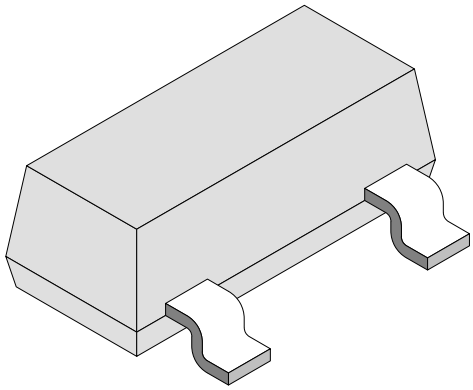
TEMD 2100

Silicon PIN Photodiode

Description

TEMD2100 is a high speed silicon PIN photodiode in a miniature SOT–23 package for surface mounting on printed boards.
Its flat package provides an extra wide viewing angle. Due to its waterclear epoxy the device is sensitive to visible and near infrared radiation



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Features

- Extra fast response times
- Radiant sensitive area A=0.25mm^2
- Standard SOT–23 package
- Especially for surface mounting on printed board
- Extra wide angle of half sensitivity $\varphi = \pm 75^\circ$
- Small mechanical tolerances

Applications

Wide band detector in SMD technique

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}	–55...+100	˚C
Soldering Temperature	t ≦ 5 s	T_{sd}	240	˚C
Thermal Resistance Junction/Ambient		R_{thJA}	1000	K/W

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}	2.0	2.5		µA
Reverse Light Current	E_e = 1 mW/cm^2, λ = 950 nm, V_R = 5 V	I_{ra}		2.3		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
Absolute Spectral Sensitivity	V_R = 5 V, λ = 950 nm	s(λ)		0.55		A/W
Angle of Half Sensitivity		φ		±75		deg
Wavelength of Peak Sensitivity		λ_p		900		nm
Range of Spectral Bandwidth		$\lambda_{0.5}$		570...1050		nm
Rise Time	V_R=50V, R_L=50Ω, λ=850nm	t_r		2.5		ns
Fall Time	V_R=50V, R_L=50Ω, λ=850nm	t_f		2.5		ns

Typical Characteristics (T_{amb} = 25°C unless otherwise specified)

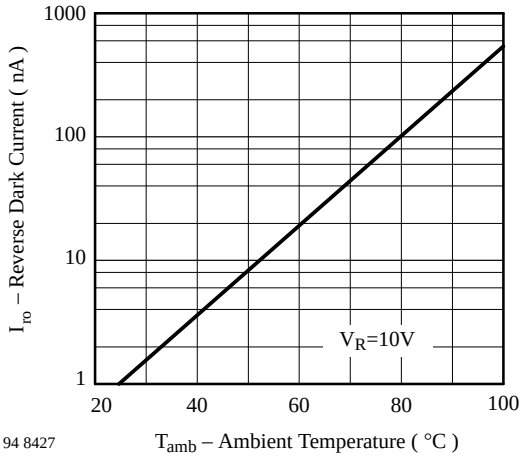


Figure 1 : Reverse Dark Current vs. Ambient Temperature

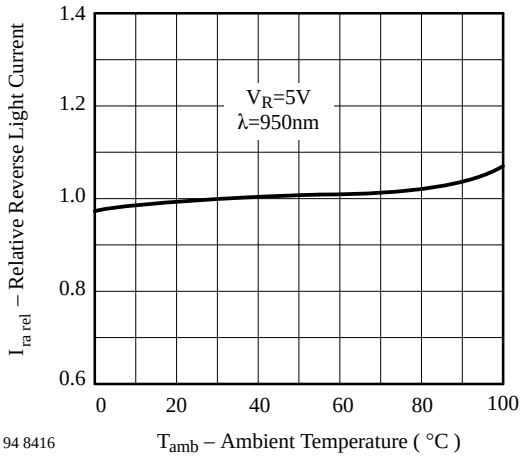


Figure 2 : Relative Reverse Light Current vs. Ambient Temperature

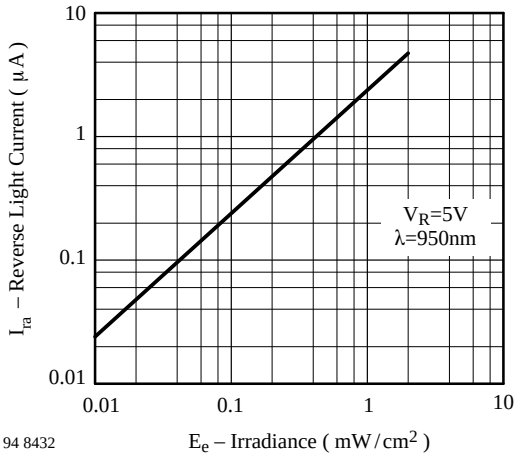


Figure 3 : Reverse Light Current vs. Irradiance

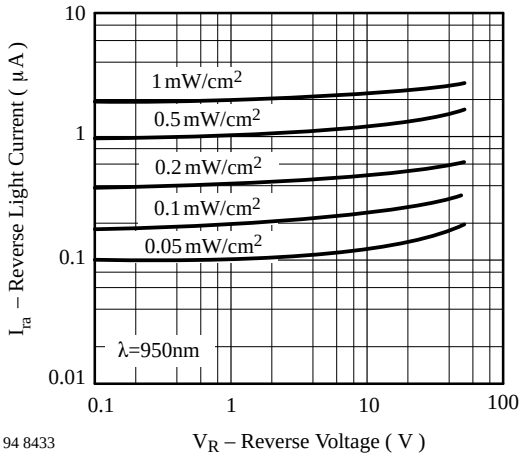


Figure 4 : Reverse Light Current vs. Reverse Voltage

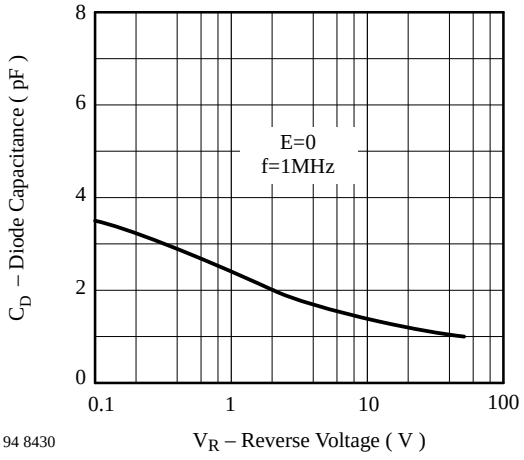


Figure 5 : Diode Capacitance vs. Reverse Voltage

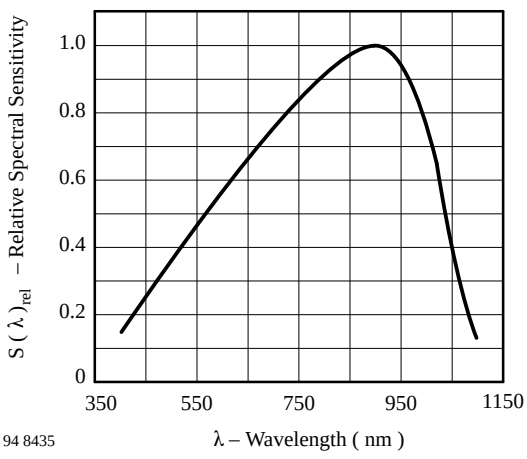


Figure 6 : Relative Spectral Sensitivity vs. Wavelength

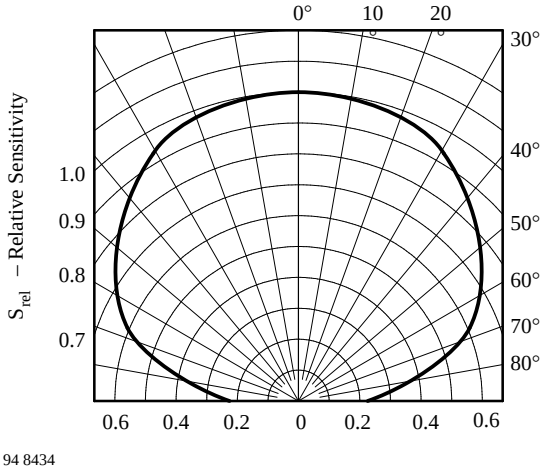
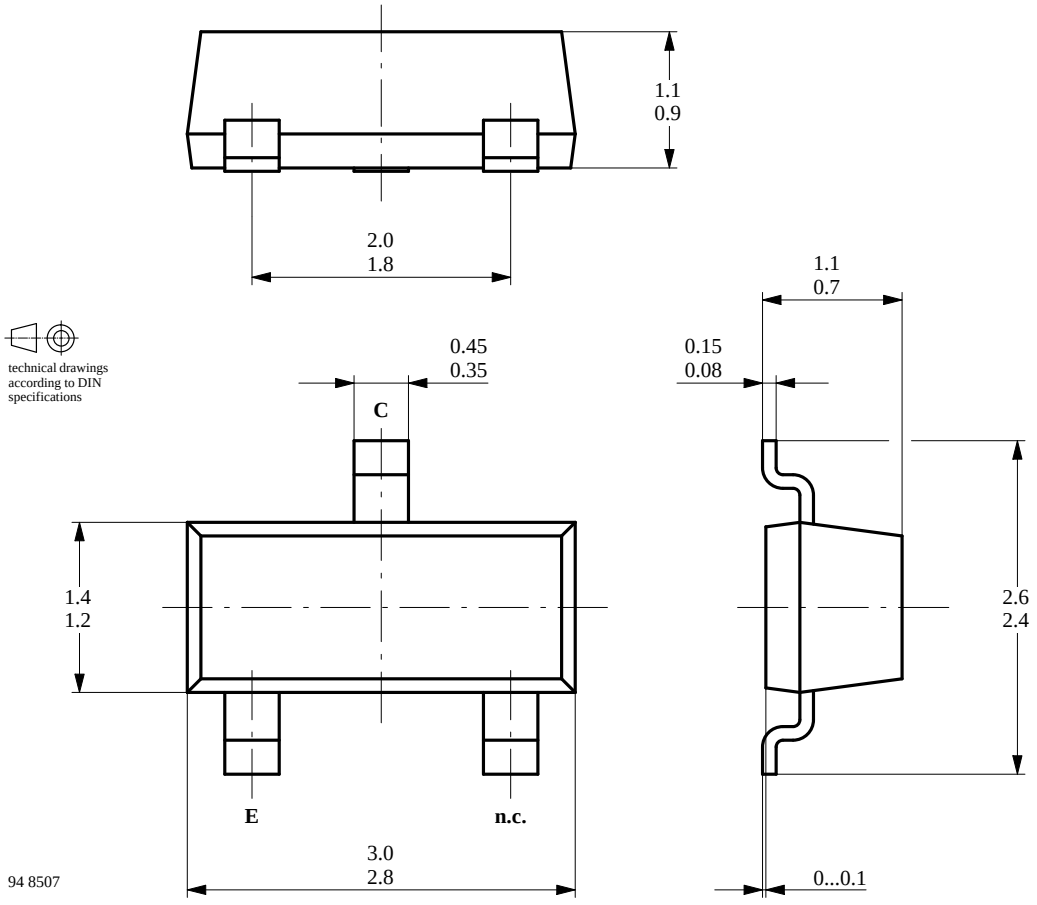


Figure 7 : Relative Radiant Sensitivity vs. Angular Displacement

Dimensions in mm



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