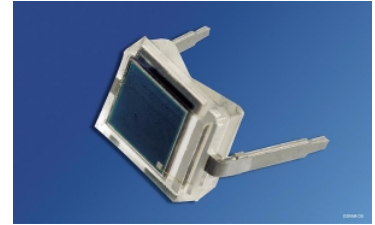


Silizium-Fotodiode Silicon Photodiode

BPW 33



Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 350 nm bis 1100 nm
- Sperrstromarm (typ. 20 pA)
- DIL-Plastikbauform mit hoher Packungsdichte

Anwendungen

- Belichtungsmesser
- Farbanalyse

Features

- Especially suitable for applications from 350 nm to 1100 nm
- Low reverse current (typ. 20 pA)
- DIL plastic package with high packing density

Applications

- Exposure meters
- Color analysis

Typ Type	Bestellnummer Ordering Code
BPW 33	Q62702-P76

Grenzwerte
Maximum Ratings

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Betriebs- und Lagertemperatur Operating and storage temperature range	$T_{op}; T_{stg}$	- 40 ... + 85	°C
Sperrspannung Reverse voltage	V_R	7	V
Verlustleistung, $T_A = 25\text{ °C}$ Total power dissipation	P_{tot}	150	mW

Kennwerte ($T_A = 25\text{ °C}$, Normlicht A, $T = 2856\text{ K}$)
Characteristics ($T_A = 25\text{ °C}$, standard light A, $T = 2856\text{ K}$)

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Fotoempfindlichkeit, $V_R = 5\text{ V}$ Spectral sensitivity	S	75 (≥ 35)	nA/lx
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\text{ max}}$	800	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von S_{max} Spectral range of sensitivity $S = 10\%$ of S_{max}	λ	350 ... 1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	7.34	mm ²
Abmessung der bestrahlungsempfindlichen Fläche Dimensions of radiant sensitive area	$L \times B$ $L \times W$	2.71×2.71	mm × mm
Abstand Chipoberfläche zu Gehäuseoberfläche Distance chip front to case surface	H	0.5	mm
Halbwinkel Half angle	φ	± 60	Grad deg.
Dunkelstrom, $V_R = 1\text{ V}$ Dark current	I_R	20 (≤ 100)	pA
Nullpunktsteilheit, $E = 0$ Zero crossover	S_0	≤ 2.5	pA/mV
Spektrale Fotoempfindlichkeit, $\lambda = 850\text{ nm}$ Spectral sensitivity	S_λ	0.59	A/W

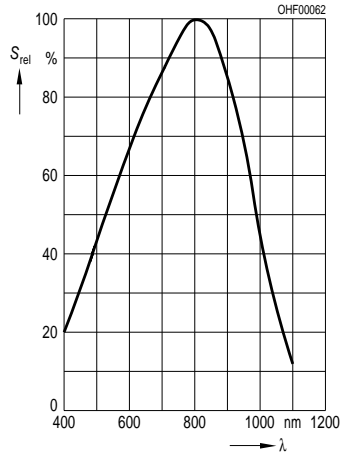
Kennwerte ($T_A = 25\text{ °C}$, Normlicht A, $T = 2856\text{ K}$)

Characteristics ($T_A = 25\text{ °C}$, standard light A, $T = 2856\text{ K}$) (cont'd)

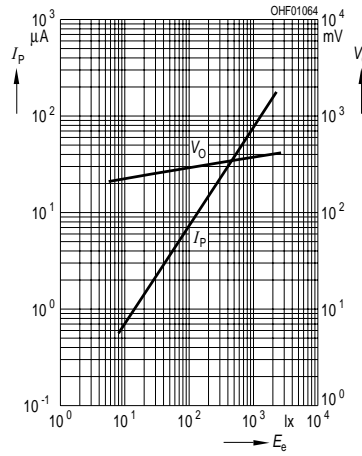
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Quantenausbeute, $\lambda = 850\text{ nm}$ Quantum yield	η	0.86	<u>Electrons</u> Photon
Leerlaufspannung, $E_V = 1000\text{ lx}$ Open-circuit voltage	V_O	440 (≥ 375)	mV
Kurzschlußstrom, $E_V = 1000\text{ lx}$ Short-circuit current	I_{SC}	72	μA
Anstiegs- und Abfallzeit des Fotostromes Rise and fall time of the photocurrent $R_L = 1\text{ k}\Omega$; $V_R = 5\text{ V}$; $\lambda = 850\text{ nm}$; $I_p = 70\text{ }\mu\text{A}$	t_r, t_f	1.5	μs
Durchlaßspannung, $I_F = 100\text{ mA}$, $E = 0$ Forward voltage	V_F	1.3	V
Kapazität, $V_R = 0\text{ V}$, $f = 1\text{ MHz}$, $E = 0$ Capacitance	C_0	630	pF
Temperaturkoeffizient von V_O Temperature coefficient of V_O	TC_V	-2.6	mV/K
Temperaturkoeffizient von I_{SC} Temperature coefficient of I_{SC}	TC_I	0.2	%/K
Rauschäquivalente Strahlungsleistung Noise equivalent power $V_R = 1\text{ V}$, $\lambda = 850\text{ nm}$	NEP	4.3×10^{-15}	$\frac{\text{W}}{\sqrt{\text{Hz}}}$
Nachweisgrenze, $V_R = 1\text{ V}$, $\lambda = 850\text{ nm}$ Detection limit	D^*	6.3×10^{13}	$\frac{\text{cm} \times \sqrt{\text{Hz}}}{\text{W}}$

Relative Spectral Sensitivity

$S_{rel} = f(\lambda)$

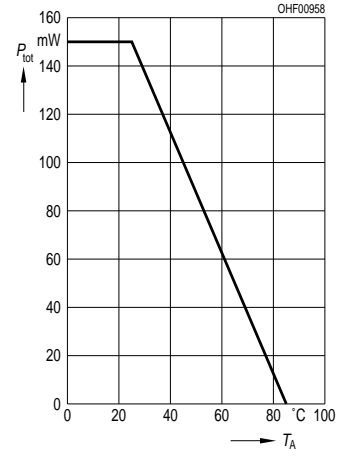


**Photocurrent $I_P = f(E_e)$, $V_R = 5 V$
Open-Circuit Voltage $V_O = f(E_e)$**



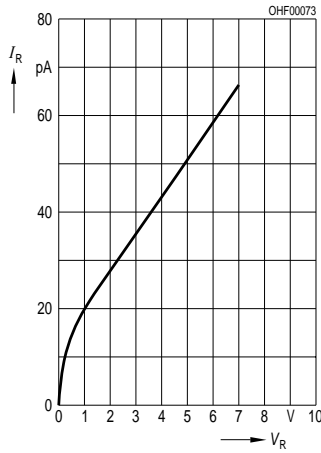
Total Power Dissipation

$P_{tot} = f(T_A)$



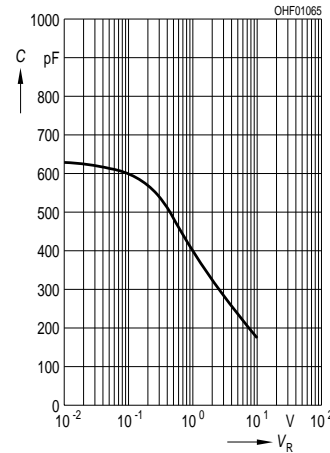
Dark Current

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



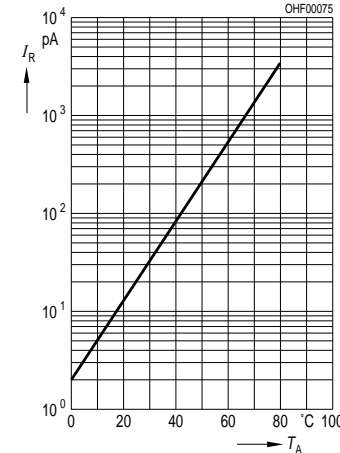
Capacitance

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



Dark Current

$I_R = f(T_A), V_R = 1 V, E = 0$



Directional Characteristics

$S_{rel} = f(\varphi)$

