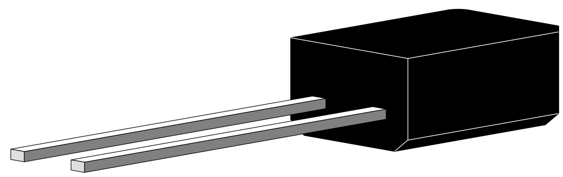
Silicon PIN Photodiode

Description

BPW82 is a high speed and high sensitive PIN photodiode in a flat side view plastic package. The epoxy package itself is an IR filter, spectrally matched to GaAs or GaAlAs IR emitters ($\lambda_p \geqq 800$nm).
The large active area combined with a flat case gives a high sensitivity at a wide viewing angle.



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Features

- Large radiant sensitive area (A=7.5 mm^2)
- Wide angle of half sensitivity $\varphi = \pm 65^\circ$
- High radiant sensitivity
- Fast response times
- Small junction capacitance
- Plastic case with IR filter
- Suitable for near infrared radiation
- Especially for GaAlAs emitters with λ_p=870nm

Applications

High speed photo detector

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	215	mW
Junction Temperature		T_j	100	°C
Storage Temperature Range		T_{stg}	–55...+100	°C
Soldering Temperature	t ≦ 5 s	T_{sd}	260	°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	$V_{(BR)}$	60			V
Reverse Dark Current	V_R = 10 V, E = 0	I_{ro}		2	30	nA
Diode Capacitance	V_R = 0 V, f = 1 MHz, E = 0	C_D		70		pF
Diode Capacitance	V_R = 3 V, f = 1 MHz, E = 0	C_D		25	40	pF
Open Circuit Voltage	E_e = 1 mW/cm^2, λ = 870 nm	V_o		350		mV
Short Circuit Current	E_e = 1 mW/cm^2, λ = 870 nm	I_k		38		µA
Reverse Light Current	E_e = 1 mW/cm^2, λ = 870 nm, V_R = 5 V	I_{ra}	43	45		µA
Angle of Half Sensitivity		φ		±65		deg
Wavelength of Peak Sensitivity		λ_p		950		nm
Range of Spectral Bandwidth		$\lambda_{0.5}$		790...1050		nm
Noise Equivalent Power	V_R=10V, λ=870nm	NEP		$4x10^{-14}$		W/√ Hz
Rise Time	V_R=10V, R_L=1kΩ, λ=820nm	t_r		100		ns
Fall Time	V_R=10V, R_L=1kΩ, λ=820nm	t_f		100		ns

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

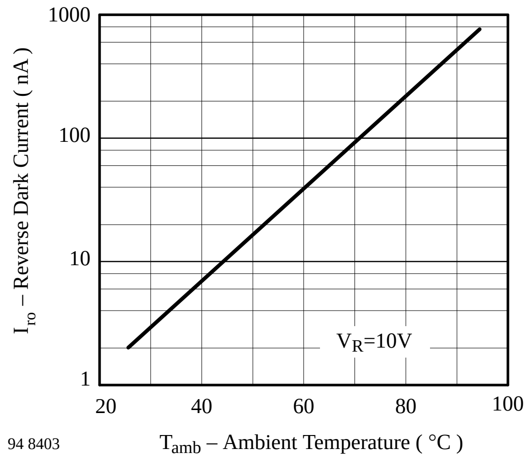


Figure 1 : Reverse Dark Current vs. Ambient Temperature

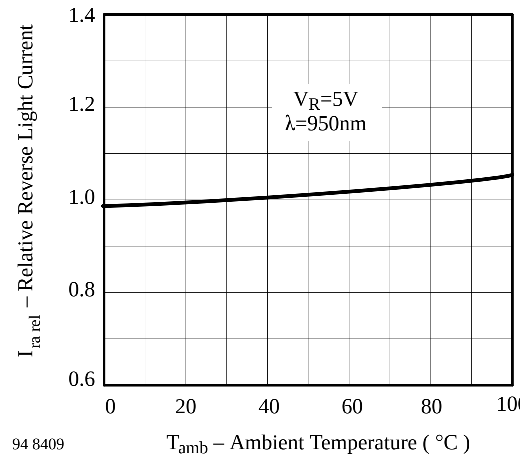


Figure 2 : Relative Reverse Light Current vs. Ambient Temperature

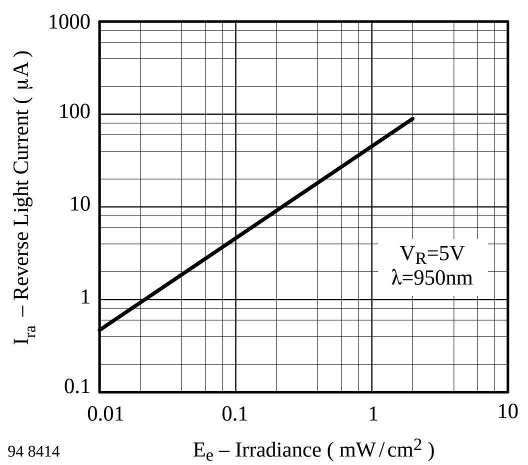


Figure 3 : Reverse Light Current vs. Irradiance

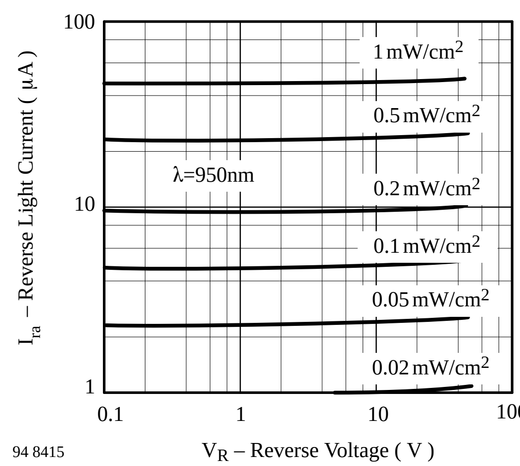


Figure 4 : Reverse Light Current vs. Reverse Voltage

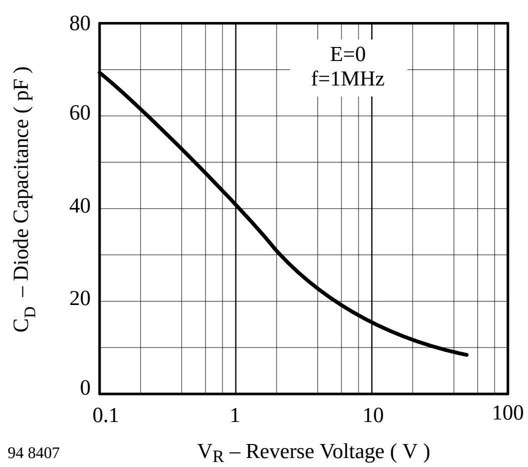


Figure 5 : Diode Capacitance vs. Reverse Voltage

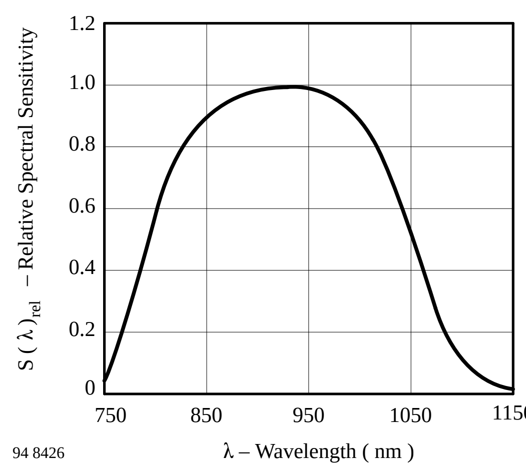


Figure 6 : Relative Spectral Sensitivity vs. Wavelength

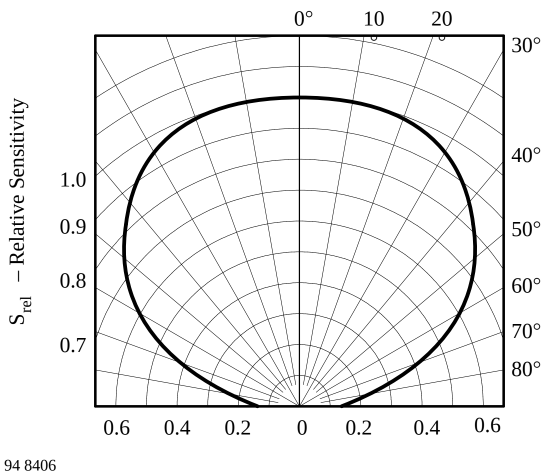
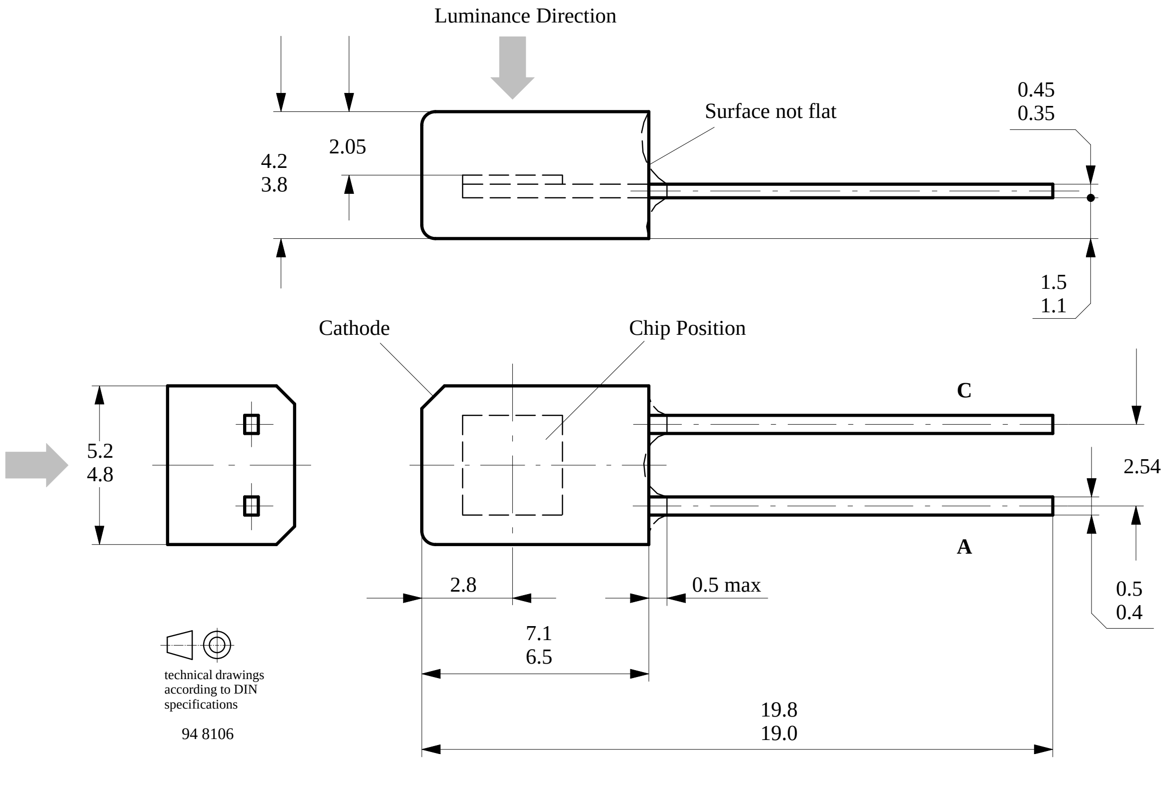


Figure 7 : Relative Radiant Sensitivity vs. Angular Displacement

Dimensions in mm



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