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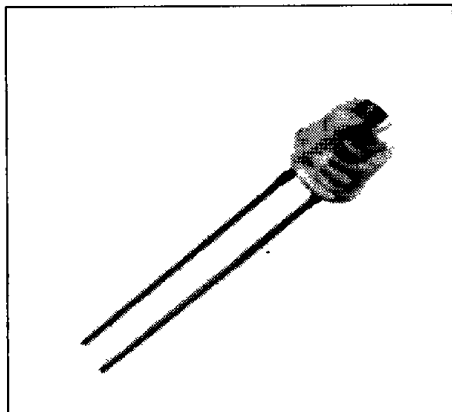
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SIEMENS

T-41-51

SFH 263

WITH FILTER SFH 263F
SILICON PHOTODIODE
VERY LOW DARK CURRENT

**FEATURES**

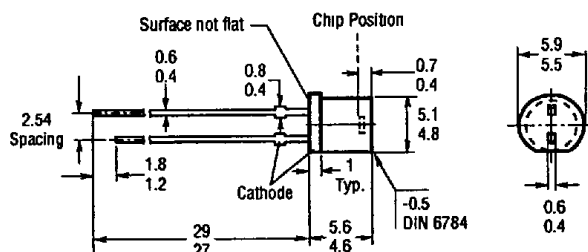
- **Package:** 5-mm LED Package, Flat Lens, Clear Epoxy Resin, Solder Tabs, Lead Spacing 2.54 mm (1/16")
- **Cathode Marking:** Short Solder Tab
- **High Reliability**
- **No Testable Degradation**
- **Low Noise**
- **High Open-Circuit Voltage During Element Operation**
- **Detector for Low Illuminance**
- **Short Switching Time**
- **High Photosensitivity**
- **Wide Temperature Range**
- **Suitable for the Visible as well as the Infrared Range**
- **Daylight-Rejection Filter (SFH 263F)**
- **Same Package as Phototransistors SFH 317, SFH 317F, IRED SFH 485P, Photodiodes SFH 217, SFH 217F.**

DESCRIPTION

The SFH 263 is a silicon photodiode fabricated in planar technology. The N-Si material used results in a positive front and negative back contact. These photo-detectors are suitable for diode operation (with reverse voltage) as well as for element operation.

Applications include exposure meters, automatic exposure timers, industrial electronics, "measuring and controlling".

Package Dimensions mm

**Maximum Ratings**

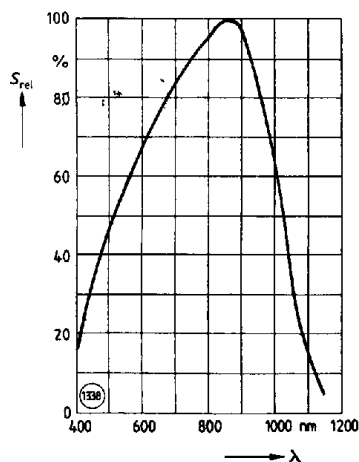
Operating and Storage Temperature Range (T_{op})(T_{stg}) ... -40°C to +80°C
 Soldering Temperature (2 mm distance from case, $t=3$ sec.) (T_s) ... 230°C
 Reverse Voltage (V_R) ... 7 V
 Total Power Dissipation (P_{tot}) ($T_A=25^\circ\text{C}$) ... 100 mW

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

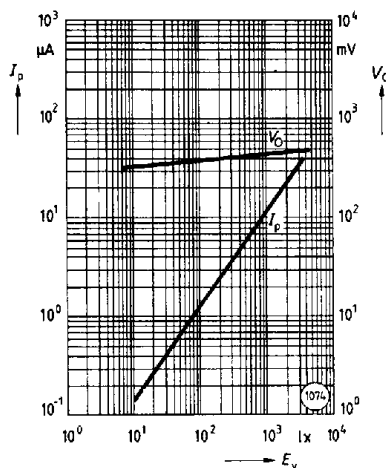
Parameter	Symbol	SFH263	SFH363F	Unit
Photosensitivity ($V_R=5$ V, standard light A, $T=2856$ K, $\lambda=950$ nm, $E_E=0.5$ mW/cm ²)	S	10 (≥ 8)	2.5 (≥ 2)	nA/x
Wavelength of Maximum Sensitivity	λ_{max}	850	900	nm
Spectral Range of Photosensitivity ($S=10\%$ of S_{max})	λ	350 - 1100	730 - 1100	nm
Radiant Sensitive Area	A	0.97		mm ²
Dimensions of Radiant Sensitive Area	L x B	0.985 x 0.985		mm
Distance Chip Surface to Case Surface	H	0.4 - 0.7		mm
Half Angle	ϕ	± 60		Deg
Dark Current ($V_R=1$ V)	I_R	5 (≤ 20)		pA
Spectral Sensitivity ($\lambda=850$ nm)	S_λ	0.50		A/W
Zero Crossover ($E_E=0$, $T_A=25^\circ\text{C}$)	S_0	≥ 0.5		mV/pA
Quantum Yield ($\lambda=850$ nm)	η	0.73		electrons/photon
Open-Circuit Voltage ($E_v=1000$ lx, standard light A, $T=2856$ K, $\lambda=950$ nm, $E_E=0.5$ mW/cm ²)	V_0	450 (≥ 380)	400 (≥ 350)	mV
Short-Circuit Current ($E_v=1000$ lx, standard light A, $T=2856$ K, $\lambda=950$ nm, $E_E=0.5$ mW/cm ²)	I_{sc}	10 (≥ 8)	2.5 (≥ 2)	μA
Rise and Fall Time of Photocurrent (from 10% to 90%, or from 90% to 10% of final value) ($R_L=1$ k Ω , $V_R=5$ V, $\lambda=830$ nm, $I_p=10$ μA)	t_r, t_f	1.3		μs
Forward Voltage ($I_f=100$ mA, $E=0$, $T_A=25^\circ\text{C}$)	V_F	1.3		V
Capacitance ($V_R=0$ V, $f=1$ MHz, $E_v=0$ lx)	C_0	100		pF
Temperature Coefficient of V_0 ($\lambda=950$ nm)	TC_{V_0}	-2.6	-2.6	mV/K
Temperature Coefficient of I_{sc} ($\lambda=950$ nm)	$TC_{I_{sc}}$	0.16	0.16	%/K
Noise Equivalent Power ($V_R=1$ V)	NEP	2.5×10^{-15}		W/ $\sqrt{\text{Hz}}$
Detection Limit ($V_R=1$ V)	D	3.9×10^{13}		cm $\cdot\sqrt{\text{Hz}}$ /W

T-41-51

Relative spectral sensitivity
versus wavelength



Photocurrent and open-circuit
voltage versus illuminance



Directional characteristic
Relative spectral sensitivity
versus half angle

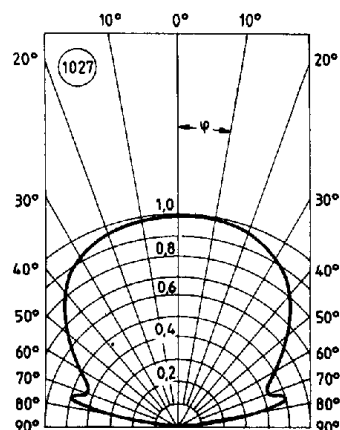
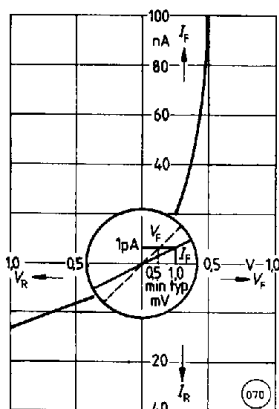
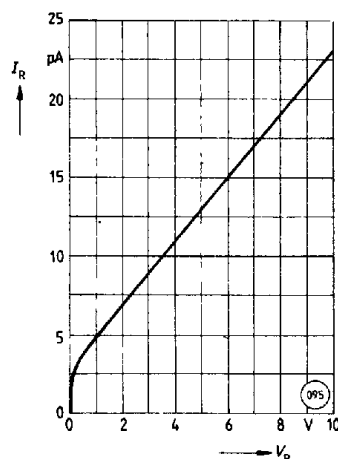


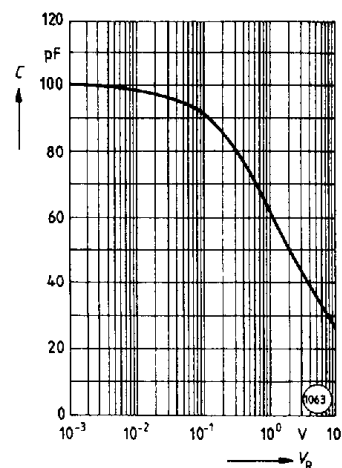
Diagram of zero crossover $S_o = \frac{V_F}{I_F}$



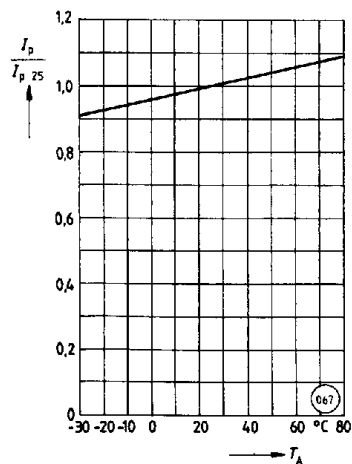
Dark current versus reverse voltage
($T_A = 25^\circ\text{C}$, $E_v = 0$)



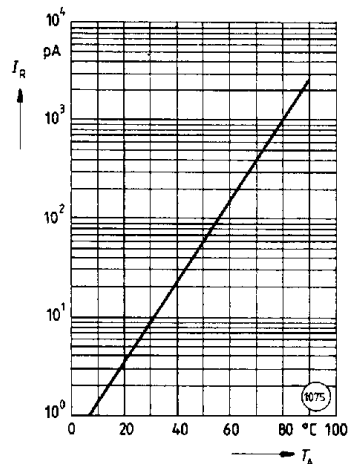
Capacitance versus reverse voltage
($E = 0$, $f = 1 \text{ MHz}$)



Photocurrent versus
ambient temperature



Dark current versus ambient temperature
($V_R = 1 \text{ V}$, $E_v = 0$)



Photodiodes