

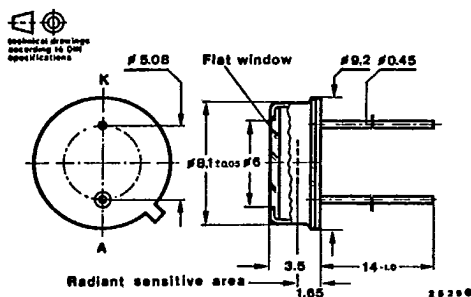
Silicon PN Planar Photodiode

Applications: Sensor for light measuring purposes

Features:

- For photodiode and photovoltaic cell operation
- Hermetically sealed case
- Flat window
- Suitable for visible and near infrared radiation
- High blue sensitivity
- Log. correlation between open circuit voltage and illuminance from 10^{-2} till 10^5 lx in photovoltaic cell operation
- Linear correlation between short circuit current and illuminance from 10^{-2} till 10^5 lx in photovoltaic cell operation
- No light memory effect
- No pre-exposure ratio

Dimensions in mm



Radiant sensitive area $A = 7.5 \text{ mm}^2$

Angle of half sensitivity

$\pm \phi = 50^\circ$

Cathode connected with case

~ JEDEC TO 56

Weight max. 1.0 g

Absolute maximum ratings

Reverse voltage	V_R	10	V
Ambient temperature range	T_{amb}	-25...+100	°C

Thermal resistance

Junction ambient	R_{thJA}	Min.	Typ.	Max.
				250 K/W

T1.2/1121.0788 E

1188

A-07

33

BPW 20

Optical and electrical characteristics

 $T_{amb} = 25^\circ\text{C}$

Min. Typ. Max.

Photovoltaic cell operation

Open circuit voltage¹⁾ $E_A = 1 \text{ klx}^{1)}$ $V_o^{1)}$

330

430

mV

Temperature coefficient of V_o $E_A = 1 \text{ klx}^{1)}$ TK_{V_o}

-2

mV/K

Short circuit current

 $E_A = 1 \text{ klx}^{1)}, R_L = 100 \Omega$ $I_k^{1)}$

20

33

 μA

Sensitivity, short circuit

 $E_A = 10^{-2} \dots 10^{-5} \text{ lx}^{1)}$ S_k

33

nA/lx

Temperature coefficient of I_k $E_A = 1 \text{ klx}^{1)}, R_L = 100 \Omega$ TK_{I_k}

0.1

%/K

Junction capacitance

 $V_R = 0, f = 1 \text{ MHz}, E = 0$ C_j

1.2

nF

Switching characteristics

 $I_{ph} = 100 \mu\text{A}, R_L = 1 \text{ k}\Omega$, see test circuit

Rise time

 t_r

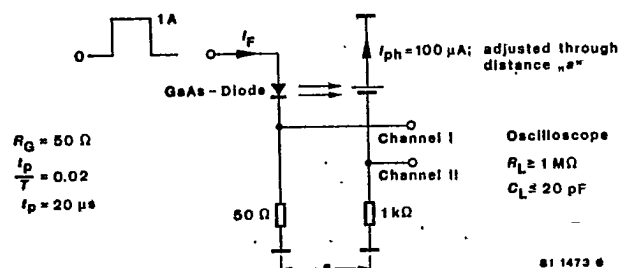
3.5

 μs

Fall time

 t_f

3.5

 μs 

Test circuit

¹⁾ AQL = 0.65 %¹⁾ Standard Illuminant A (DIN 5033/IEC 306-1)

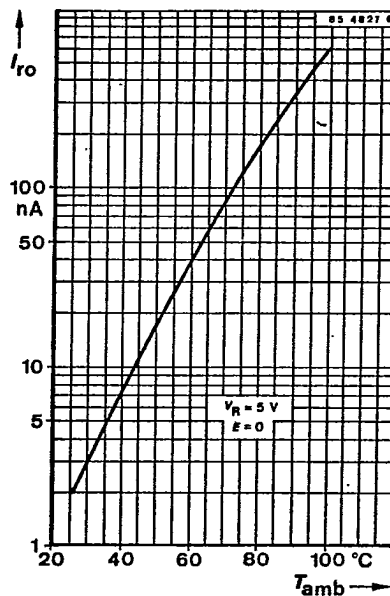
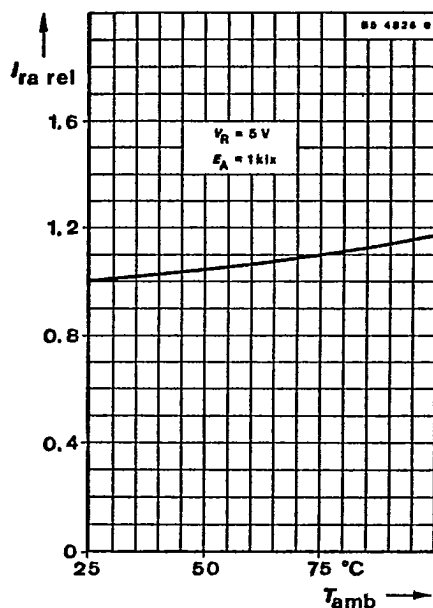
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Photodiode operation

		Min.	Typ.	Max.
Breakdown voltage $I_{ro} = 100 \mu A, E = 0$	$V_{(BR)}^{*)}$	10		V
Reverse dark current $V_R = 5 V, E = 0$	$I_{ro}^{*)}$		2	30 nA
Light reverse current $V_R = 5 V, E_A = 1 \text{ klx}^{1)}$	I_{ra}	20	33	μA
Sensitivity $V_R = 5 V, E_A = 10^{-2} \dots 10^5 \text{ lx}^{1)}$	s		33	nA/lx
Junction capacitance $V_R = 5 V, f = 1 \text{ MHz}$	C_j		400	pF

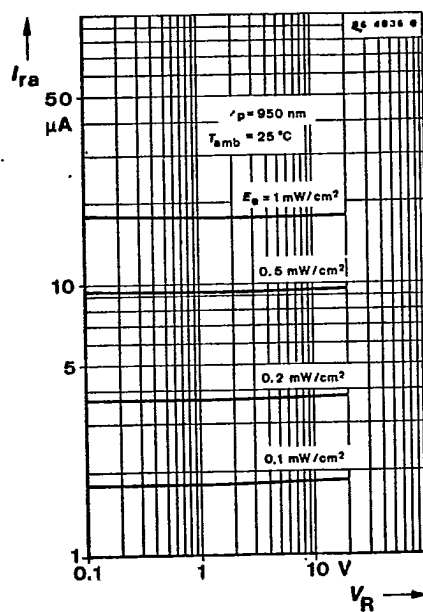
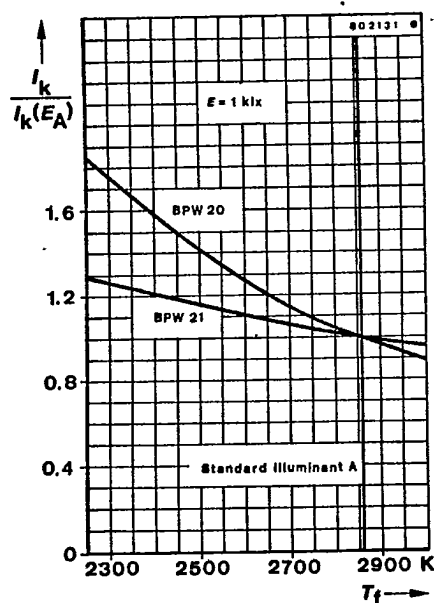
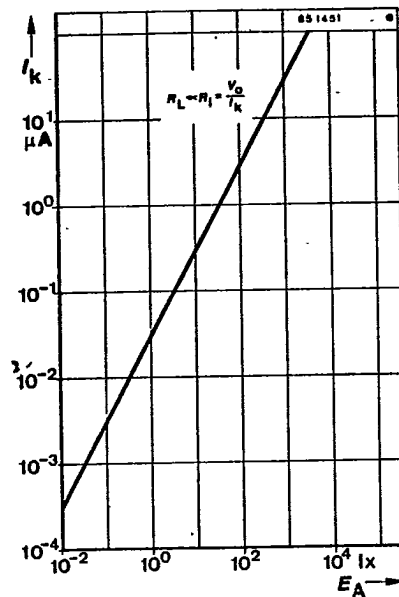
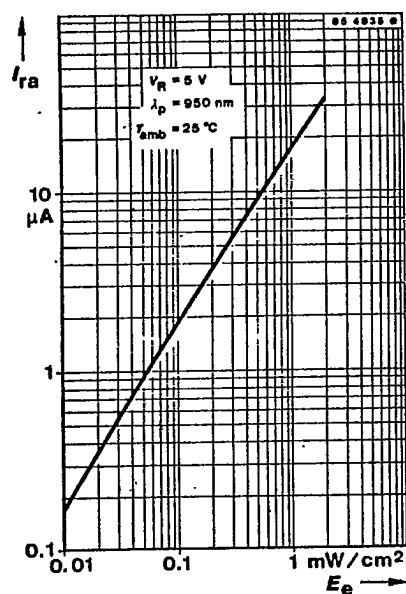
Photovoltaic cell and photodiode operation

Peak wavelength sensitivity	λ_p	700	nm
Range of spectral bandwidth (50 %)	$\lambda_{0.5}$	400...950	nm

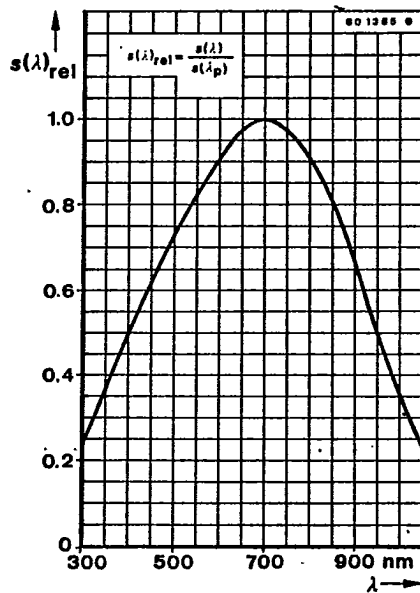
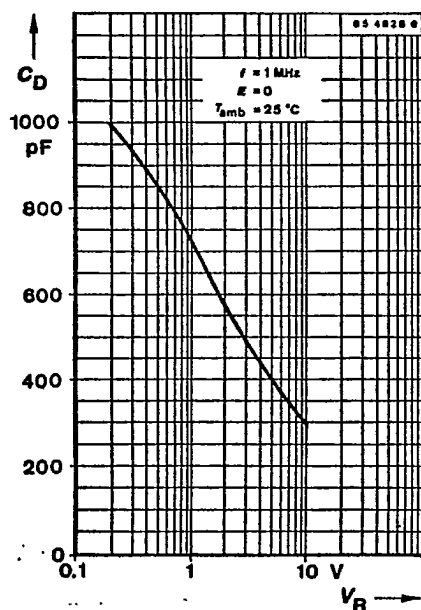
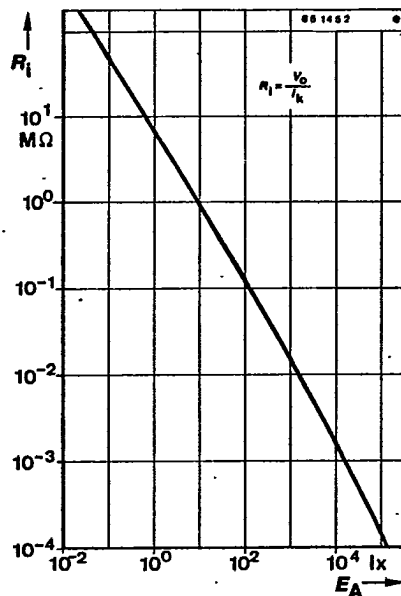
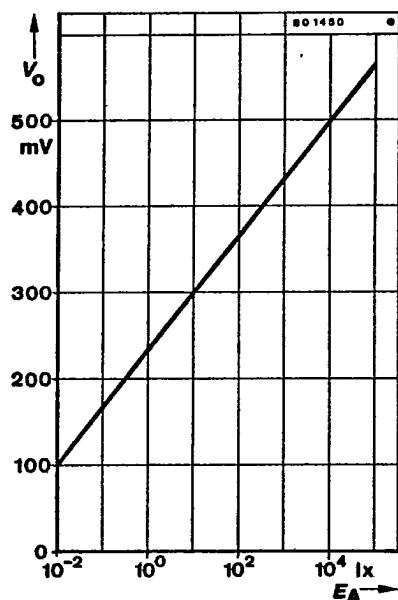


*) AQL = 0.65 %

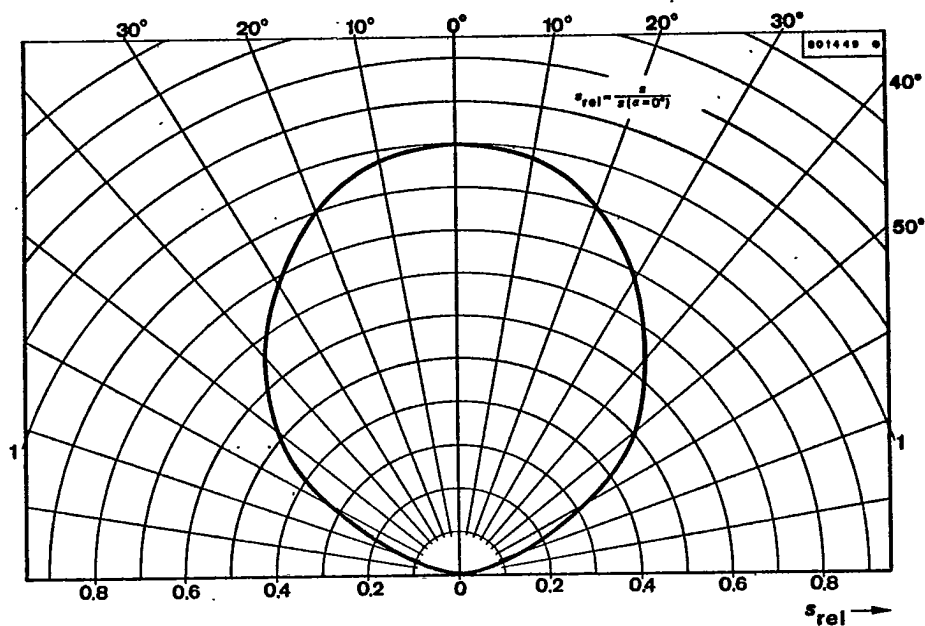
1) Standard illuminant A (DIN 5033/IEC 306-1)



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