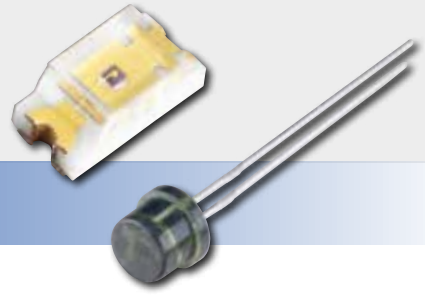
Application Specific Components

For Ambient Light Sensors & Radon Detection

Left: Spectrally Adapted Photodiodes and Phototransistors

Right: C30737PH Series T-1¾ (TO-like) Through-Hole Package (4.9 mm Diameter)



Spectrally Adapted Photodiodes and Phototransistors

Applications

- Interior and exterior light switching (dusk/dawn switch)
- Interior and exterior light control (dimming)
- Automotive headlight dimmer
- Display contrast control
- Energy conservation

Features and Benefits

- Response approaching human eye using Excelitas' IR-BLOC™ technology
- Perfect light sensor in conjunction with Excelitas' pyroelectric detectors for motion controlled light switches
- RoHS compliant
- Selectable wavelength detection range
- Small footprint
- Surface mount packages

Product Description

Ambient light sensors from Excelitas provide an easy solution for applications that require a response similar to the human eye, making it ideal when the response should only be influenced by visible light. These devices contribute in various applications to energy conservation in both fixed and portable devices. There are three main devices types, one being filtered photodiodes, the second filtered phototransistors and finally wavelength selective devices based on III-V material. They are available in a number of standard packages, including surface mount for automated assembly.

Product Table

Spectrally Adapted Photodiodes and Phototransistors

Symbol / Unit	Package	Active Area mm²	Min. Short Circuit Current @H=100fc, 2850K min I_{SC} µA	Maximum Dark Current (nA)	Maximum Junction Capacitance (nF)	Typical Radio-metric Sensitivity @ λ_P typ S_R A/W	Spectral Range λ_{RANGE} nm	Typical Peak Wave-length λ_P nm	Typical Noise Equivalent Power (W/√Hz)
VTP9812FH	T-1 3/4 flat	1.548	0.7	10 @V_R = 10V	0.15 @V_R = 10V	0.034	400-700	580	-
VTB1012BH	TO-46	1.6	0.8	0.1 @V_R = 2V	0.31 @V_R = 0V	0.3	330-720	580	5.3 X 10^{-14}
VTB1013BH	TO-46	1.6	0.8	0.02 @V_R = 2V	0.31 @V_R = 0V	0.3	330-720	580	1.1 X 10^{-14}
VTB6061CIEH	TO-8	37.7	-	2 @V_R = 2V	11 @V_R = 0V	-	475-650	555	1.3 X 10^{-13}
VTT9812FH	T-1 3/4 flat	0.191	60	50 @ V_{CE} = 5V	-	7	450-700	585	-
VTT9814FH	T-1 3/4 flat	0.191	80 (min) 120 (max)	50 @ V_{CE} = 5V	-	7	450-700	585	-

Electrical characteristics at $T_{Ambient}$ = 25 °C

Product Description

The VTH21xx series photodiodes have a large active area and low capacitance and are specifically designed for alpha particle detection. They are available in bare chips to suit the alpha particle / radon detection, shipped in waffle pack. Custom packages are available as options.

Product Table

Large Area Photodiodes for Alpha Particle / Radon Detection

Part Number	Package	Active Size (mm)	Active Area (mm)	Dark Current Typical (nA)	Junction Capacitance Typical (pF)
VTH2110	Bare chip	5 x 5	25	0.2 nA @ Vr = 50V	20pF @ Vr = 50V
VTH2120	Bare chip	10 x 10	100	1 nA @ Vr = 50V	80pF @ Vr = 50V