

VTT9812FH and VTT9814FH

IR-Bloc™ Ambient Light Sensor

IR-Blocking Silicon Phototransistor



The IR-Bloc™ family comes in a unique low cost package with the IR-blocking feature incorporated in a plastic epoxy package, providing high level performance in a cost effective design. 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 sensor, the VTT9812FH and the VTT9814FH are silicon phototransistors in a standard flat T-1 3/4 end-looking package. They offer the time-proven VTT silicon phototransistor 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 they give an excellent response in the visible spectral range, giving a RoHS-compliant alternative to Cadmium Sulphide photocells.

The VTT9812FH and VTT9814FH are especially suited for dusk/dawn switching at low light levels around 0.2 to 1fc (2 to 10lux).

Key Features

- Visible light response with IR-blocking feature incorporated in the cast epoxy
- RoHS-compliant alternative to photocells
- Low dark current

Applications

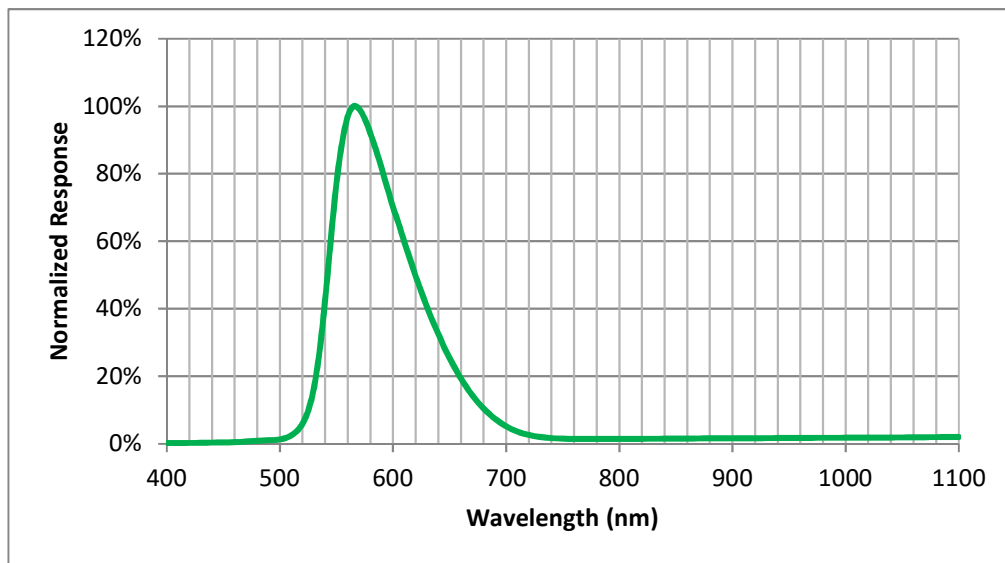
- Street light switching
- Interior and exterior light control (dusk/dawn switch)
- Automotive headlight dimmer
- Contrast control

IR-Bloc™ Ambient Light Sensor

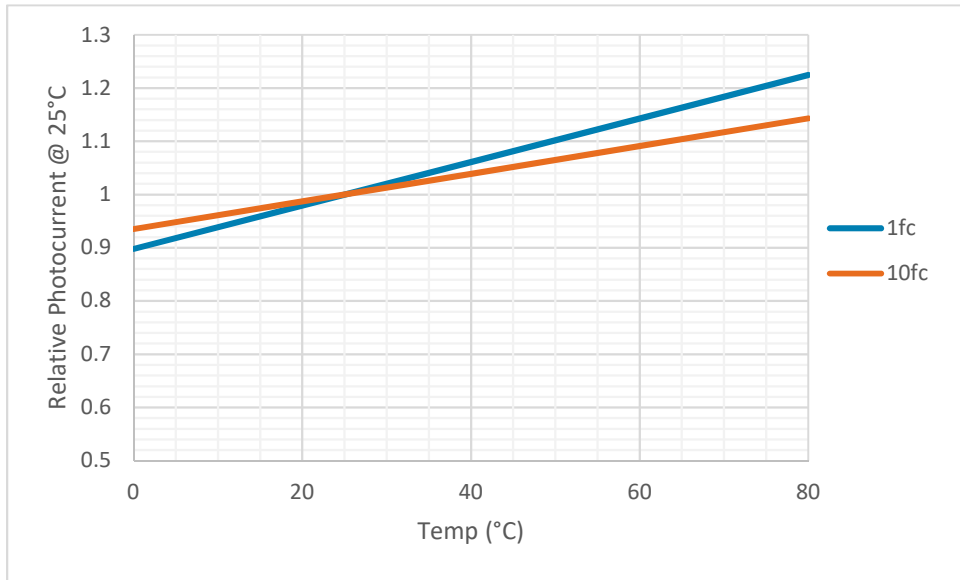
General Characteristics and Electro-optical specifications at 25°C

Parameter	Min	Typical	Max	Units	Conditions
Storage Temperature	-40		100	°C	
Operating Temperature	-40		100	°C	
Maximum Continuous Power		50		mW	
Maximum Current		25		mA	
Dark Current		2	50	nA	$V_{CE} = 5V, 0fc$
Collector Breakdown	20			V	$I_C = 100\mu A, 0fc$
Emitter Breakdown	2.1			V	$I_E = 100\mu A, 0fc$
Saturation Voltage			0.25	V	$I_C = 4\mu A, 100fc$
Rise/Fall Time		1.5		μs	$I_C = 1mA, R_L = 100k\Omega$
Peak Spectral Response		565		nm	
Sensitivity at peak		7		A/W	
Angular Response		± 50		°	At 50% response
Soldering Temperature			260	°C	5 seconds maximum
VTT9812FH					
Short Circuit Current		80		μA	100fc, 2850K, $V_{CE} = 5V$
	200		1000	nA	1fc, 2850K, $V_{CE} = 5V$
VTT9814FH					
Short Circuit Current		80		μA	100fc, 2850K, $V_{CE} = 5V$
	450		750	nA	1fc, 2850K, $V_{CE} = 5V$

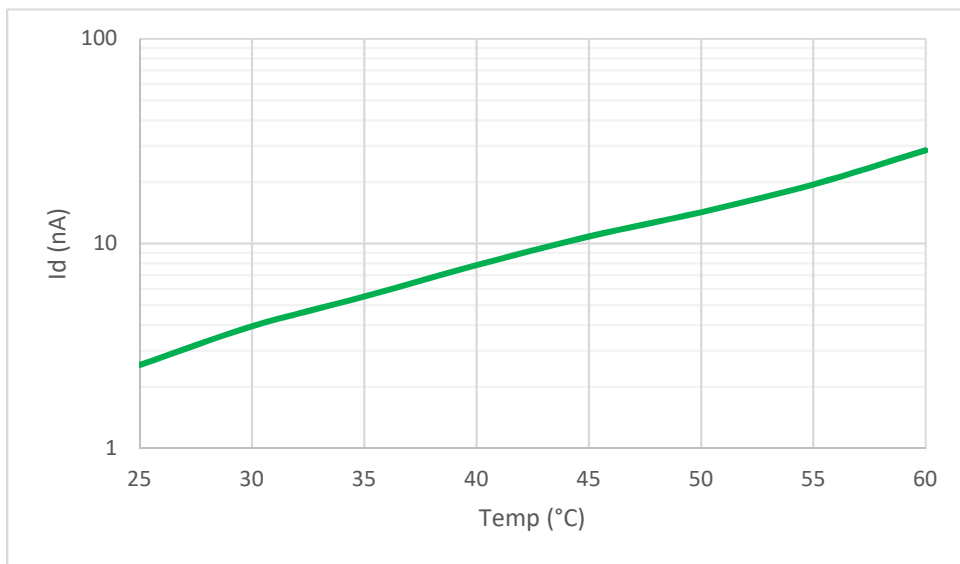
Typical Normalized Spectral Response at 25°C



Typical Photocurrent Change vs. Temperature at Different Light levels – Normalized to 25°C

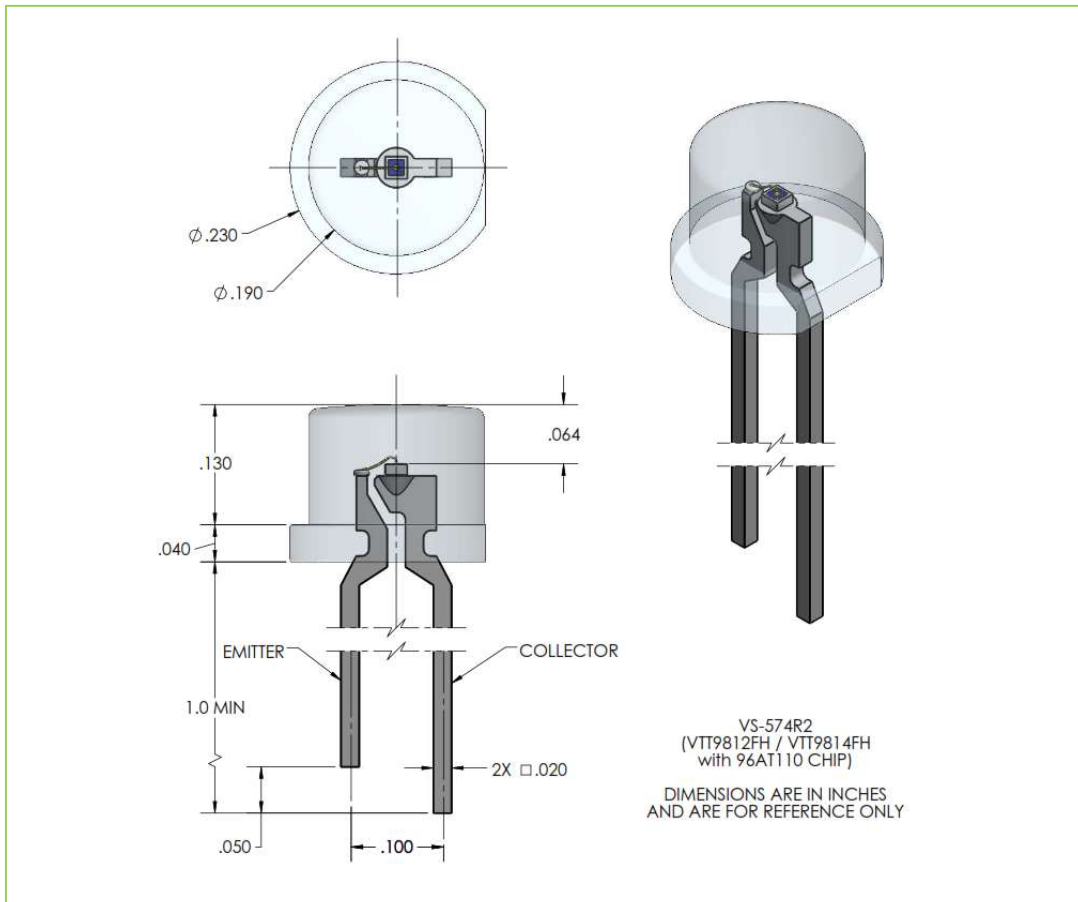


Typical Variation of Dark Current with Temperature



VTT9812FH and VTT9814FH IR-Bloc™ Ambient Light Sensor

Mechanical Characteristics



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.

Excelitas has a long and rich history of serving our OEM customer base with optoelectronic sensors and modules for more than 45 years beginning with PerkinElmer, EG&G, and RCA. The constant throughout has been our innovation and commitment to delivering the highest quality solutions to our customers worldwide.

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.

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