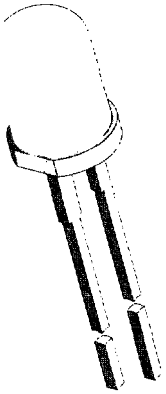
BPW43

TEMIC
Semiconductors

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.



Features

- Extra fast response times
- Radiant sensitive area $A = 0.78 mm^2$
- Standard T–1¾ (ø 5 mm) clear package
- Angle of half sensitivity $\varphi = \pm 25°$
- 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	$t \leqq 3$ 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	$I_R = 100\ \mu A,\ E = 0$	$V_{(BR)}$	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
	$E_e = 1\ mW/cm^2,\ \lambda = 950\ nm$	I_k		6		µA
Reverse Light Current	$E_A = 1\ klx,\ V_R = 5\ V$	I_{ra}		15		µA
	$E_e = 1\ mW/cm^2,\ \lambda = 950\ nm,\ V_R = 5\ V$	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	$V_R=10V,\ R_L=50\Omega,\ \lambda=820nm$	t_r		4		ns
Fall Time	$V_R=10V,\ R_L=50\Omega,\ \lambda=820nm$	t_f		4		ns

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

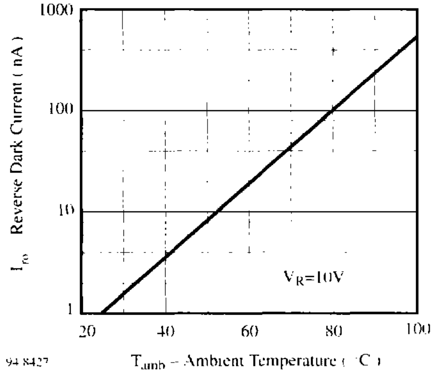


Figure 1. Reverse Dark Current vs. Ambient Temperature

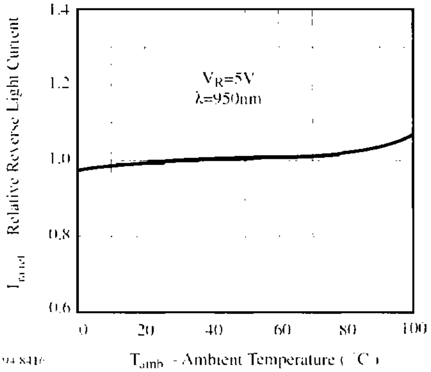


Figure 2. Relative Reverse Light Current vs. Ambient Temperature

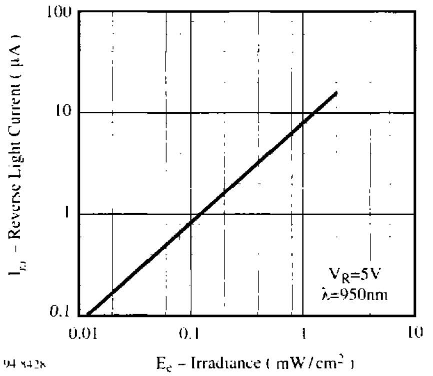


Figure 3. Reverse Light Current vs. Irradiance

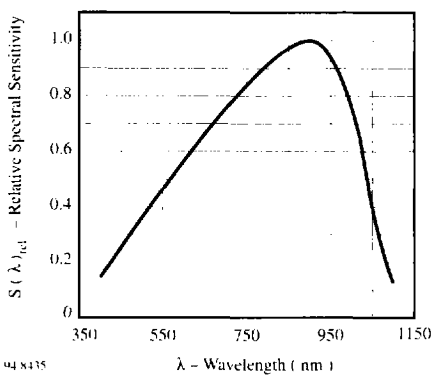


Figure 6. Relative Spectral Sensitivity vs. Wavelength

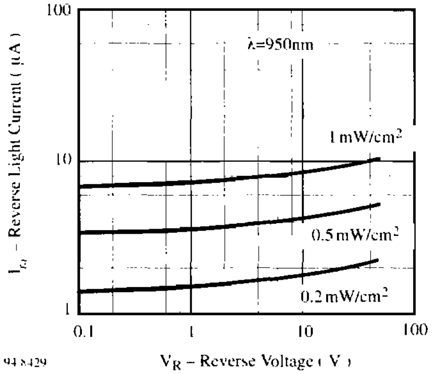


Figure 4. Reverse Light Current vs. Reverse Voltage

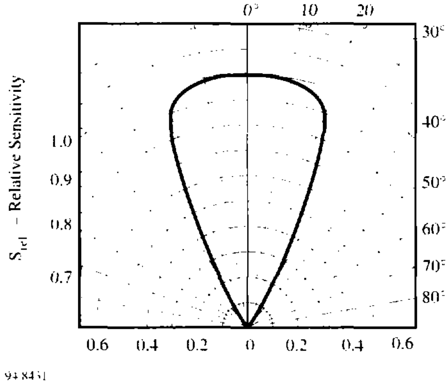


Figure 7. Relative Radiant Sensitivity vs.
Angular Displacement

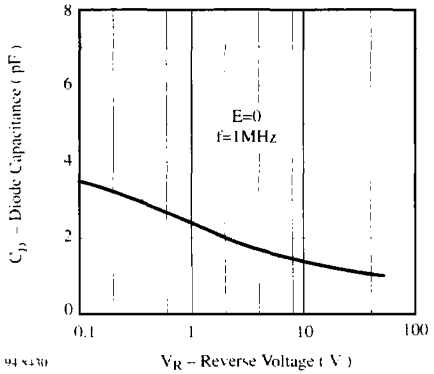


Figure 5. Diode Capacitance vs. Reverse Voltage

Dimensions in mm