H=0, $V_R=10$ mV
C_J	Junction Capacitance H=0, V=0 V, 1 MHz
S_R	Sensitivity @ 400 nm
R_E	Responsivity 400 nm, 0.18 A/W
t_R/t_F	Rise/Fall Time @ 1 K Ω load $V_R=1$ V, 830 nm
V_{OC}	Open-Circuit Voltage H=1000 lux, 2850 K
$TC V_{OC}$	V_{OC} Temperature Coefficient H=1000 lux, 2850 K

Table Key VTA Series Arrays

I_L uniformity	550 nm, 30 nW/cm ²
S_R	550 nm
C_J	H=0, $V_R=0$
I_D	H=0, $V_R=10$ mV
Active Area	Per Element

Silicon PN—VTS Series (Low Capacitance, Large Area)

Technical Specification

Part Number	I_{SC} mA	$TC I_{SC}$ %/°C	I_D nA	$TC I_D$ %/°C	R_{SH} M Ω	C_J nF	S_R A/W	R_E A/(W/cm ²)	t_R/t_F μ sec	V_{OC} V	$TC V_{OC}$ mV/°C	Active Area mm ²
VTS_80H	3	0.2	200	+11	0.3	7.5	0.2	0.7	13	0.45	-2.6	392
VTS_81H	1.5	0.2	100	+11	0.6	3.5	0.2	0.34	6.4	0.45	-2.6	187
VTS_82H	0.69	0.2	50	+11	1.2	1.75	0.2	0.16	3.4	0.45	-2.6	93
VTS_83H	0.64	0.2	50	+11	1.2	1.75	0.2	0.15	3.4	0.45	-2.6	85
VTS_84H	0.33	0.2	40	+11	1.5	1	0.2	0.07	1.8	0.45	-2.6	42
VTS_85H	0.16	0.2	20	+11	3	0.5	0.2	0.04	1.2	0.45	-2.6	21
VTS_86H	0.080	0.2	10	+11	6	0.25	0.2	0.02	0.75	0.45	-2.6	10

Electro-optical characteristics @ 25°C

Silicon PN – VTA Series Arrays

Technical Specification

Part Number	Elements	Active Area mm ²	Pitch mm	I_L Uniformity	I_D nA max.	C_J pF	S_R A/W	λ_{range} nm	λ_p nm
VTA1264H	64	1.4097	2.12	1.5 (max./min.)	0.09	200 max.	0.3 min.	300–1100	925

Electro-optical characteristics @ 25°C

photodiodes

Silicon PN—VTP Series (Fast Response, High Dark Resistance)

Technical Specification

Part Number	I_{SC} μA	$TC I_{SC}$ %/°C	V_{OC} mV	$TC V_{OC}$ mV/°C	I_D nA max.	R_{SH} G Ω	C_J pF	R_E A/(W/cm ²)	S_R A/W	λ_{range} nm	λ_p nm	V_{BR} V	Package	Active Area mm ²
VTP100H	55	0.24	300	-2	30	0.25	50 max.	0.047	0.5	725–1150	925	140	Flat Sidelooker IRT	7.45
VTP100CH	70	0.2	350	-2	30	0.25	50 max.	0.05	0.55	400–1150	925	140	Flat Sidelooker	7.45
VTP1012H	17	0.2	350	-2	7	0.5	6 max.	0.011	0.55	400–1150	925	140	TO-46	1.6
VTP1112H	90	0.2	350	-2	7	0.5	6 max.	0.033	0.55	400–1150	925	140	TO-46 Lensed	1.6
VTP1188SH	200	0.2	330	-2	30	67	180	—	0.55	400–1100	925	—	Lensed Ceramic	11
VTP1220FBH	0.7 min.	0.2	280	-2	10	—	18 max.	—	0.27	400–725	550	140	T1-3/4 flat IRB	1.219
VTP1232H	100 min.	0.2	420 min.	-2	25	—	180 max.	0.076	0.6	400–1100	920	—	T1-3/4	2.326
VTP1232FH	21 min.	0.2	420	-2	25	—	180 max.	—	0.6	400–1100	920	—	T1-3/4 flat	2.326
VTP1332H	75 min.	0.2	420	-2	25	—	180 max.	—	0.55	725–1150	920	—	T1-3/4 IRT	2.326
VTP1332FH	17 min.	0.2	420	-2	25	—	180 max.	—	0.55	725–1150	920	—	T1-3/4 flat IRT	2.326
VTP3310LAH	36	0.2	350	-2	35	10	25 max.	0.015	0.55	400–1150	925	140	T1	0.684
VTP3410LAH	22	0.26	350	-2	35	10	25 max.	0.013	0.55	700–1150	925	140	T1 IRT	0.684
VTP413H	120	0.2	350	-2	30	0.25	50 max.	0.078	0.55	400–1150	925	140	Lensed sidelooker	7.45
VTP4085H	200	0.2	330	-2	100	2	350	—	0.55	400–1100	925	—	Ceramic	21
VTP4085SH	200	0.2	330	-2	50	4	350	—	0.55	400–1100	925	—	Ceramic	21
VTP5050H	70	0.2	350	-2	18	0.25	24 max.	0.05	0.55	400–1150	925	140	TO-5	7.45
VTP6060H	200	0.2	350	-2	35	100	60 max.	0.14	0.55	400–1150	925	140	TO-8	20.6
VTP7110H	9	0.2	350	-2	35	7	25 max.	0.015	0.55	400–1150	925	140	Lateral	0.684
VTP7210H	7	0.26	350	-2	35	7	25 max.	0.015	0.55	700–1150	925	140	Lateral IRT	0.684
VTP7840H	70	0.2	325	-2	20	0.25	40 max.	—	0.55	725–1150	925	1@10 mA	Lensed Sidelooker IRT	5.27
VTP8350H	80	0.2	350	-2	30	100	50 max.	0.06	0.55	400–1150	925	140	Ceramic	7.45
VTP8440H	55	0.2	350	-2	15	0.5	15 max.	0.025	0.55	400–1150	925	140	8 mm Ceramic	5.16
VTP8551H	70	0.2	350	-2	30	0.15	50 max.	0.05	0.55	400–1150	925	140	Mini-DIP	7.45
VTP8651H	55	0.24	300	-2	30	0.15	50 max.	0.045	0.5	725–1150	925	140	Mini-DIP IRT	7.45
VTP8740__TRH	90	0.2	325 min.	-2	20	0.25	50 max.	—	0.6	400–1150	925	33 min.	SMT Clear plastic	5.269
VTP8840__TRH	60	0.5	325 min.	-2	20	0.25	50 max.	—	0.6	725–1150	925	33 min.	SMT IRT	5.269
VTP9412H	17	0.2	350	-2	7	0.4	6 max.	0.011	0.55	400–1150	925	140	6 mm Ceramic	1.6

Electro-optical characteristics @ 25°C

Table Key VTP Series

I_{SC}	Short-Circuit Current H=100 fc, 2850 K
$TC I_{SC}$	I_{SC} Temperature Coefficient, 2850 K
V_{OC}	Open-Circuit Voltage H=100 fc, 2850 K
$TC V_{OC}$	V_{OC} Temperature Coefficient, 2850 K
I_D	Dark Current H=0, V_R =10, 50, 100 V
R_{SH}	Shunt Resistance H=0, V=10 mV
C_J	Junction Capacitance H=0, V=0, 3, 15 V
R_E	Responsivity 880–940 nm
S_R	Sensitivity @ Peak
λ_{range}	Spectral Application Range
λ_p	Spectral Response @ Peak
V_{BR}	Breakdown Voltage
IRT	Infrared Transmitting
IRB	Infrared Blocking

Silicon PN—VTD Series (Alternate Source/Second Source)

Technical Specification

Part Number	I_{SC} μA	$TC I_{SC}$ %/°C	V_{OC} mV	$TC V_{OC}$ mV/°C	I_D nA max.	C_J pF	t_R/t_F nsec	S_R A/W	λ_{range} nm	λ_p nm	V_{BR} V	Package	Active Area mm ²
VTD31AAH	150–225	0.2	350	-2	50	500 max.	—	0.55	400–1150	860	5 min.	Ceramic	16.73
VTD34H	70	0.2	365	-2	30	60	50	0.6	400–1100	900	40 min.	Mini DIP	7.45
VTD34FH	—	—	350	-2	30	60	50	0.6	725–1150	940	40 min.	Mini DIP IRT	7.45
VTD34SMH	70	0.2	365	-2	30	25	50	0.6	400–1100	900	50	SMT	7.45
VTD34FSMH	55	—	350	-2	30	80 max.	50	0.6	725–1150	940	40 min.	SMT IRT	7.45
VTD205H	25	0.2	350	-2.6	30.	72	20	0.6	800–1100	925	50	TO-92 IRT (Round Lens)	7.41
VTD205KH	80	0.2	365	-2.6	30	72	20	0.6	400–1100	925	50	TO-92 (Round Lens)	7.41
VTD206H	25	0.2	350	-2.6	30	72	20	0.6	750–1100	925	50	TO-92 IRT (Flat Lens)	7.41
VTD206KH	80	0.2	365	-2.6	30	72	20	0.6	400–1100	925	50	TO-92 (Flat Lens)	7.41
VTH2090H	800	—	—	—	10	70	15	0.6	400–1100	960	—	Black Ceramic	84.64

Electro-optical characteristics @ 25°C

Table Key VTD Series / VTB Series

I_{SC}	Short-Circuit Current 940 nm, H=0.5 mW/cm ² (VTD205, VTD206) H=5 mW/cm ² , 2850 K (VTD31AA, VTB Series) 100 Lux, 2850 K (VTD34, VTD205K) 100 Lux, 2856 K (VTD206K)
$TC I_{SC}$	I_{SC} Temperature Coefficient 2850 K (VTD31AA, VTD34, VTD34F, VTB Series) 2856 K (VTD205, VTD205K, VTD206, VTD206K)
V_{OC}	Open-Circuit Voltage 940 nm, H=0.5 mW/cm ² (VTD 205, VTD205K, VTD206, VTD206K) 2850 K (VTD31AA, VTD34, VTD34F)
$TC V_{OC}$	V_{OC} Temperature Coefficient 2850 K (VTD31AA, VTD34, VTD34F, VTB Series) 2856 K (VTD205, VTD205K, VTD206, VTD206K)
I_D	Dark Current H=0, $V_R=2$ V (VTB Series) H=0, $V_R=10$ V (VTD34, VTD34F, VTD205, VTD205K, VTD206, VTD206K, VTB100) H=0, $V_R=15$ V (VTD31AA)
R_{SH}	Shunt Resistance H=0, $V=10$ mV (VTB Series)
$TC R_{SH}$	R_{SH} Temperature Coefficient H=0, $V=10$ mV (VTB Series)
C_J	Junction Capacitance H=0, $V_R=0$ V, 1 MHz (VTD205, VTD205K, VTD206, VTD206K) @ 1 MHz, $V_R=0$ V (VTD34, VTD34F) H=0, $V=0$ V (VTD31AA, VTB Series)
t_R/t_F	Rise/Fall Time @ $RL=50 \Omega$, $V_R=5$ V, 850 nm (VTD205, VTD205K, VTD206, VTD206K) @ $RL=1 k\Omega$ Lead, $V_R=10$ V, 833 nm (VTD34, VTD34F)
S_R	Sensitivity @ Peak 365 nm (VTB Series)
λ_{range}	Spectral Application Range
λ_p	Spectral Response @ Peak
V_{BR}	Breakdown Voltage

photodiodes

Silicon PN—VTB Series (Blue Enhanced, Ultra High Dark Resistance)

Technical Specification

Part Number	I _{sc} μA	TC I _{sc} %/°C	V _{oc} mV	TC V _{oc} mV/°C	I _D pA max.	R _{SH} G Ω	TC R _{SH} %/°C	C _J nF	S _R A/W	λ _{range} nm	λ _p nm	V _{BR} V	Package	Active Area mm ²
VTB100H	65	0.12	490	-2	500	1.4	-8	2 max.	0.1	320–1100	920	40	Flat Sidelooker	7.45
VTB1012H	13	0.12	490	-2	100	0.25	-8	0.31	0.09	320–1100	920	40	TO-46	1.60
VTB1012BH	1.3	0.02	420	-2	100	0.25	-8	0.31	—	330–720	580	40	TO-46 IRB	1.60
VTB1013H	13	0.12	490	-2	20	7	-8	0.31	0.09	320–1100	920	40	TO-46	1.60
VTB1013BH	1.3	0.02	420	-2	20	7	-8	0.31	—	330–720	580	40	TO-46 IRB	1.60
VTB1112H	60	0.12	490	-2	100	0.25	-8	0.31	0.19	320–1100	920	40	TO-46 Lensed	1.60
VTB1112BH	6	0.02	420	-2	100	0.25	-8	0.31	—	330–720	580	40	TO-46 IRB Lensed	1.60
VTB1113H	60	0.12	490	-2	20	7	-8	0.31	0.19	320–1100	920	40	TO-46 Lensed	1.60
VTB1113BH	6	0.02	420	-2	20	7	-8	0.31	—	330–720	580	40	TO-46 IRB Lensed	1.60
VTB4051H	200	0.12	490	-2	250	0.56	-8	3	0.1	320–1100	920	40	Ceramic	14.8
VTB5051H	130	0.12	490	-2	250	0.56	-8	3	0.1	320–1100	920	40	TO-5	14.8
VTB5051BH	13	0.02	420	-2	250	0.56	-8	3	—	330–720	580	40	TO-5 IRB	14.8
VTB5051JH	130	0.12	490	-2	250	0.56	-8	3	0.1	320–1100	920	40	TO-5	14.8
VTB5051UVH	130	0.12	490	-2	250	0.56	-8	3	0.1	200–1100	920	40	TO-5	14.8
VTB5051UVJH	130	0.12	490	-2	250	0.56	-8	3	0.1	200–1100	920	40	TO-5	14.8
VTB6061H	350	0.12	490	-2	2000	0.1	-8	8	0.1	320–1100	920	40	TO-8	37.7
VTB6061BH	35	0.02	420	-2	2000	0.1	-8	8	—	330–720	580	40	TO-8 IRB	37.7
VTB6061CIEH	12	—	—	—	2000	0.1	-8	8	—	475–650	555	—	TO-8	37.7
VTB6061JH	350	0.12	490	-2	2000	0.1	-8	8	0.1	320–1100	920	40	TO-8	37.7
VTB6061UVH	350	0.12	490	-2	2000	0.1	-8	8	0.1	200–1100	920	40	TO-8	37.7
VTB6061UVJH	350	0.12	490	-2	2000	0.1	-8	8	0.1	200–1100	920	40	TO-8	37.7
VTB8341H	60	0.12	490	-2	100	1.4	-8	1	0.1	320–1100	920	40	Ceramic	5.16
VTB8440H	45	0.12	490	-2	2000	0.07	-8	1	0.1	320–1100	920	40	8 mm Ceramic	5.16
VTB8440BH	5	0.02	420	-2	2000	0.07	-8	1	—	330–720	580	40	8 mm Ceramic IRB	5.16
VTB8441H	45	0.12	490	-2	100	1.4	-8	1	0.1	320–1100	920	40	8 mm Ceramic	5.16
VTB8441BH	5	0.02	420	-2	100	1.4	-8	1	—	330–720	580	40	8 mm Ceramic IRB	5.16
VTB9412H	13	0.12	490	-2	100	0.25	-8	0.31	0.09	320–1100	920	40	6 mm Ceramic	1.60
VTB9412BH	1.3	0.02	420	-2	100	0.25	-8	0.31	—	330–720	580	40	6 mm Ceramic IRB	1.60
VTB9413H	13	0.12	490	-2	20	7	-8	0.31	0.09	320–1100	920	40	6 mm Ceramic	1.60
VTB9413BH	1.3	0.02	420	-2	20	7	-8	0.31	—	330–720	580	40	6 mm Ceramic IRB	1.60