

## VTP413H

### VTP Process Silicon Photodiode



Planar Silicon photodiode in a visible blocking, side looker lensed package suitable for assembly on printed circuit boards. That photodiode exhibits low dark current and fast response. The response time can be reduced by applying a reverse bias to lower the capacitance with low impact on the dark current performance.

The preferred operating condition is the photoconductive mode under reverse bias. However that photodiode can also be used in photovoltaic mode.

That photodiode has excellent response in the near IR and has a built-in visible blocking filter, making it suitable for applications where ambient light needs to be rejected.

#### Key Features

- Low dark current
- Low capacitance
- High shunt resistance
- Built-in visible rejection filter
- Plastic lensed package
- RoHS-compliant

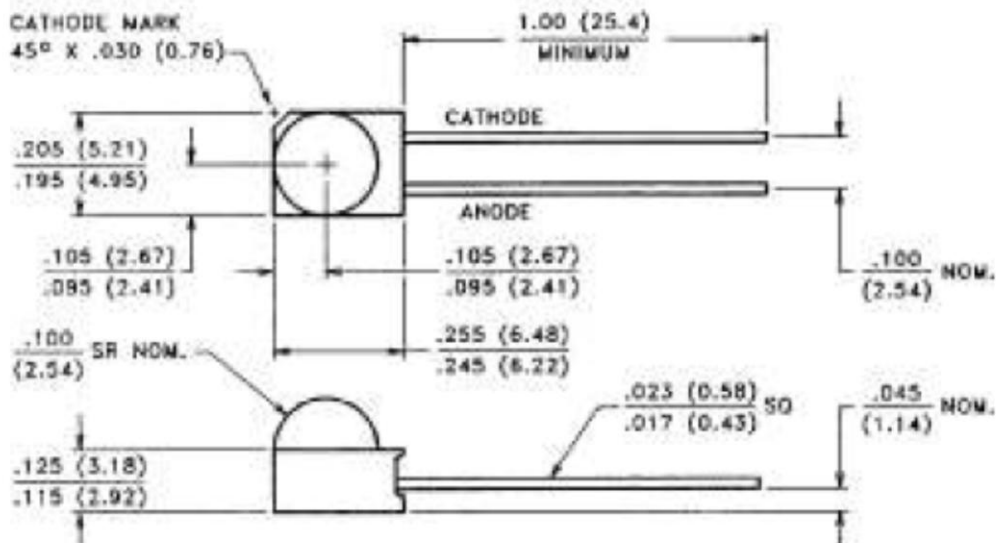
#### Applications

- Smoke detection
- Near IR light detection

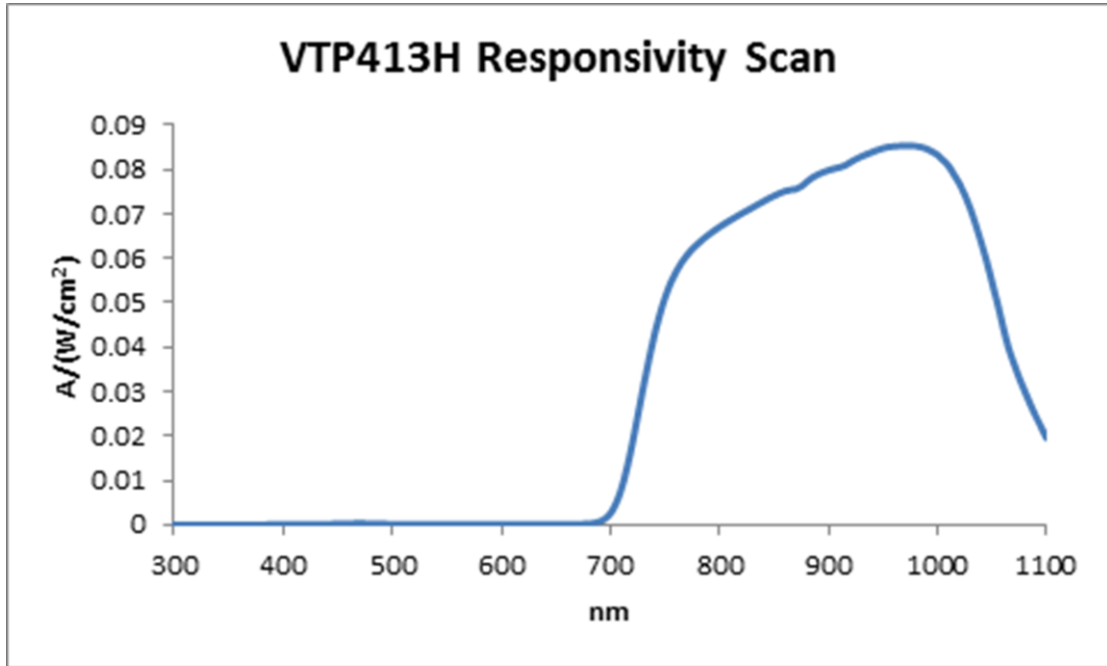
## General Characteristics and Electro-optical specifications at 25°C

Parameter	Min	Typical	Max	Units	Conditions
Active area		7.00		mm <sup>2</sup>	
Storage Temperature	-40		100	°C	
Operating Temperature	-40		100	°C	
Short Circuit Current		120		μA	100fc, 2850K color temperature
Short Circuit Current Temperature Coefficient		0.20		%/°C	2850K color temperature
Open Circuit Voltage		350		mV	100fc, 2850K color temperature
Open Circuit Voltage Temperature Coefficient		-2.0		mV/°C	2850K color temperature
Dark Current			20	nA	-10V Bias
Shunt Resistance		0.25		GΩ	0fc, 10mV bias
Junction Capacitance			50	pF	0fc, -3V Bias
Spectral Range	725		1150	nm	
Peak Spectral Response		975		nm	
Sensitivity at peak		0.55		A/W	
Breakdown Voltage	30	140		V	
Angular Response		±48		°	At 50% response
Noise Equivalent Power		2.3X10 <sup>-14</sup>		W/VHz	

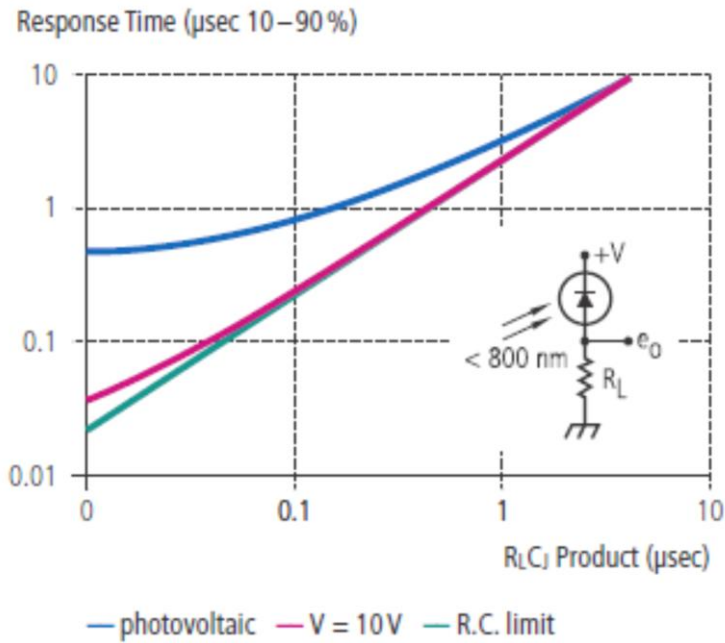
## Mechanical Characteristics



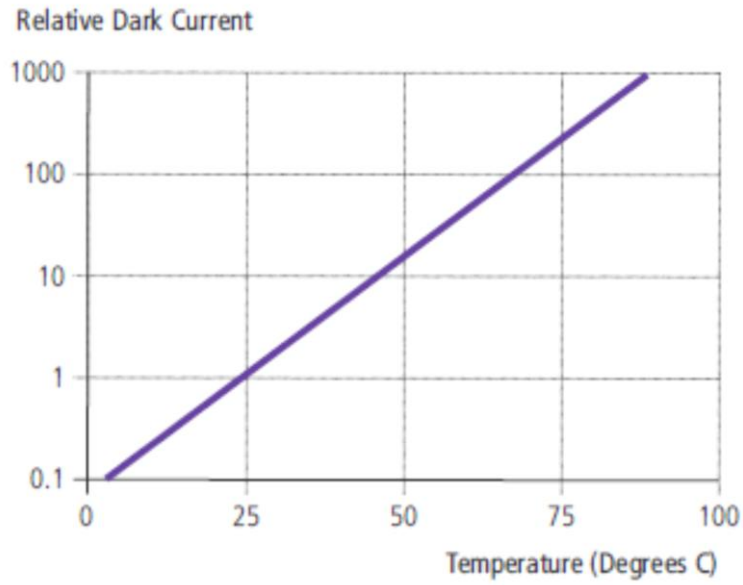
Spectral Response



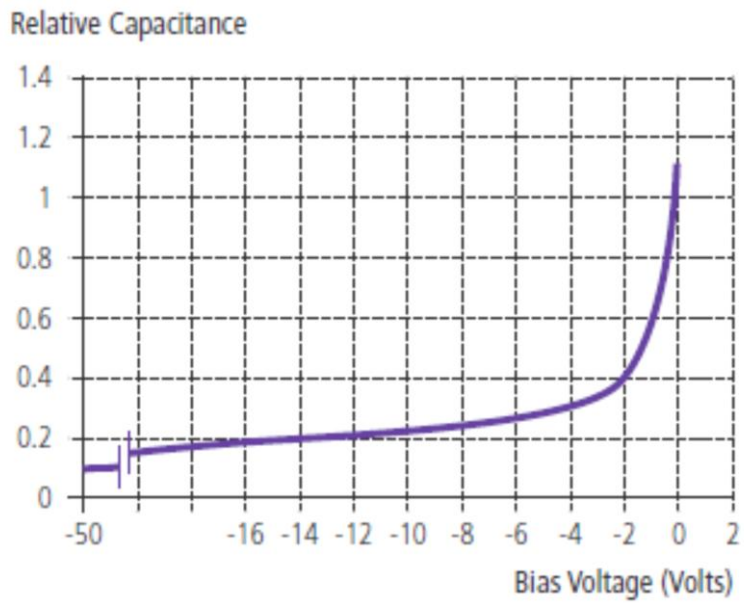
Rise/Fall Time – Non Saturated



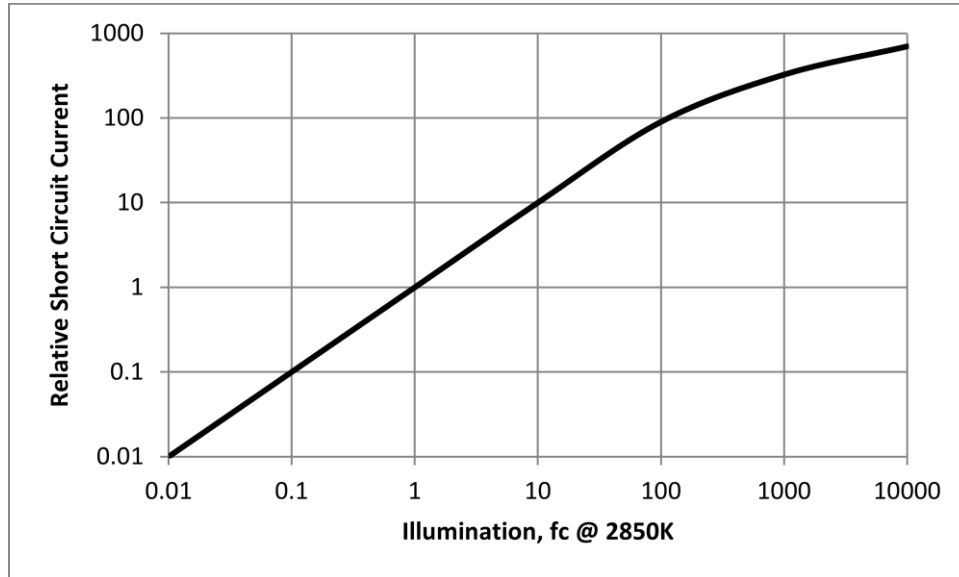
Relative Dark Current vs Temperature



Relative Junction Capacitance vs Bias Voltage



Relative Short Circuit Current vs illumination



### About Excelitas Technologies

Excelitas Technologies is a global technology leader focused on delivering innovative, customized solutions to meet the lighting, detection and other high-performance technology needs of OEM customers.

From analytical instrumentation to clinical diagnostics, medical, industrial, safety and security, and aerospace and defense applications, Excelitas Technologies is committed to enabling our customers' success in their specialty end-markets. Excelitas Technologies has approximately 3,000 employees in North America, Europe and Asia, serving customers across the world.

**Excelitas Technologies**  
22001 Dumberry Road  
Vaudreuil-Dorion, Quebec  
Canada J7V 8P7  
Telephone: (+1) 450.424.3300  
Toll-free: (+1) 800.775.6786  
Fax: (+1) 450.424.3345  
detection@excelitas.com

**European Headquarters**  
**Excelitas Technologies**  
**GmbH & Co. KG**  
Wenzel-Jaksch-Str. 31  
D-65199 Wiesbaden  
Germany  
Telephone: (+49) 611 492 430  
Fax: (+49) 611 492 165  
detection.europe@excelitas.com

**Asia Headquarters**  
**Excelitas Technologies**  
47 Ayer Rajah Crescent #06-12  
Singapore 139947  
Telephone: (+65) 6775-2022  
Fax: (+65) 6775-1008

**EXCELITAS**  
TECHNOLOGIES

For a complete listing of our global offices, visit [www.excelitas.com/ContactUs](http://www.excelitas.com/ContactUs)

© 2011 Excelitas Technologies Corp. All rights reserved. The Excelitas logo and design are registered trademarks of Excelitas Technologies Corp. All other trademarks not owned by Excelitas Technologies or its subsidiaries that are depicted herein are the property of their respective owners. Excelitas reserves the right to change this document at any time without notice and disclaims liability for editorial, pictorial or typographical errors.