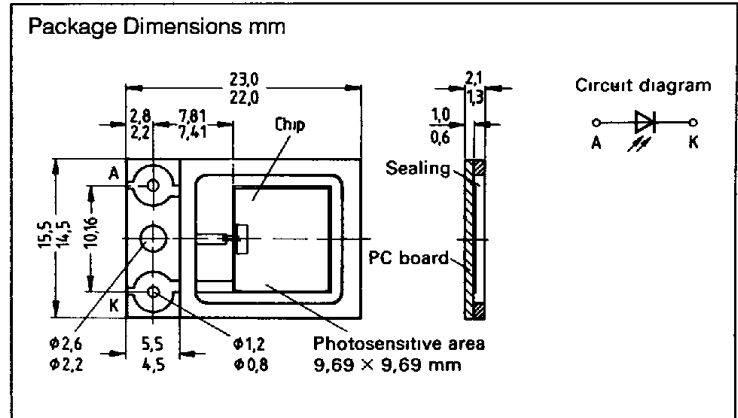
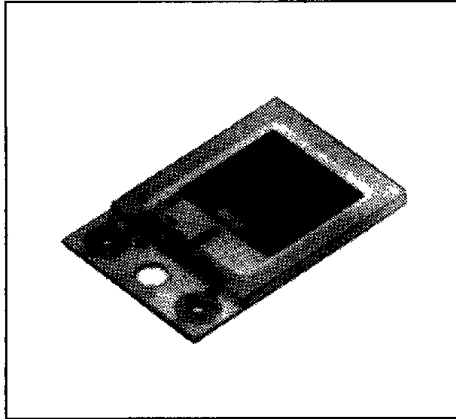


SIEMENS**SFH 207****SILICON PIN PHOTODIODE**

T-41-53

**FEATURES**

- **Package: Chip on PC Board, Fully Encapsulated**
- **High Reliability**
- **No Testable Degradation**
- **Low Noise**
- **High Open-Circuit Voltage at Voltaic Cell Operation**
- **High Cut-Off Frequency**
- **Short Switching Time**
- **Low Capacitance**
- **Good Linearity**
- **High Photosensitivity**
- **Wide Temperature Range**
- **Suitable for the Visible and the Near Infrared Range**

DESCRIPTION

The SFH 207 is a silicon photodiode fabricated in planar PIN technology. The silicon material used results in a positive front and negative back contact. These photodetectors can be used as a diode (with reverse voltage) as well as a voltaic cell.

Applications include industrial electronics, measurement and control.

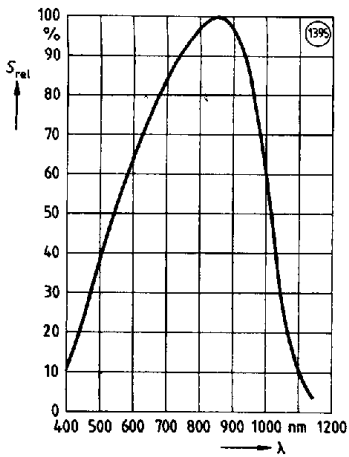
Maximum Ratings

Operating Temperature Range (T_{op})	-40°C to +80°C
Storage Temperature Range (T_{sto})	-40°C to +80°C
Reverse Voltage (V_R)	15 V
Total Power Dissipation (P_{TOT})	100 mW

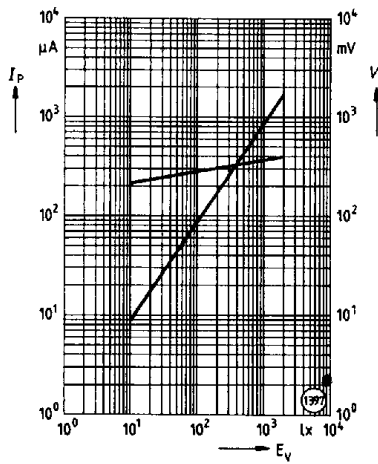
Characteristics ($T_A=25^\circ\text{C}$)

Parameter	Symbol		Unit
Photosensitivity ($V_R=5$ V, standard light A, $T=2856$ K)	S	850 (≥ 750)	nA/lx
Wavelength of Maximum Sensitivity	λ_{max}	850	nm
Spectral Range of Photosensitivity ($S=10\%$ of S_{max})	λ	400 - 1100	nm
Radiant Sensitive Area	A	93.9	mm ²
Dimensions of Radiant Sensitive Area	L × B	9.69 × 9.69	mm × mm
Distance Chip Surface to Case Surface	H	0.5 - 0.7	mm
Half Angle	ϕ	± 60	Deg
Dark Current ($V_R=10$ V, $E=0$)	I_n	30 (≤ 200)	nA
Spectral Sensitivity ($\lambda=850$ nm)	S_λ	0.6	A/W
Quantum Efficiency ($\lambda=850$ nm)	η	0.88	electrons/ photon
Open-Circuit Voltage ($E_f=1000$ lx, standard light A, $T=2856$ K)	V_o	370 (≥ 300)	mV
Short-Circuit Current ($E_f=1000$ lx, standard light A, $T=2856$ K)	I_{sc}	810 (≥ 750)	μA
Rise and Fall Time of Photocurrent ($R_f=50$ Ω , $V_{cc}=15$ V, $\lambda=830$ nm, $I_p=1$ mA)	t_r, t_f	30	ns
Forward Voltage ($I_f=100$ mA, $E=0$)	V_f	1.2	V
Capacitance ($V_R=0$ V, $f=1$ MHz, $E=0$)	C	950	pF
Temperature Coefficient of V_o (standard light A)	TC_V	-2.6	mV/K
Temperature Coefficient of I_{sc} (standard light A)	TC_I	0.2	%/K
Noise Equivalent Power ($V_R=10$ V, $\lambda=850$ nm)	NEP	1.63×10^{-13}	W/ $\sqrt{\text{Hz}}$
Detection Limit ($V_R=10$ V, $\lambda=850$ nm)	D	5.94×10^{12}	$\text{cm}\sqrt{\text{Hz}}/\text{W}$

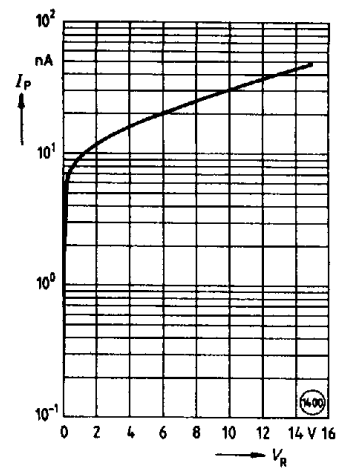
Relative spectral sensitivity
 $S_{REL} = f(\lambda)$



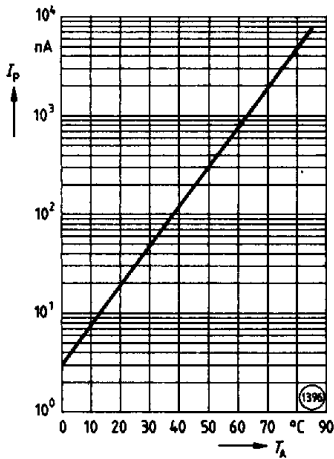
Photocurrent $I_P = f(E_V)$
open-circuit voltage $V_O = f(E_V)$



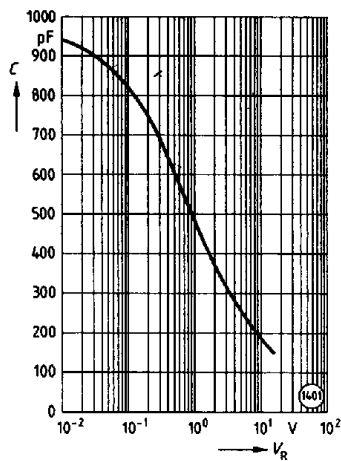
Dark current $I_R = f(V_R)$
 $(T_A = 25^\circ\text{C}, E = 0)$



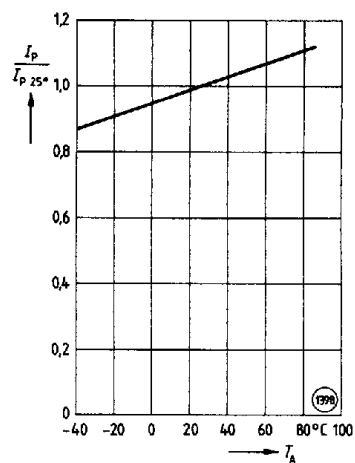
Dark current $I_R = f(T_A)$
 $(V_R = 10\text{ V}, E = 0)$



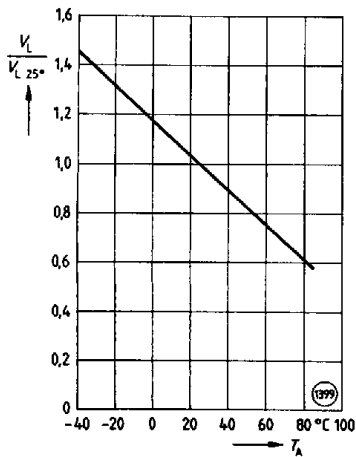
Capacitance $C = f(V_R)$
 $(f = 1\text{ MHz}, E = 0)$



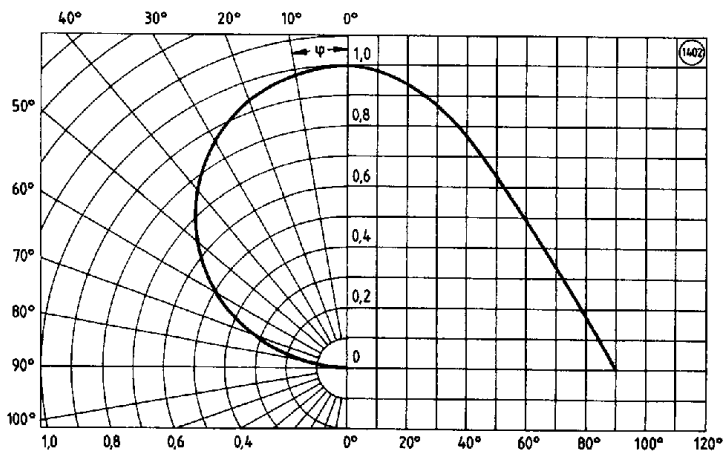
Relative photocurrent $I_P / I_{P25} = f(T_A)$
 Standard light A



Relative photocurrent $V_L / V_{L25} = f(T_A)$
 Standard light A



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



Photodiodes