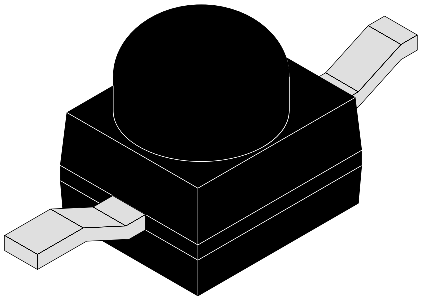
Silicon PIN Photodiode

Description

TEMD1000 is a high speed silicon PIN photodiode molded in SMT package with dome lens.
Due to its integrated Daylight filter the device is sensitive for IR radiation only.
High on axis sensitivity is provided by a viewing angle of ± 15°.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Features

- Extra fast response times
- Radiant sensitive area A=0.25mm^2
- Daylight filter
- SMD with terminals Z–bend
- Especially for surface mounting on printed board
- Angle of half sensitivity φ = ± 15°

Applications

High speed detector for SMT
IR Detector for Daylight application

Absolute Maximum Ratings

T_{amb} = 25°C

Parameter	Test Conditions	Symbol	Value	Unit
Reverse Voltage		V_R	60	V
Power Dissipation	$T_{amb} \leqq 25$ °C	P_V	75	mW
Junction Temperature		T_j	100	°C
Storage Temperature Range		T_{stg}	–40...+85	°C
Operating Temperature Range		T_{stg}	–40...+85	°C
Soldering Temperature	t ≦ 5 s	T_{sd}	260	°C

Basic Characteristics

T_{amb} = 25°C

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Forward Voltage	I_F = 50 mA	V_F		1.0	1.3	V
Breakdown Voltage	I_R = 100 μA, E = 0	$V_{(BR)}$	60			V
Reverse Dark Current	V_R = 10 V, E = 0	I_{ro}		1	10	nA
Diode Capacitance	V_R = 5 V, f = 1 MHz, E = 0	C_D		1.8		pF
Reverse Light Current	E_e = 1 mW/cm^2, λ = 870 nm, V_R = 5 V	I_{ra}		10		μA
	E_e = 1 mW/cm^2, λ = 950 nm, V_R = 5 V	I_{ra}	5	12		μA
Temp. Coefficient of I_{ra}	V_R = 5 V, λ = 870 nm	TK_{Ira}		0.2		%/K
Absolute Spectral Sensitivity	V_R = 5 V, λ = 870 nm	s(λ)		0.60		A/W
	V_R = 5 V, λ = 950 nm	s(λ)		0.55		A/W
Angle of Half Sensitivity		φ		±15		deg
Wavelength of Peak Sensitivity		λ_p		900		nm
Range of Spectral Bandwidth		$\lambda_{0.5}$		840...1050		nm
Rise Time	V_R = 10 V, R_L = 50 Ω, λ = 820 nm	t_r		4		ns
Fall Time	V_R = 10 V, R_L = 50 Ω, λ = 820 nm	t_f		4		ns

Typical Characteristics (T$_{amb}$ = 25°C unless otherwise specified)

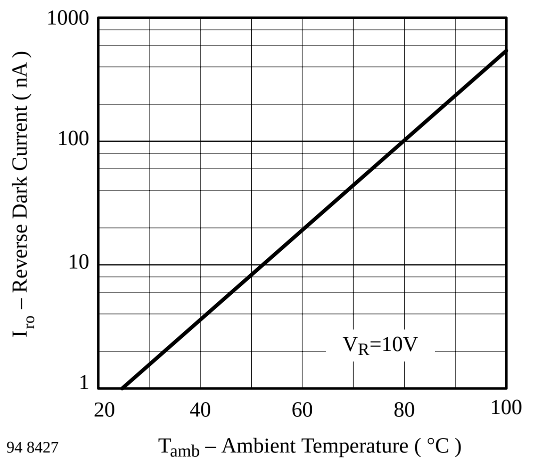


Figure 1. Reverse Dark Current vs. Ambient Temperature

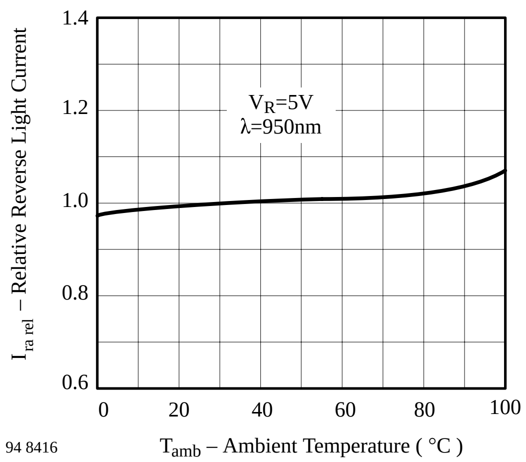


Figure 2. Relative Reverse Light Current vs. Ambient Temperature

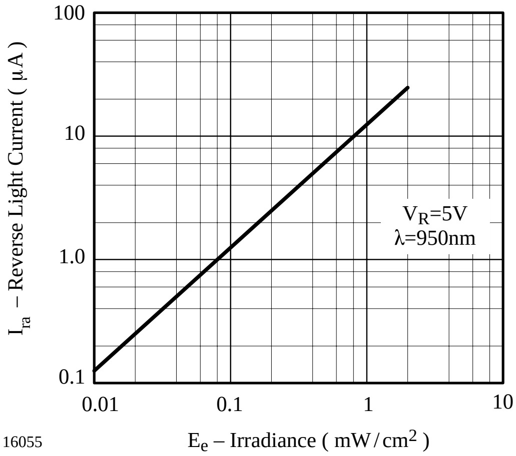


Figure 3. Reverse Light Current vs. Irradiance

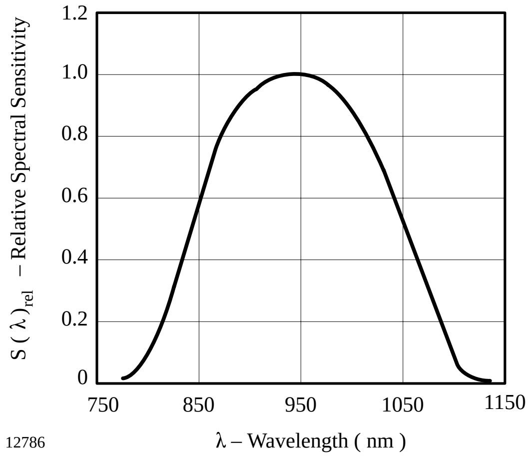


Figure 5. Relative Spectral Sensitivity vs. Wavelength

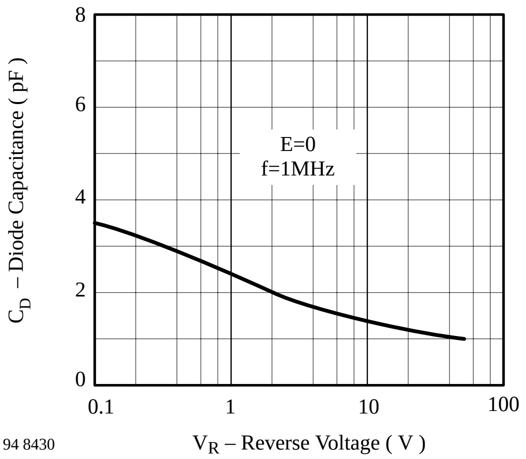


Figure 4. Diode Capacitance vs. Reverse Voltage

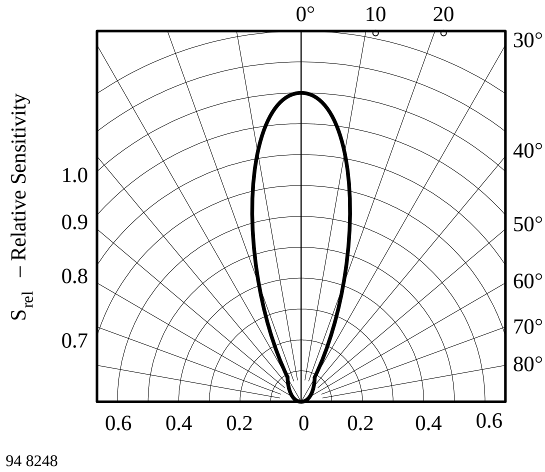
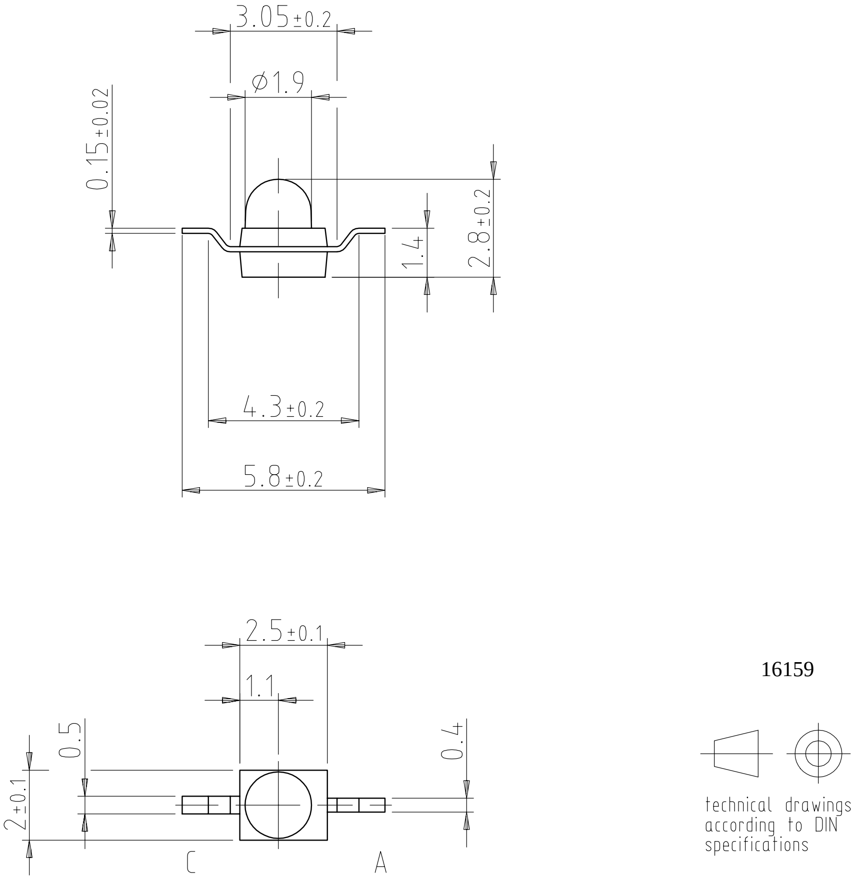


Figure 6. Relative Radiant Sensitivity vs. Angular Displacement

Dimensions in mm



Ozone Depleting Substances Policy Statement

It is the policy of **Vishay Semiconductor GmbH** to

1. Meet all present and future national and international statutory requirements.

2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively

2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA

3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

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