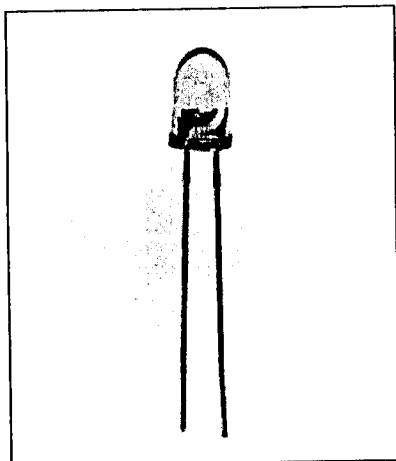


Optoelectronic Devices

Order code	Manufacturer code	Description
58-0470	Q62702-P955	SFH203 T1 3/4 PHOTODIODE (UNFILTERED) RC

Optoelectronic Devices	Page 1 of 3
The enclosed information is believed to be correct, Information may change 'without notice' due to product improvement. Users should ensure that the product is suitable for their use. E. & O. E.	Revision A 04/07/2003



FEATURES

- High Reliability
- Low Noise
- High Open Circuit Voltage as Photovoltaic Cells
- Short Switching Time
- High Spectral Sensitivity
- Wide Temperature Range
- Low Capacitance
- Usage: Visible and Near IR Ranges
- Clear Plastic Lens (SFH 2030)
- Daylight Filter Option (SFH 2030F)

DESCRIPTION

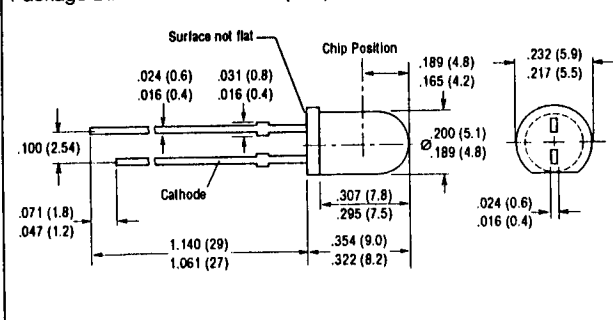
SFH 2030 and SFH 2030F are silicon planar PIN photodiodes in T1³/₄ packages. They can be used as photodiodes with reverse voltage, or as photovoltaic cells. The terminals are solder tabs with 0.1" (2.54 mm) lead spacing.

Applications include industrial electronics, light-activated switches, fiber optic transmission systems, and measurement and control.

Maximum Ratings

Operating and Storage Temperature Range (T_{OP}, T_{STG}) -55° to +100°C
Soldering Temperature (2 mm from case bottom) (T_s) t₃s 300°C
Reverse Voltage (V_R) 50 V
Power Dissipation (P_{TOT}) T_A=25°C 100 mW

Package Dimensions in Inches (mm)



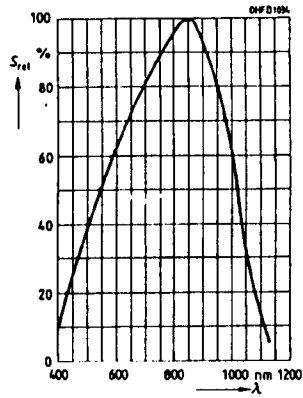
Characteristics (T_A=25°C)

Parameter	Symbol	Value	Unit
SFH 2030 SFH 2030F			
Photosensitivity (V _R =5 V, Standard Light A, T=2856 K)	S	80(≥50)	nA/lx
(V _R =5 V, λ=950 nm, E _o =0.5 mW/cm ²)	S	25(≥15)	μA
Maximum Photosensitivity Wavelength	λ _{o max}	850	900
Photosensitivity Spectral Range (S=10% of S _{MAX})	λ	400 to 1100	800 to 1100
Radiant Sensitive Area	A	1	1
Radiant Sensitive Area Dimensions	L x W	1 x 1	1 x 1
Distance, Chip Surface to Case Surface	H	4.0 to 4.6	4.0 to 4.6
Half Angle	φ	±20	±20
Dark Current (V _R =20 V)	I _R	1(≤5)	1(≤5)
Spectral Sensitivity (λ=850 nm)	S _λ	0.62	0.59
Quantum Yield (λ=850 nm)	η	0.89	0.86
Open Circuit Voltage (E _V =1000 lx) ⁽¹⁾	V _o	420(≥350)	mV
(E _o =0.5 mW/cm ² , λ=950 nm)	V _o	370(≥300)	mV
Short Circuit Current (E _V =1000 lx) ⁽¹⁾	I _{sc}	80	μA
(E _o =0.5 mW/cm ² , λ=950 nm)	I _{sc}	25	μA
Rise and Fall Time of Photocurrent (R _L =50 Ω, V _R =20 V, λ=850 nm, I _p =800 μA)	I _R , t _F	5	5
Forward Voltage (I _F =80 mA, E=0)	V _F	1.3	1.3
Capacitance (V _R =0 V, f=1 MHz, E=0)	C _o	11	11
Temperature Coefficient V _o	TC _V	-2.6	-2.6
Temperature Coefficient I _{sc} (Standard Light A)	TC _I	0.18	%/K
Temperature Coefficient I _{sc} (λ=950 nm)	TC _I	0.2	%/K
Noise Equivalent Power (V _R =20 V, λ=850 nm)	NEP	2.9 x 10 ⁻¹⁴	2.9 x 10 ⁻¹⁴
Detection Limit (V _R =20 V, λ=850 nm)	D*	3.5 x 10 ¹²	3.5 x 10 ¹²

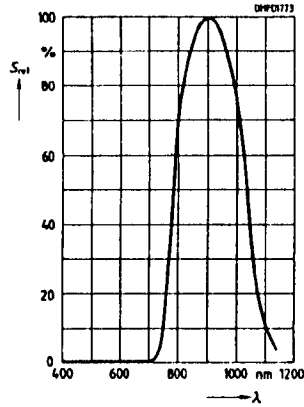
Note

1. Illuminance shown refers to unfiltered radiation of tungsten filament lamp at color temperature of 2856 K (standard light A per DIN 5033 and IEC publication 306-1).

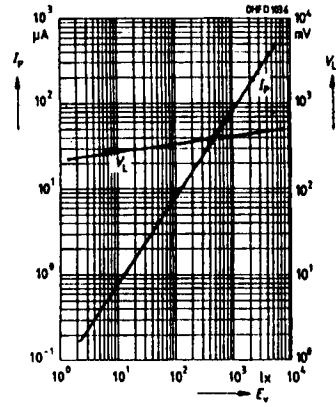
SFH 2030
Relative spectral sensitivity
 $S_{REL}=f(\lambda)$



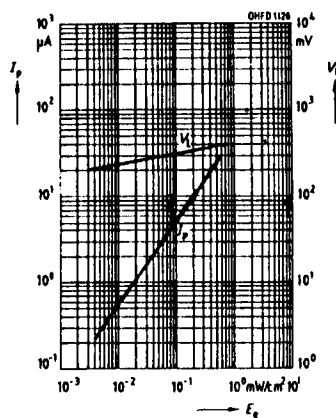
SFH 2030F
Relative spectral sensitivity
 $S_{REL}=f(\lambda)$



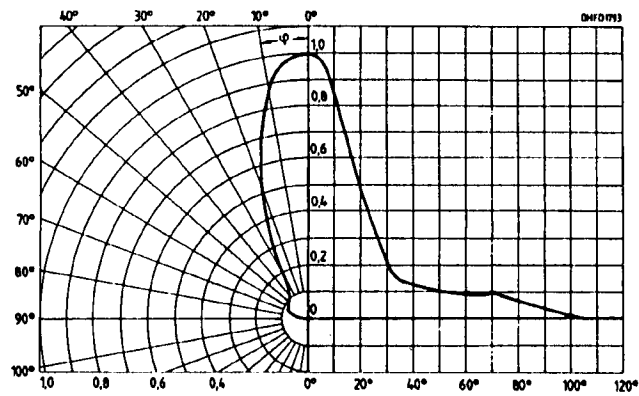
SFH 2030
Photocurrent $I_P=f(E_V)$ $V_R=5$ V
Open circuit voltage $V_O=f(E_V)$



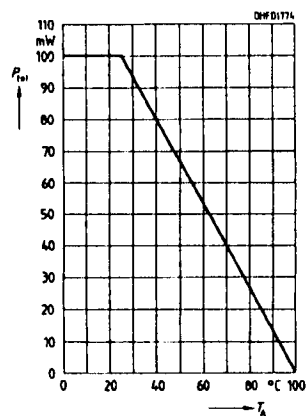
SFH 2030F
Photocurrent $I_P=f(E_V)$ $V_R=5$ V
Open circuit voltage $V_O=f(E_V)$



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



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



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

