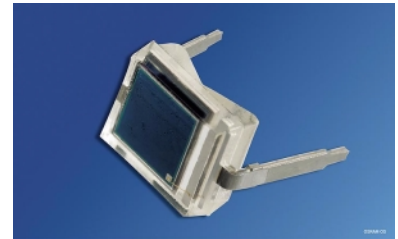


# Silizium-Fotodiode Silicon Photodiode

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

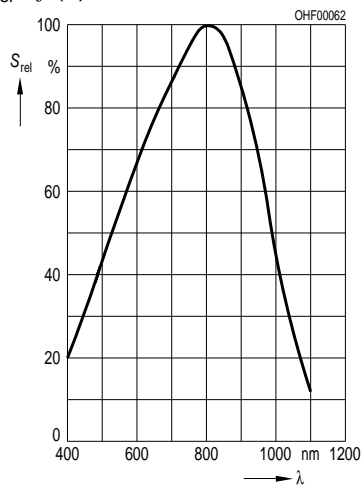
**Kennwerte** ( $T_A = 25\text{ °C}$ , Normlicht A,  $T = 2856\text{ K}$ )

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

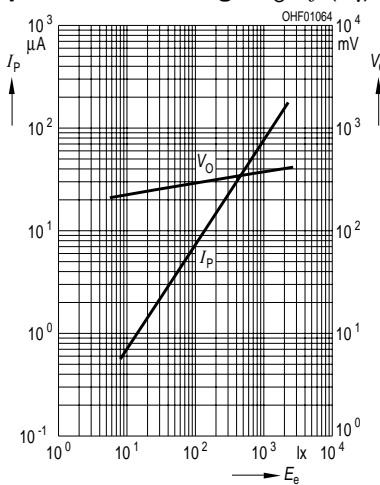
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Quantenausbeute, $\lambda = 850\text{ nm}$ Quantum yield	$\eta$	0.86	<u>Electrons</u> Photon
Leerlaufspannung, $E_V = 1000\text{ lx}$ Open-circuit voltage	$V_O$	440 ( $\geq 375$ )	mV
Kurzschlußstrom, $E_V = 1000\text{ lx}$ Short-circuit current	$I_{SC}$	72	$\mu\text{A}$
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	$\mu\text{s}$
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 $V_R = 1\text{ V}$ , $\lambda = 850\text{ nm}$	$NEP$	$4.3 \times 10^{-15}$	$\frac{\text{W}}{\sqrt{\text{Hz}}}$
Nachweisgrenze, $V_R = 1\text{ V}$ , $\lambda = 850\text{ nm}$ Detection limit	$D^*$	$6.3 \times 10^{13}$	$\frac{\text{cm} \times \sqrt{\text{Hz}}}{\text{W}}$

**Relative Spectral Sensitivity**

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

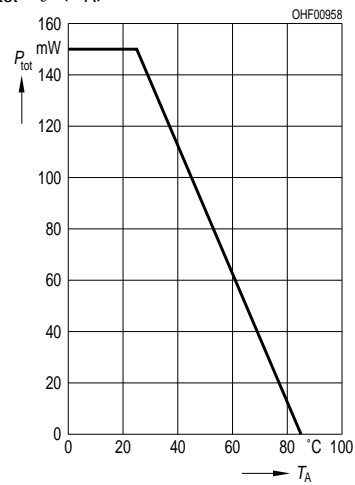


**Photocurrent  $I_P = f(E_e)$ ,  $V_R = 5 V$   
Open-Circuit Voltage  $V_O = f(E_e)$**



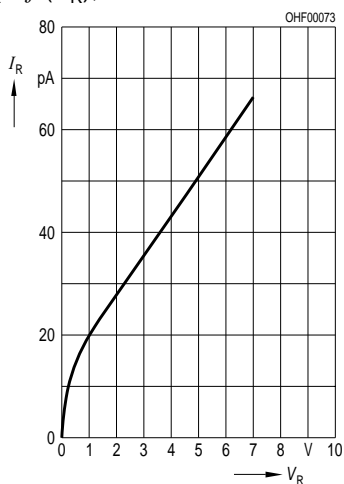
**Total Power Dissipation**

$P_{tot} = f(T_A)$



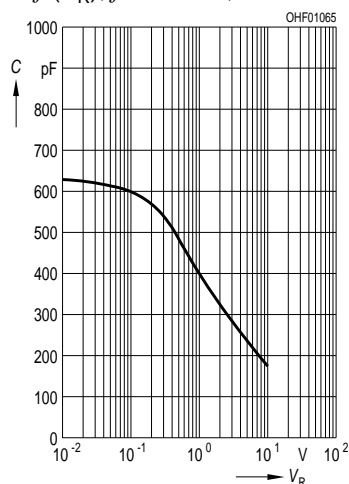
**Dark Current**

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



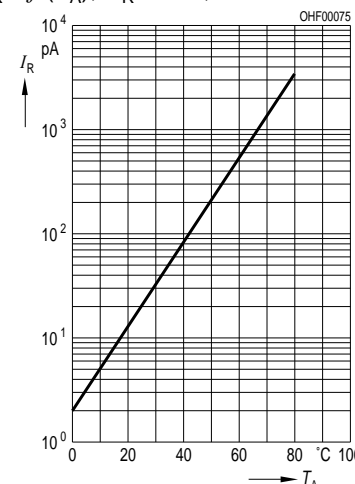
**Capacitance**

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



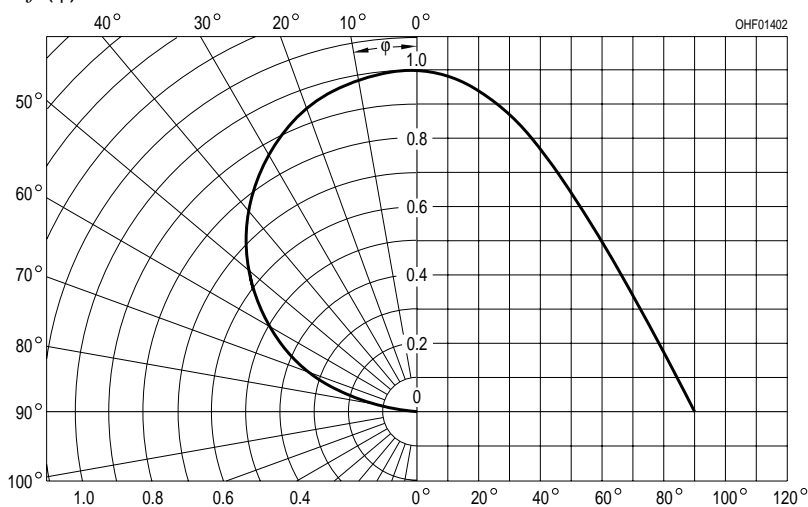
**Dark Current**

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

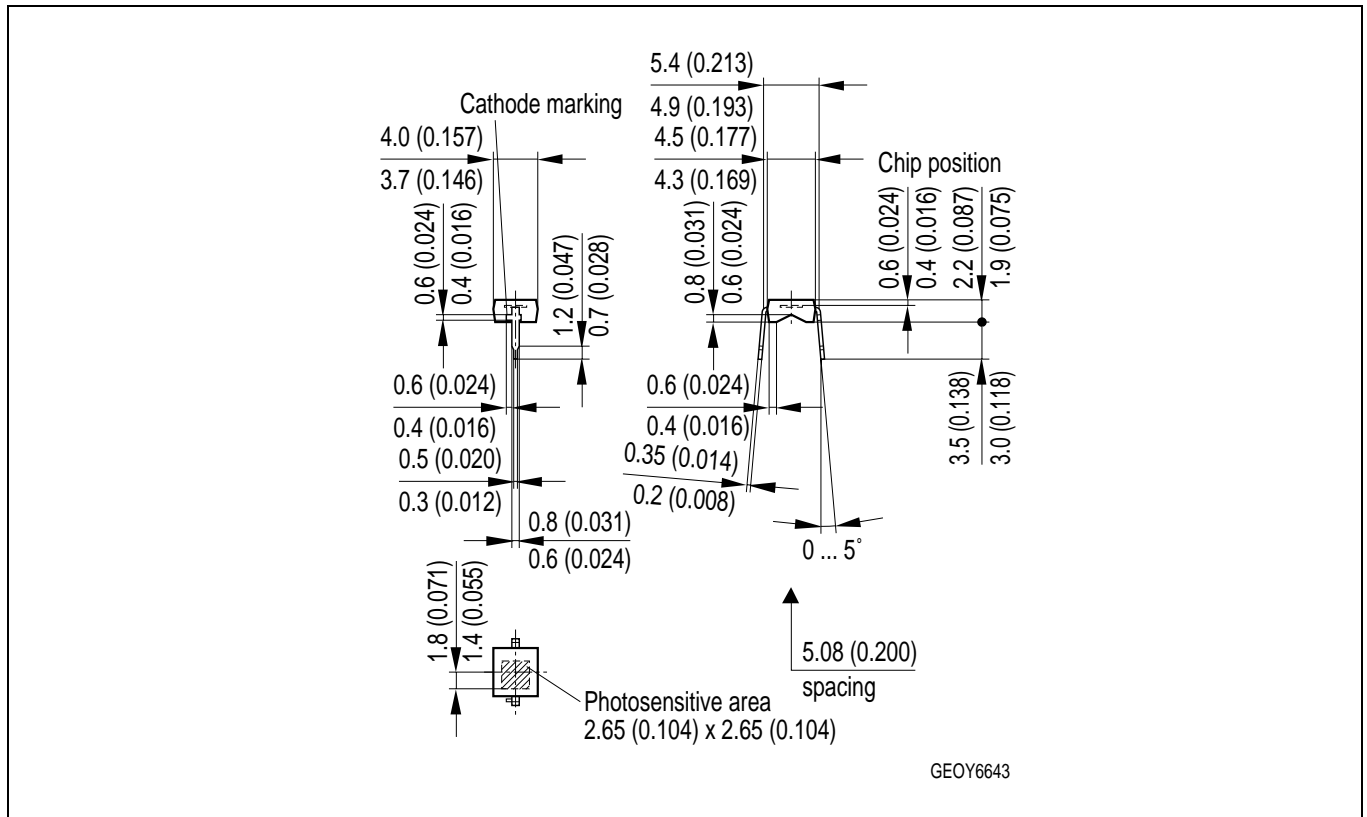


**Directional Characteristics**

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



**Maßzeichnung  
Package Outlines**



Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

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Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

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<sup>1</sup> A critical component is a component used in a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or effectiveness of that device or system.

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