



# VTP9812FH



## IR-Blocking Silicon Photodiode

The IR-Bloc™ family is the only ambient light sensor family on the market that comes in a low cost package with the IR-blocking feature incorporated in a plastic epoxy package. The spectral response is similar to the human eye and a photocell, making it ideal for applications where the response should only be influenced by the visible light.

As part of the IR-Bloc™ family of ambient light sensors, the VTP9812FH is a P on N planar Silicon photodiode in a standard flat T-1 ¾ end-looking package. It offers the time-proven silicon photodiode chip that customers have come to rely upon over the years, with the additional IR blocking feature incorporated in the plastic epoxy package. As such, it offers an excellent response in the visible spectral range.

### YOUR BENEFITS

- Visible light response with IR- blocking feature
- RoHS-compliant alternative to photocells
- Low dark current
- Low junction capacitance
- Linear current output vs illumination

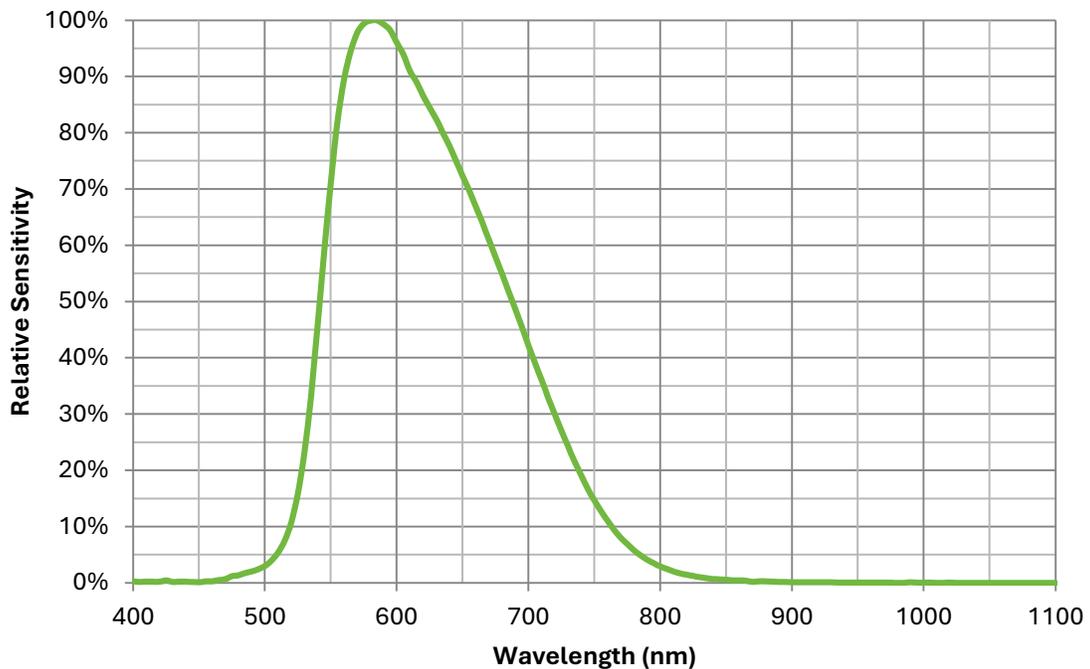
### SPECIFICATIONS

- Spectral Response at 450nm to 800nm with Peak sensitivity at 580nm
- Dark current at 1nA max at 10Vrev
- Junction capacitance at 15pF max at 10Vrev, 1Mhz
- Angular response at ±60° FWHM

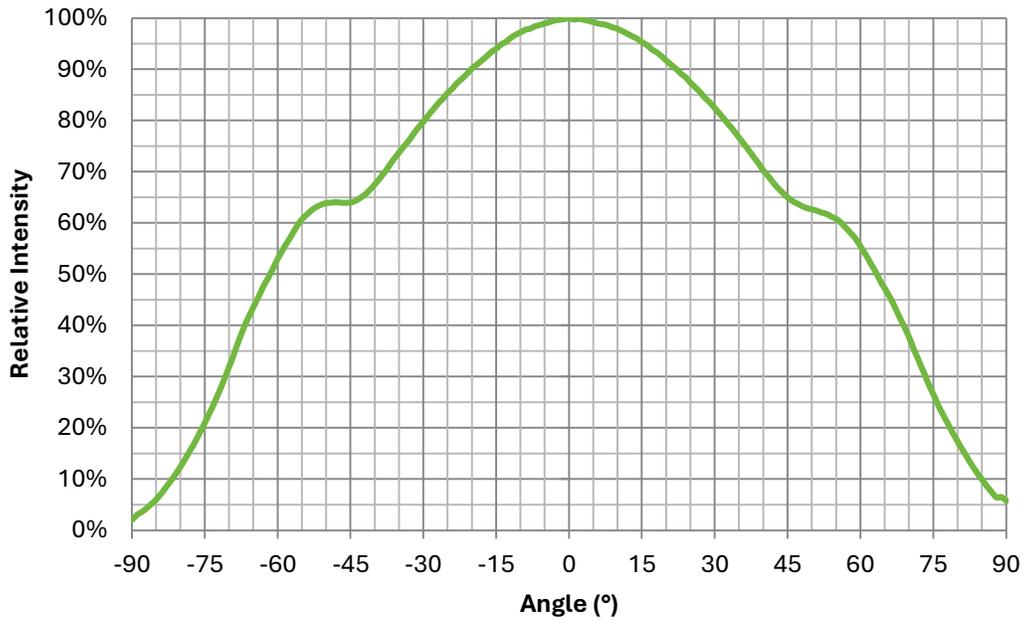
## General Characteristics and Electro-optical specifications at 25°

Parameter	Symbol	Min	Typ	Max	Units	Condition
Active Area			1.548		mm <sup>2</sup>	
Storage Temperature		-40		100	°C	
Operating Temperature		-40		100	°C	
Short Circuit Current	$I_{sc}$	0.7	1.1		μA	100fc, 2850K
$I_{sc}$ Temperature Coefficient		-0.2		+0.1	%/°C	
Forward Voltage Drop	$V_F$			1.4	V	10 mA
Dark Current	$I_D$			1	nA	-10 V
Junction Capacitance	$C_J$			150	pF	-10 V, 1 MHz
Open Circuit Voltage	$V_{oc}$		410		mV	100fc, 2850K
Spectral Sensitivity Range		450		800	nm	
Peak Spectral Response	$\lambda_{peak}$		580		nm	
Responsivity at peak	R		0.3		A/W	
Angular Response			±60		°	At 50% response
Soldering Temperature				260	°C	5 seconds maximum

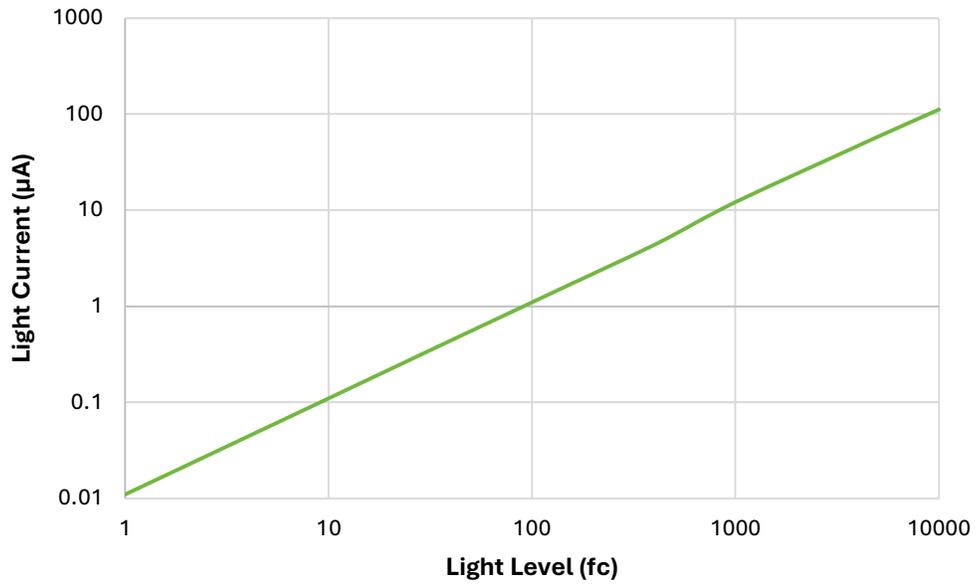
**FIG 1. TYPICAL RELATIVE SPECTRAL SENSITIVITY AT 25°C**



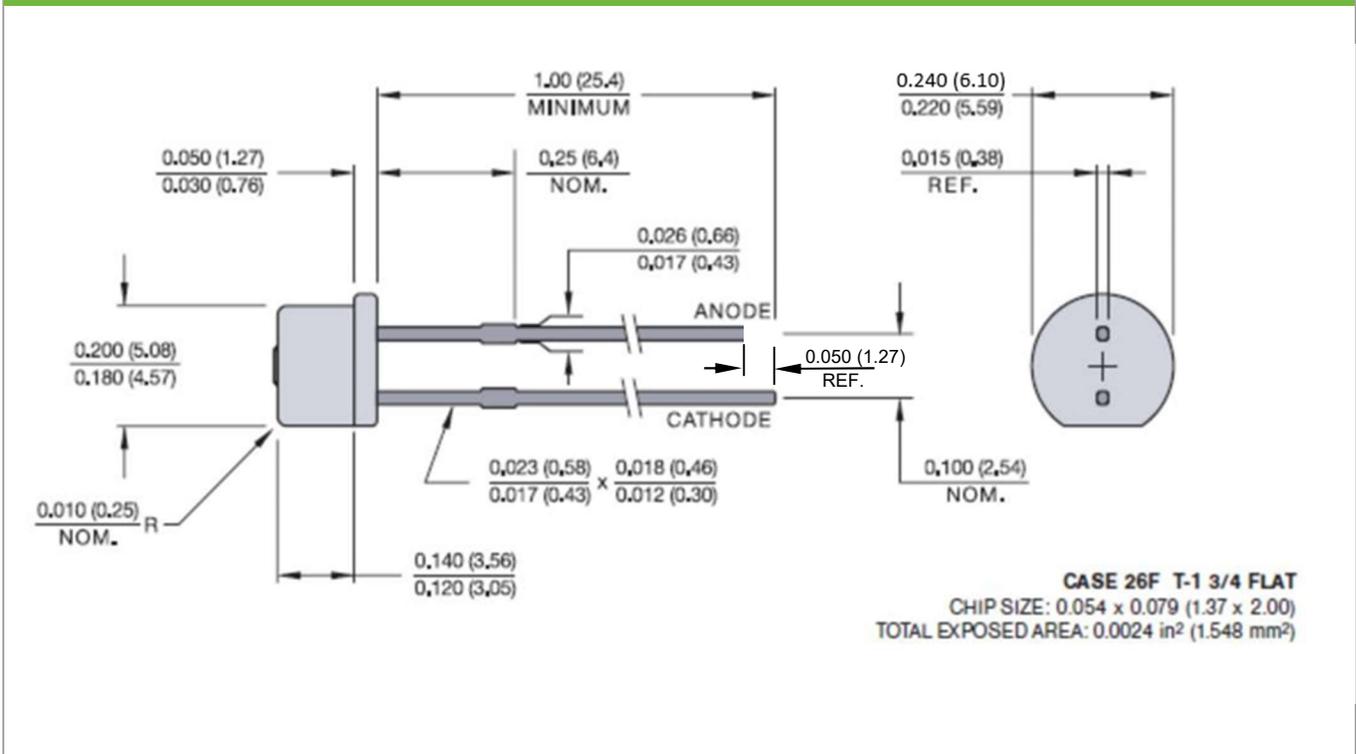
**FIG 2. TYPICAL ANGULAR RESPONSE**



**FIG 3. TYPICAL OUTPUT CURRENT VERSUS INCIDENT LIGHT LEVEL**



**FIG 4. MECHANICAL DIMENSIONS**



## Testing and inspection methods

Excelitas verifies the electro optical specifications on every device. The following parameters are part of Excelitas testing procedures:

- Short-circuit current (100fc, 2850K)
- Forward Voltage Drop ( $I_F = 10\text{mA}$ )
- Dark Current ( $V_{rev} = 10\text{V}$ )
- Capacitance (sampling)

Visual inspection during fabrication is performed as per our quality standard and failed dies are removed.

Excelitas Technologies is ISO 9001, 14001, and 45001 certified.

## Packaging and shipping

The VTP9812FH are shipped in bulk packaging (polybag).

## Storage and handling

Please take note of the following:

- Keep devices within the recommended Storage and Operating conditions as reflected in the General Characteristics and Electro-optical specifications table above.
- If leads need to be bent, it is necessary to firmly clamp the leads near the base of the package in order not to transfer any force (particularly tension forces) to the plastic body that may compromise the internal connections of the wire and chip within the encapsulation.
- Solder the device within the recommended soldering conditions as reflected in the General Characteristics and Electro-optical specifications table above.

## RoHS compliance

This VTP9812FH is designed and built to be fully compliant with the European Union Directive on restrictions on the use of certain hazardous substances in electrical and electronic equipment.



## Warranty

A standard 12-month warranty following shipment applies



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