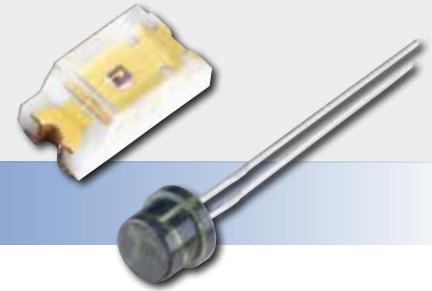


# Application Specific Components

For Ambient Light Sensors & Radon Detection

Left: Spectrally Adapted Photodiodes and Phototransistors

Right: C30737PH Series T-1 3/4 (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 device 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	Package	Active Area mm <sup>2</sup>	Min. Short Circuit Current @ H = 100fc, 2850K min I <sub>SC</sub>	Maximum Dark Current (nA)	Maximum Junction Capacitance (nF)	Typical Radio-metric Sensitivity @ λ <sub>P</sub> typ S <sub>R</sub>	Spectral Range λ <sub>R</sub> RANGE nm	Typical Peak Wavelength λ <sub>P</sub> nm	Typical Noise Equivalent Power (W/√Hz)
Unit			μA			A/W			
VTP9812FH	T-1 3/4 flat	1.548	0.7	10 @ V <sub>R</sub> = 10V	0.15 @ V <sub>R</sub> = 10V	0.034	400-700	580	-
VTB1012BH	TO-46	1.6	0.8	0.1 @ V <sub>R</sub> = 2V	0.31 @ V <sub>R</sub> = 0V	0.3	330-720	580	5.3 X 10 <sup>-14</sup>
VTB1013BH	TO-46	1.6	0.8	0.02 @ V <sub>R</sub> = 2V	0.31 @ V <sub>R</sub> = 0V	0.3	330-720	580	1.1 X 10 <sup>-14</sup>
VTB6061CIEH	TO-8	37.7	-	2 @ V <sub>R</sub> = 2V	11 @ V <sub>R</sub> = 0V	-	475-650	555	1.3 X 10 <sup>-13</sup>
VTT9812FH	T-1 3/4 flat	0.191	60	50 @ V <sub>CE</sub> = 5V	-	7	450-700	585	-
VTT9814FH	T-1 3/4 flat	0.191	80 (min) 120 (max)	50 @ V <sub>CE</sub> = 5V	-	7	450-700	585	-

Electrical characteristics at T<sub>Ambient</sub> = 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 wafer 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 @ V <sub>r</sub> = 50V	20pF @ V <sub>r</sub> = 50V
VTH2120	Bare chip	10 x 10	100	1 nA @ V <sub>r</sub> = 50V	80pF @ V <sub>r</sub> = 50V