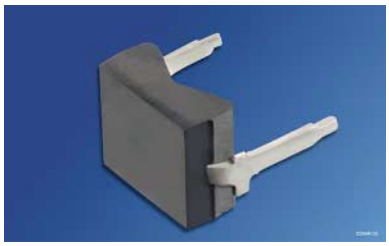
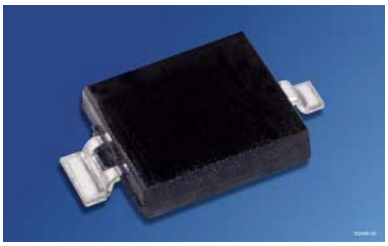
# Si-PIN-Fotodiode mit Tageslichtsperrfilter; in SMT und als Reverse Gullwing
# Silicon PIN Photodiode with Daylight Filter; in SMT and as Reverse Gullwing

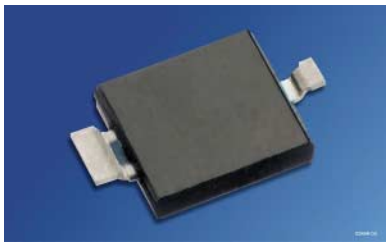
## BPW 34 FA, BPW 34 FAS, BPW 34 FAS (R18R)



BPW 34 FA



BPW 34 FAS



BPW 34 FAS (R18R)

### Wesentliche Merkmale

- Speziell geeignet für den Wellenlängenbereich von 830 nm bis 880 nm
- Kurze Schaltzeit (typ. 20 ns)
- DIL-Plastikbauform mit hoher Packungsdichte
- BPW 34 FAS/(R18R): geeignet für Vapor-Phase Löten und IR-Reflow Löten

### Anwendungen

- IR-Fernsteuerung von Fernseh- und Rundfunkgeräten, Videorecordern, Gerätefernsteuerung
- Lichtschranken für Gleich- und Wechsellichtbetrieb

### Features

- Especially suitable for the wavelength range of 830 nm to 880 nm
- Short switching time (typ. 20 ns)
- DIL plastic package with high packing density
- BPW 34 FAS/(R18R): Suitable for vapor-phase and IR-reflow soldering

### Applications

- IR-remote control of hi-fi and TV sets, video tape recorders, remote controls of various equipment
- Photointerrupters

| Typ<br>Type | Bestellnummer<br>Ordering Code |
|---|---|
| BPW 34 FA | Q62702-P1129 |
| BPW 34 FAS | Q62702-P463 |
| BPW 34 FAS (R18R) | Q62702-P1829 |

**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 … + 100 | °C |
| Sperrspannung<br>Reverse voltage | $V_R$<br>$V_R$ ($t$ < 2 min) | 16<br>32 | V<br>V |
| Verlustleistung, $T_A$ = 25 °C<br>Total power dissipation | $P_{tot}$ | 150 | mW |

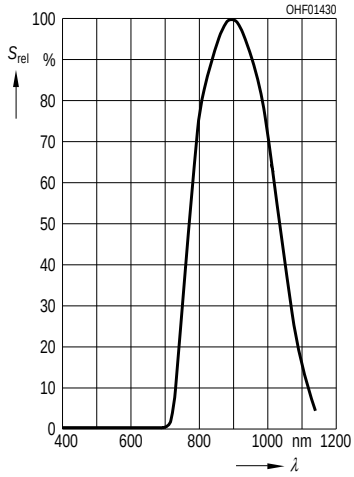
**Kennwerte** ($T_A$ = 25 °C, λ = 870 nm)
**Characteristics**

| **Bezeichnung**<br>**Parameter** | **Symbol**<br>**Symbol** | **Wert**<br>**Value** | **Einheit**<br>**Unit** |
|---|---|---|---|
| Fotostrom<br>Photocurrent<br>$V_R$ = 5 V, $E_e$ = 1 mW/cm$^2$ | $I_p$ | 50 (≥ 40) | µA |
| Wellenlänge der max. Fotoempfindlichkeit<br>Wavelength of max. sensitivity | $\lambda_{S\ max}$ | 880 | nm |
| Spektraler Bereich der Fotoempfindlichkeit<br>$S$ = 10% von $S_{max}$<br>Spectral range of sensitivity<br>$S$ = 10% of $S_{max}$ | λ | 730 … 1100 | nm |
| Bestrahlungsempfindliche Fläche<br>Radiant sensitive area | $A$ | 7.00 | mm$^2$ |
| Abmessung der bestrahlungsempfindlichen Fläche<br>Dimensions of radiant sensitive area | $L \times B$<br>$L \times W$ | 2.65 × 2.65 | mm × mm |
| Halbwinkel<br>Half angle | φ | ± 60 | Grad<br>deg. |
| Dunkelstrom, $V_R$ = 10 V<br>Dark current | $I_R$ | 2 (≤ 30) | nA |
| Spektrale Fotoempfindlichkeit<br>Spectral sensitivity | $S_\lambda$ | 0.65 | A/W |
| Quantenausbeute<br>Quantum yield | η | 0.93 | Electrons<br>Photon |
| Leerlaufspannung, $E_e$ = 0.5 mW/cm$^2$<br>Open-circuit voltage | $V_O$ | 320 (≥ 250) | mV |

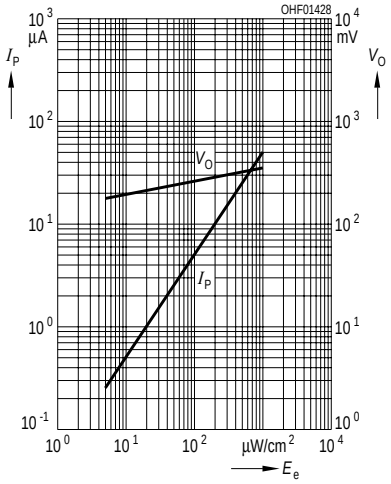
**Kennwerte** ($T_A$ = 25 °C, λ = 870 nm)
**Characteristics** (cont'd)

| **Bezeichnung**<br>**Parameter** | **Symbol**<br>**Symbol** | **Wert**<br>**Value** | **Einheit**<br>**Unit** |
|---|---|---|---|
| Kurzschlußstrom, $E_e$ = 0.5 mW/cm$^2$<br>Short-circuit current | $I_{SC}$ | 23 | µA |
| Anstiegs- und Abfallzeit des Fotostromes<br>Rise and fall time of the photocurrent<br>$R_L$ = 50 Ω; $V_R$ = 5 V; λ = 850 nm; $I_p$ = 800 µA | $t_r$, $t_f$ | 20 | ns |
| 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 | $C_0$ | 72 | 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 $I_{SC}$ | $TC_I$ | 0.03 | %/K |
| Rauschäquivalente Strahlungsleistung<br>Noise equivalent power<br>$V_R$ = 10 V | $NEP$ | $3.9 \times 10^{-14}$ | $\frac{W}{\sqrt{Hz}}$ |
| Nachweisgrenze, $V_R$ = 10 V,<br>Detection limit | D* | $6.8 \times 10^{12}$ | $\frac{cm \times \sqrt{Hz}}{W}$ |

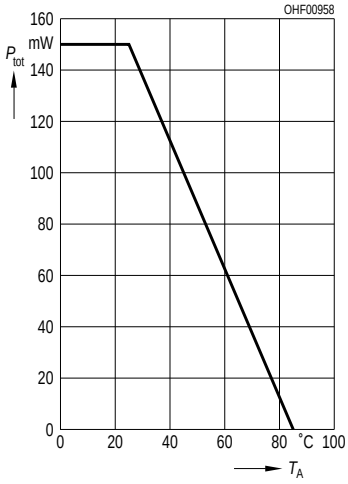
**Relative Spectral Sensitivity**
$S_{rel} = f(\lambda)$



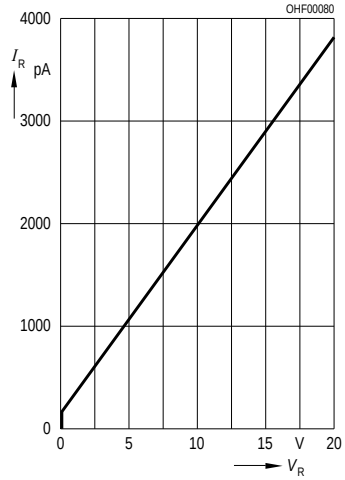

**Photocurrent** $I_P = f(E_e)$, $V_R$ = 5 V
**Open-Circuit Voltage** $V_O = f(E_e)$



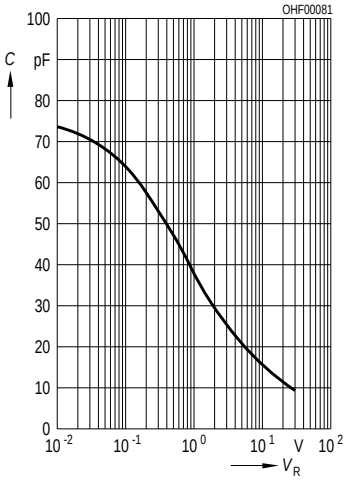

**Total Power Dissipation**
$P_{tot} = f(T_A)$



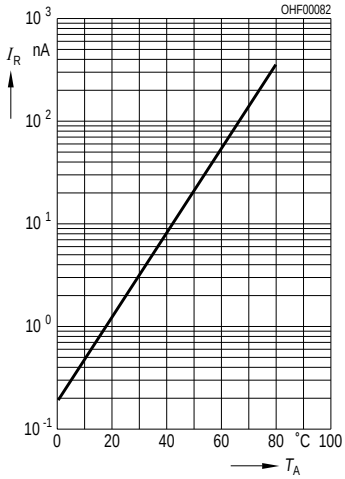

**Dark Current**
$I_R = f(V_R)$, $E$ = 0



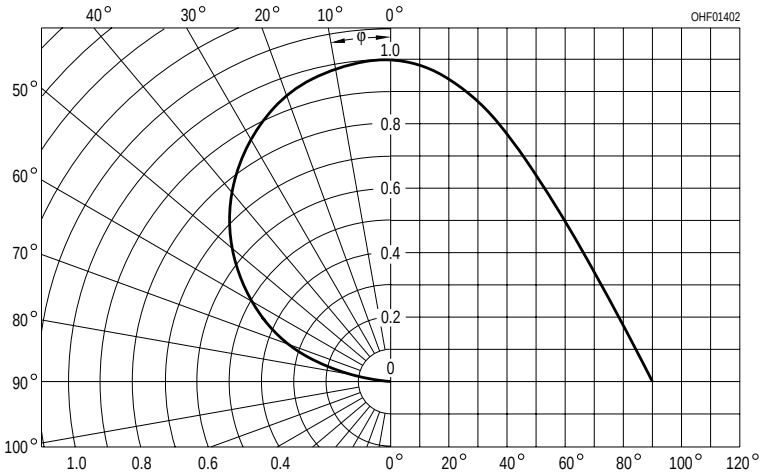

**Capacitance**
$C = f(V_R)$, $f$ = 1 MHz, $E$ = 0




**Dark Current**
$I_R = f(T_A)$, $V_R$ = 10 V, $E$ = 0

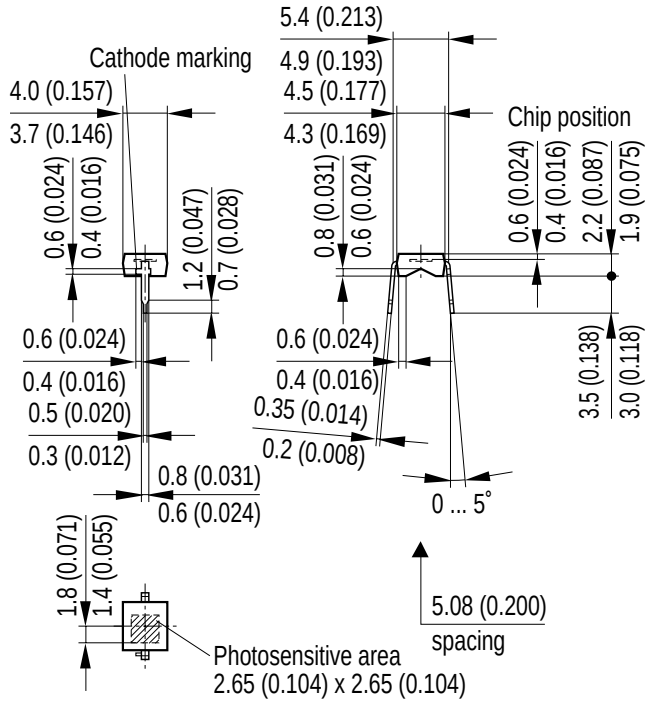



**Directional Characteristics**
$S_{rel} = f(\varphi)$

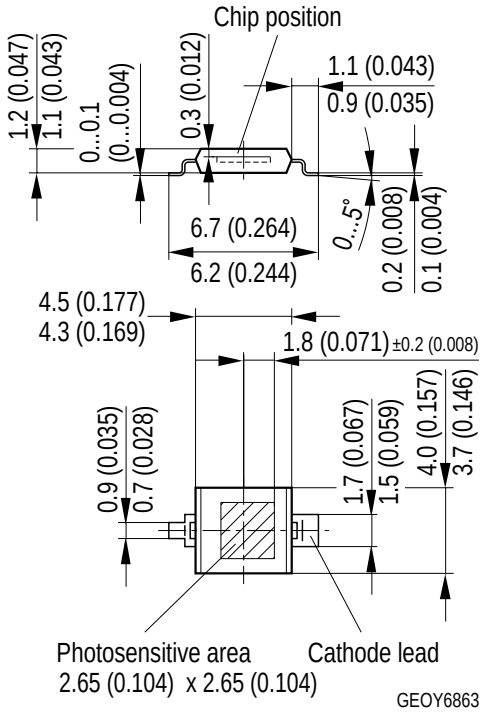


## Maßzeichnung
## Package Outlines

BPW 34 FA

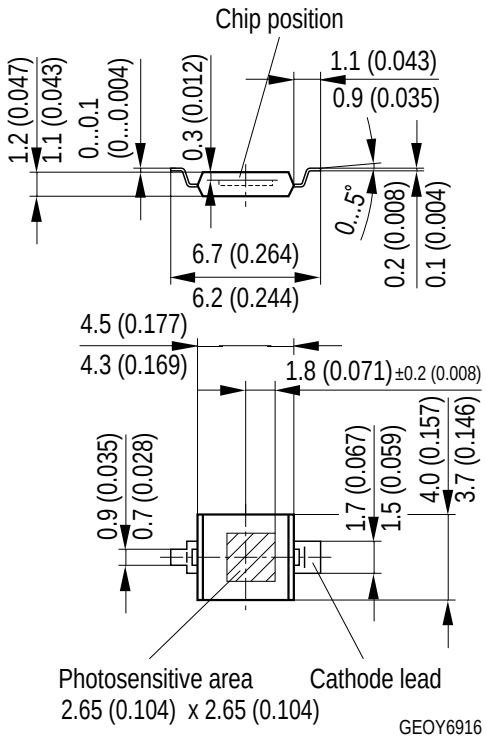



BPW 34 FAS




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

BPW 34 FAS (R18R)




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

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