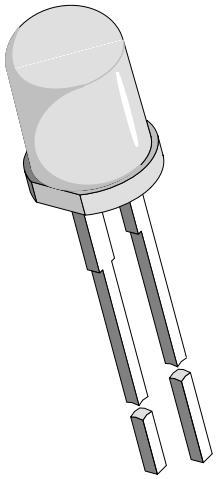
Silicon PIN Photodiode

Description

BPW43 is a very high speed PIN photodiode in a standard T–1¾ plastic package. Due to its waterclear epoxy the device is sensitive to visible and infrared radiation.
It features low capacitance and high speed even at low supply voltages.



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Features

- Extra fast response times
- Radiant sensitive area A=0.78mm^2
- Standard T–1¾ (ø 5 mm) clear package
- Angle of half sensitivity $\varphi = \pm 25^\circ$
- Suitable for visible and near infrared radiation

Applications

High speed photo detector

Absolute Maximum Ratings

T_{amb} = 25°C

Parameter	Test Conditions	Symbol	Value	Unit
Reverse Voltage		V_R	32	V
Power Dissipation	$T_{amb} \leqq 25$ °C	P_V	215	mW
Junction Temperature		T_j	100	°C
Storage Temperature Range		T_{stg}	–25...+100	°C
Soldering Temperature	t ≦ 3 s	T_{sd}	245	°C
Thermal Resistance Junction/Ambient		R_{thJA}	350	K/W

Basic Characteristics

T_{amb} = 25°C

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Breakdown Voltage	I_R = 100 µA, E = 0	$V_{(BR)}$	32			V
Reverse Dark Current	V_R = 10 V, E = 0	I_{ro}		1	10	nA
Diode Capacitance	V_R = 0 V, f = 1 MHz, E = 0	C_D		4		pF
	V_R = 5 V, f = 1 MHz, E = 0	C_D		1.5		pF
	V_R = 10 V, f = 1 MHz, E = 0	C_D		1.3		pF
Open Circuit Voltage	E_A = 1 klx	V_o		320		mV
Short Circuit Current	E_A = 1 klx	I_k		12		µA
	E_e = 1 mW/cm², λ = 950 nm	I_k		6		µA
Reverse Light Current	E_A = 1 klx, V_R = 5 V	I_{ra}		15		µA
	E_e = 1 mW/cm², λ = 950 nm, V_R = 5 V	I_{ra}	4	8		µA
Angle of Half Sensitivity		φ		±25		deg
Wavelength of Peak Sensitivity		λ_p		900		nm
Range of Spectral Bandwidth		$\lambda_{0.5}$		550...1000		nm
Rise Time	V_R=10V, R_L=50Ω, λ=820nm	t_r		4		ns
Fall Time	V_R=10V, R_L=50Ω, λ=820nm	t_f		4		ns

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

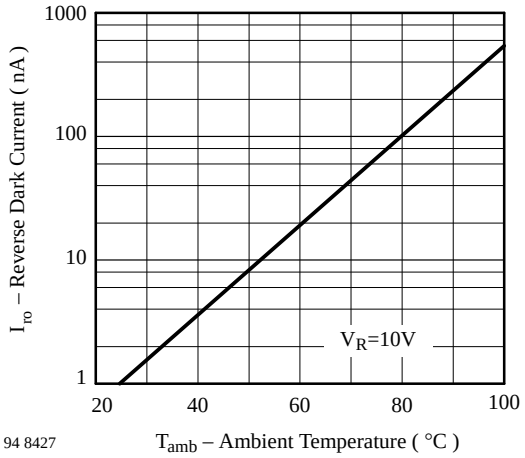


Figure 1. Reverse Dark Current vs. Ambient Temperature

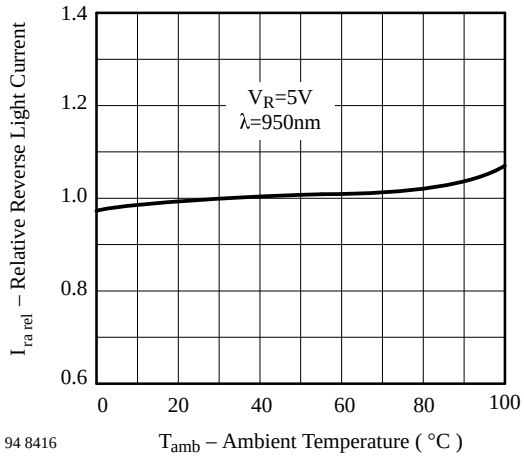


Figure 2. Relative Reverse Light Current vs. Ambient Temperature

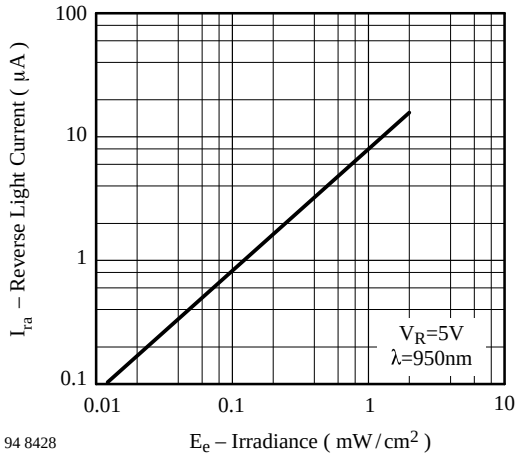


Figure 3. Reverse Light Current vs. Irradiance

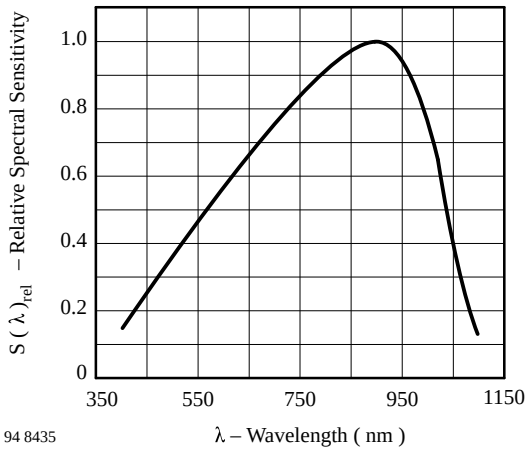


Figure 6. Relative Spectral Sensitivity vs. Wavelength

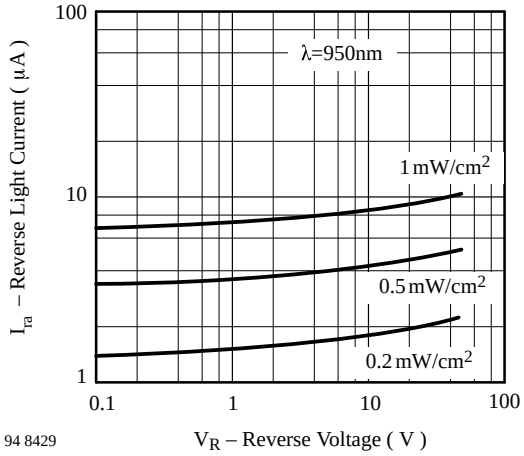


Figure 4. Reverse Light Current vs. Reverse Voltage

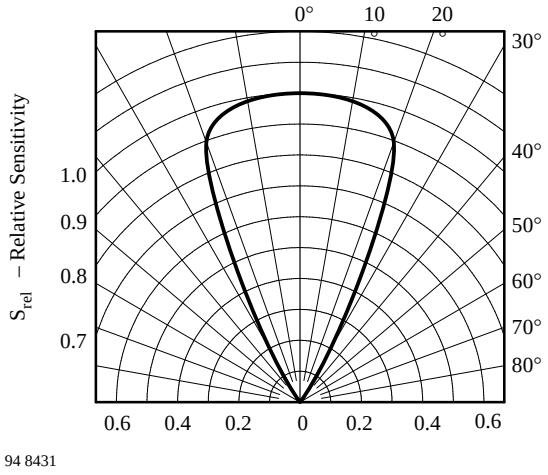


Figure 7. Relative Radiant Sensitivity vs. Angular Displacement

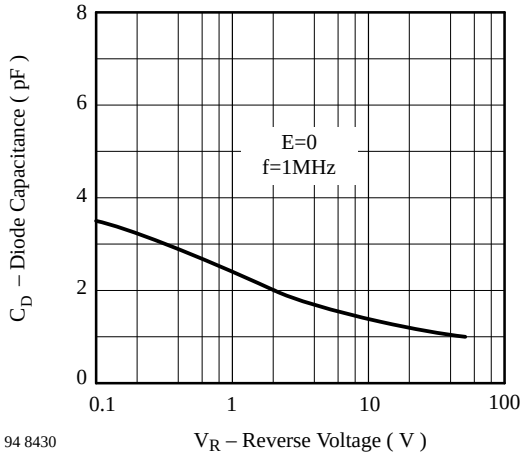
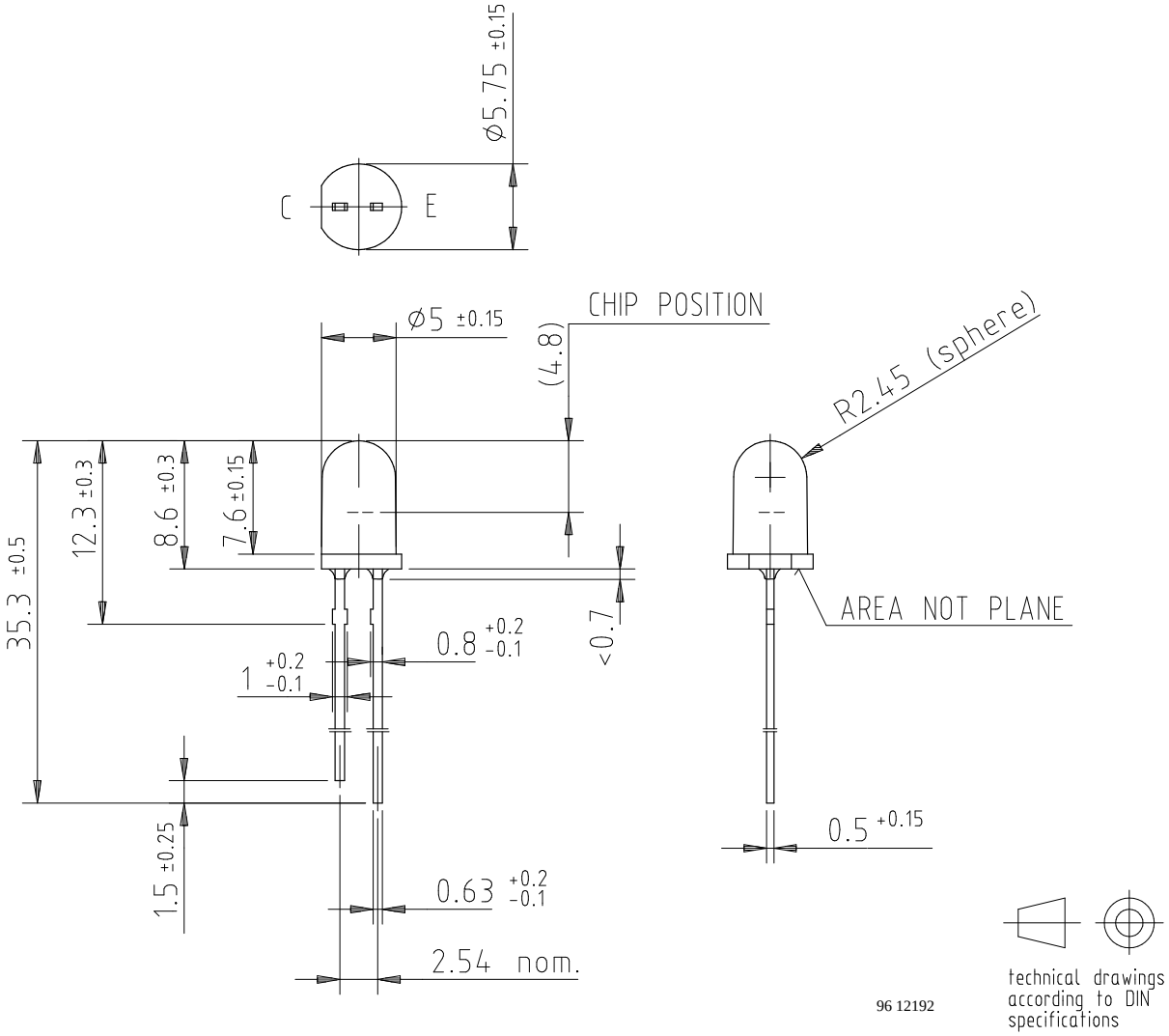


Figure 5. Diode Capacitance vs. Reverse Voltage

Dimensions in mm



Ozone Depleting Substances Policy Statement

It is the policy of **TEMIC TELEFUNKEN microelectronic 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.

TEMIC TELEFUNKEN microelectronic GmbH semiconductor division 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.

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

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