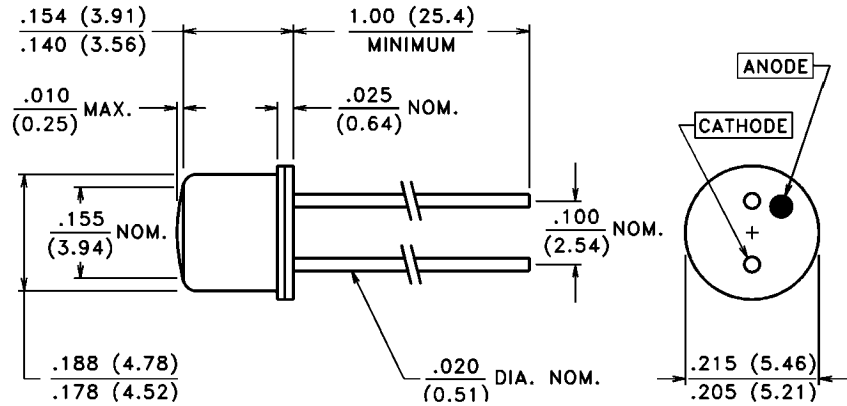


# VTB Process Photodiode

# VTB1012BH, 1013BH



## PACKAGE DIMENSIONS inch (mm)



CASE 17 TO-46 HERMETIC  
CHIP ACTIVE AREA: .0025 in<sup>2</sup> (1.60 mm<sup>2</sup>)

## PRODUCT DESCRIPTION

Small area planar silicon photodiode in a "flat" window, dual lead TO-46 package. The package incorporates an infrared rejection filter. Cathode is common to the case. These diodes have very high shunt resistance and have good blue response.

## ABSOLUTE MAXIMUM RATINGS

Storage Temperature: -40°C to 110°C  
Operating Temperature: -40°C to 110°C

RoHS Compliant



## ELECTRO-OPTICAL CHARACTERISTICS @ 25°C (See also VTB curves, pages 21-22)

SYMBOL	CHARACTERISTIC	TEST CONDITIONS	VTB1012BH			VTB1013BH			UNITS
			Min.	Typ.	Max.	Min.	Typ.	Max.	
I <sub>SC</sub>	Short Circuit Current	H = 100 fc, 2850 K	0.8	1.3		0.8	1.3		µA
TC I <sub>SC</sub>	I <sub>SC</sub> Temperature Coefficient	2850 K		.02	.08		.02	.08	%/°C
V <sub>OC</sub>	Open Circuit Voltage	H = 100 fc, 2850 K		420			420		mV
TC V <sub>OC</sub>	V <sub>OC</sub> Temperature Coefficient	2850 K		-2.0			-2.0		mV/°C
I <sub>D</sub>	Dark Current	H = 0, VR = 2.0 V			100			20	pA
R <sub>SH</sub>	Shunt Resistance	H = 0, V = 10 mV		.25			7.0		GΩ
TC R <sub>SH</sub>	R <sub>SH</sub> Temperature Coefficient	H = 0, V = 10 mV		-8.0			-8.0		%/°C
C <sub>J</sub>	Junction Capacitance	H = 0, V = 0		.31			.31		nF
λ <sub>range</sub>	Spectral Application Range		330		720	330		720	nm
λ <sub>p</sub>	Spectral Response - Peak			580			580		nm
V <sub>BR</sub>	Breakdown Voltage		2	40		2	40		V
θ <sub>1/2</sub>	Angular Resp. - 50% Resp. Pt.			±35			±35		Degrees
NEP	Noise Equivalent Power		5.3 x 10 <sup>-14</sup> (Typ.)			1.1 x 10 <sup>-14</sup> (Typ.)			W/√Hz
D*	Specific Detectivity		2.4 x 10 <sup>12</sup> (Typ.)			1.2 x 10 <sup>13</sup> (Typ.)			cm√Hz/W



# VTB Process Photodiodes

## VTB PROCESS BLUE ENHANCED, ULTRA HIGH DARK RESISTANCE

### FEATURES

- *Enhanced UV to IR spectral range*
- *Integral IR rejection filters available*
- *Response @ 220 nm, 0.06 A/W, typical with UV window*
- *Response @ 365 nm, 0.14 A/W typical*
- *High open circuit voltage @ low light levels*
- *1 to 2% linearity over 7 to 9 decades*
- *Very low dark current & high shunt resistance*

### PRODUCT DESCRIPTION

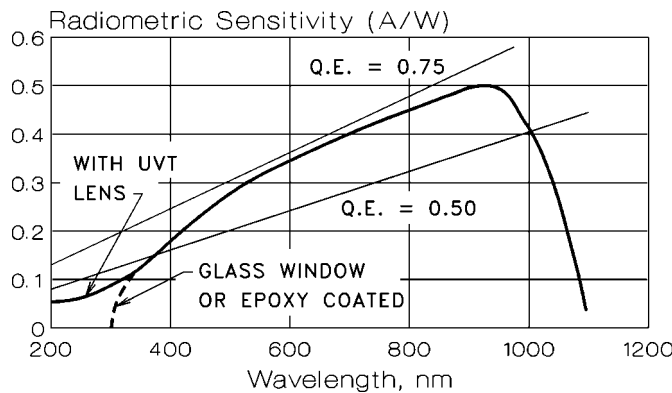
This series of P on N silicon planar photodiodes have been designed to maximize their response through the visible part of the spectrum. Those units with UV transmitting windows also exhibit excellent response in the UV region and are characterized at 220 nm.

"B" series devices have a built-in infrared rejection filter for those applications where a detector is needed that approximates the human eye. Typical transmission of wavelengths greater than 750 nm is less than 3% when measured with an incandescent source operating at 2850 K.

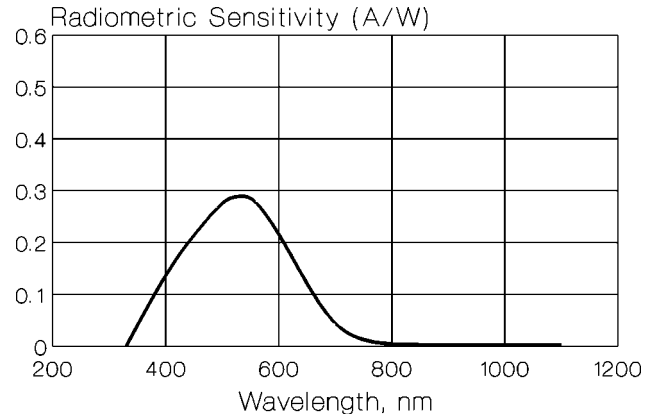
Diodes made with the VTB process are primarily intended for use in the photovoltaic mode but may be used with a small reverse bias. All photodiodes in this series exhibit very high shunt resistance. This characteristic leads to very low offsets when the diodes are used in high gain transimpedance op-amp circuits.

### TYPICAL CHARACTERISTIC CURVES @ 25°C (UNLESS OTHERWISE NOTED)

Absolute Spectral Response



Absolute Spectral Response "B" Series (Filtered)



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