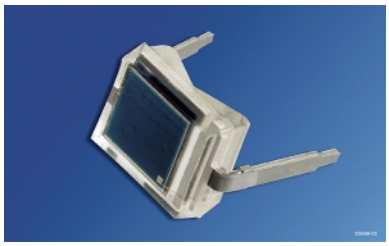
# Silizium-Fotodiode
# Silicon Photodiode

## 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

### Features

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

### Anwendungen

- Belichtungsmesser
- Farbanalyse

### Applications

- Exposure meters
- Color analysis

| Typ<br>Type | Bestellnummer<br>Ordering Code |
|---|---|
| BPW 33 | Q62702-P76 |

**Grenzwerte**
**Maximum Ratings**

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

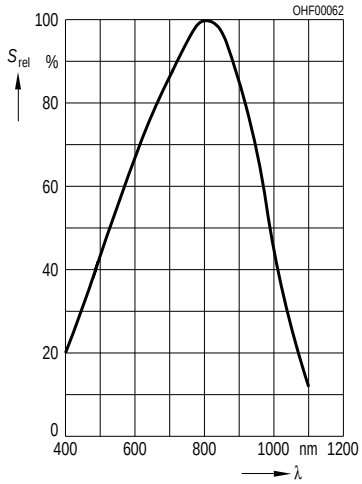
**Kennwerte** ($T_A$ = 25 °C, Normlicht A, $T$ = 2856 K)
**Characteristics** ($T_A$ = 25 °C, standard light A, $T$ = 2856 K)

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

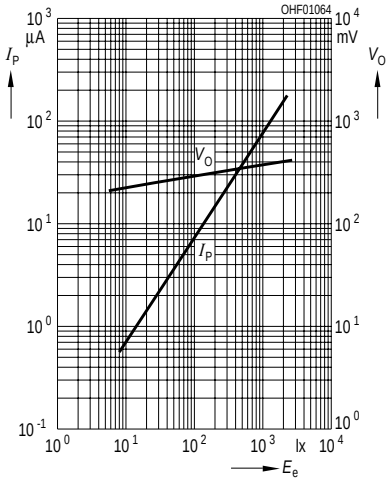
**Kennwerte** ($T_A$ = 25 °C, Normlicht A, $T$ = 2856 K)
**Characteristics** ($T_A$ = 25 °C, standard light A, $T$ = 2856 K) (cont'd)

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

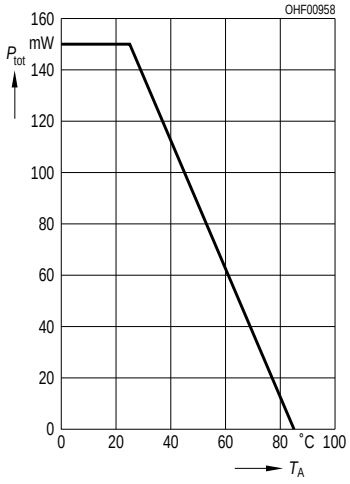
**Relative Spectral Sensitivity**
$S_{rel} = f(\lambda)$



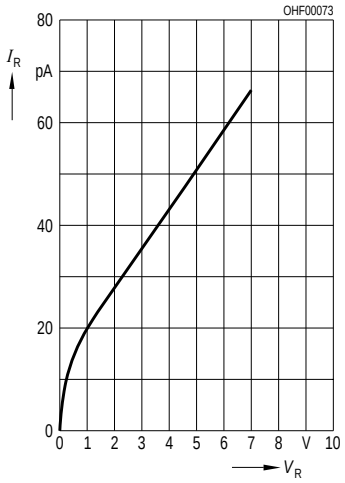

**Photocurrent** $I_P = f(E_v)$, $V_R$ = 5 V
**Open-Circuit Voltage** $V_O = f(E_v)$



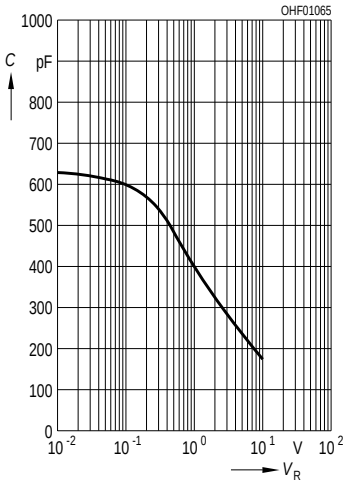

**Total Power Dissipation**
$P_{tot} = f(T_A)$



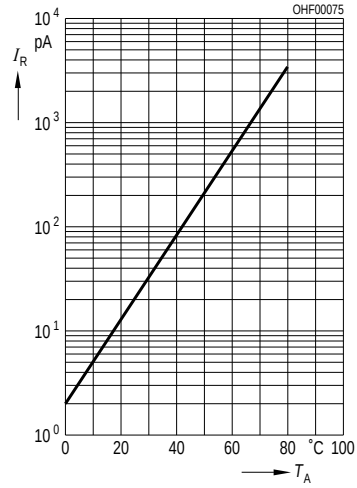

**Dark Current**
$I_R = f(V_R)$, $E$ = 0



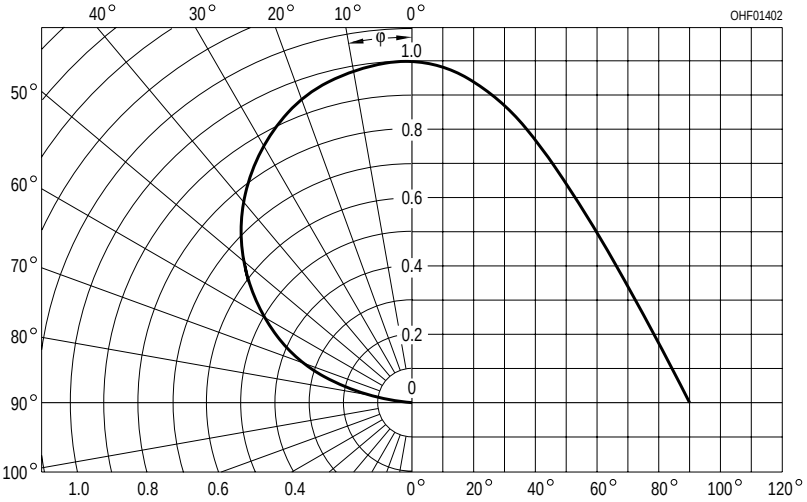

**Capacitance**
$C = f(V_R)$, $f$ = 1 MHz, $E$ = 0



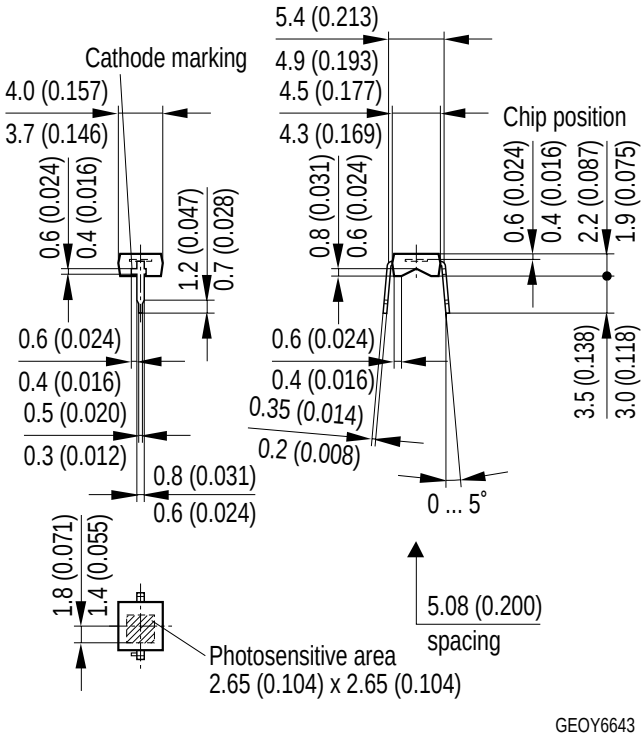

**Dark Current**
$I_R = f(T_A)$, $V_R$ = 1 V, $E$ = 0




**Directional Characteristics**
$S_{rel} = f(\varphi)$



## Maßzeichnung
## Package Outlines




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

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