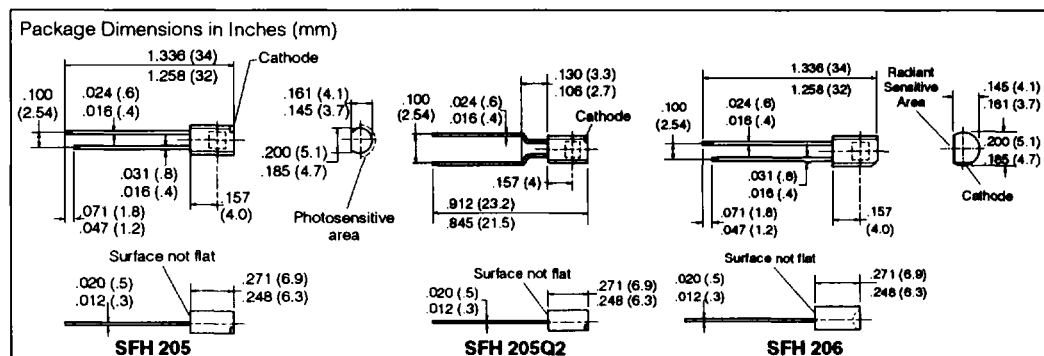


SFH 205
SFH 205Q2
SFH 206
PIN PHOTODIODE
DAYLIGHT FILTER



FEATURES

- Built-in Daylight Filter
- High Reliability
- 0.1" (2.54 mm) Lead Spacing
- Low Noise
- Black Plastic Encapsulated Package
- Suitable for IR Sound Transmission

DESCRIPTION

The SFH 205 silicon planar PIN photodiode is housed in a plastic package that serves as both a *filter* and a *window* for infrared emission. Its terminals are solder tabs at 0.1" (2.54 mm) lead spacing. The cathode marking is stamped at the package edge.

Key features include low junction capacitance, high cut-off frequency, short switching times, and an excellent signal/noise ratio, even at low light levels.

This versatile photodetector can be used as either a diode or as a voltaic cell. Applications include IR sound transmission and remote control.

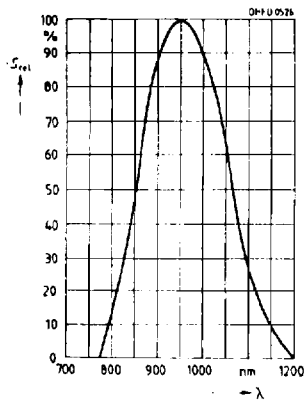
Maximum Ratings

Operating and Storage Temperature Range (T_{OP} , T_{STG})	-40° to +80°C
Soldering Temperature (≥2 mm from case bottom) (T_S) t≤3 s	230°C
Reverse Voltage (V_R)	32 V
Power Dissipation (P_{TOT}) $T_A=25^{\circ}\text{C}$	150 mW

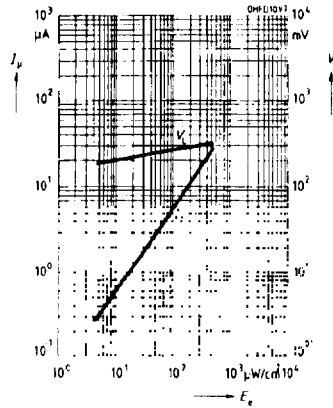
Characteristics ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Value	Unit
Photosensitivity ($V_R=5\text{ V}$, $\lambda=950\text{ nm}$, $E_E=0.5\text{ mW/cm}^2$)	S	25(≥ 15)	μA
Maximum Photosensitivity Wavelength	λ_{Cmax}	950	nm
Photosensitivity Spectral Range ($S=10\%$ of S_{MAX})	λ	800 to 1100	nm
Radiant Sensitive Area	A	7.00	mm^2
Radiant Sensitive Area Dimensions	L x W	2.65 x 2.65	mm
Distance, Chip Surface to Case Surface	H	2.3 to 2.5	mm
Half Angle	ϕ	± 60	Deg.
Dark Current ($V_R=10\text{ V}$)	I_R	2(≤ 30)	nA
Spectral Sensitivity ($\lambda=950\text{ nm}$)	S_λ	0.59	$\frac{\text{AW}}{\text{electrons}}$
Quantum Yield ($\lambda=950\text{ nm}$)	η	0.77	photon
Open Circuit Voltage ($\lambda=950\text{ nm}$, $E_E=0.5\text{ mW/cm}^2$)	V_O	330(≥ 250)	mV
Short Circuit Current ($\lambda=950\text{ nm}$, $E_E=0.5\text{ mW/cm}^2$)	I_{OC}	25	μA
Rise and Fall Time of Photocurrent ($R_L=50\ \Omega$, $V_R=5\text{ V}$, $\lambda=850\text{ nm}$, $I_P=800\ \mu\text{A}$)	t_R, t_F	20	ns
Forward Voltage ($I_F=100\text{ mA}$, $E_E=0$)	V_F	1.3	V
Temperature Coefficient ($V_R=0\text{ V}$, $f=1\text{ MHz}$, $E=0$)	C_0	72	pF
Temperature Coefficient V_O	TC_V	-2.6	mV/K
Temperature Coefficient I_{OC}	TC_I	0.18	%/K
Noise Equivalent Power ($V_R=10\text{ V}$)	NEP	4.3×10^{-14}	W/Hz
Detection Limit ($V_R=10\text{ V}$)	D^*	6.2×10^{12}	$\text{cm}^2\text{Hz}/\text{W}$

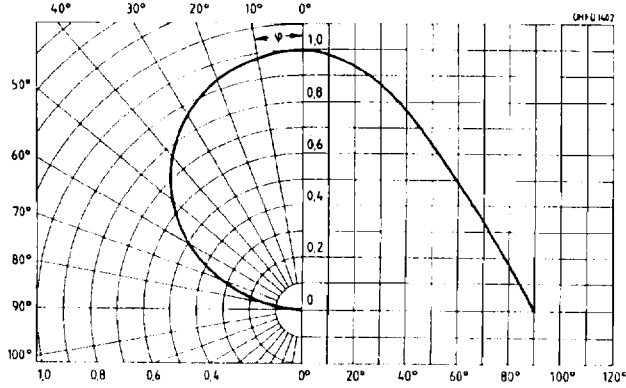
Relative spectral sensitivity $S_{REL}=f(\lambda)$



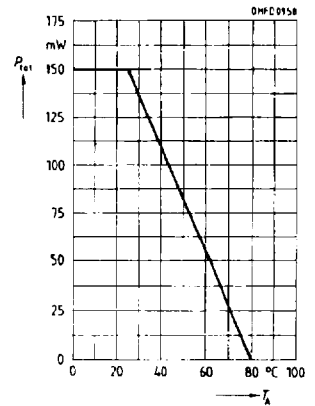
Photocurrent $I_p=f(E_E)$ $V_R=5$ V
Open circuit voltage $V_O=f(E_E)$



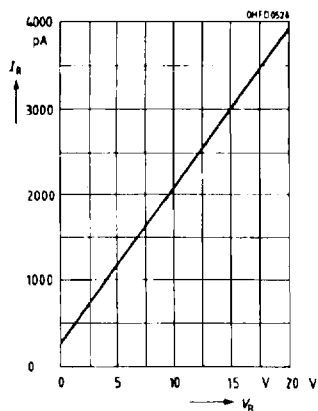
Directional characteristic $S_{REL}=f(\varphi)$



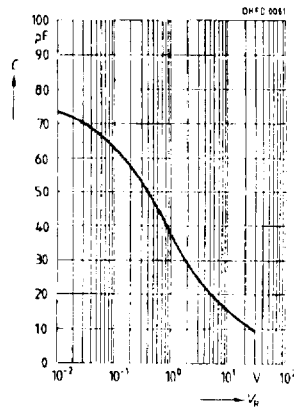
Power dissipation $P_{TOT}=f(T_A)$



Dark current $I_R=f(V_R)$, $E=0$



Capacitance $C=f(V_R)$, $f=1$ MHz, $E=0$



Dark current $I_R=f(T_A)$, $V_R=10$ V, $E=0$

