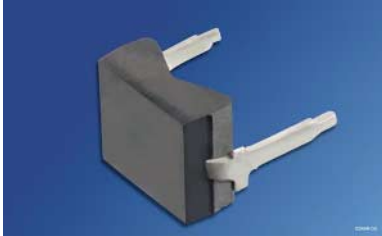


# Si-PIN-Fotodiode mit Tageslichtsperrfilter; in SMT und als Reverse Gullwing Silicon PIN Photodiode with Daylight Filter; in SMT and as Reverse Gullwing

## 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>$V_R (t < 2 \text{ min})$ | 16<br>32       | V<br>V          |
| Verlustleistung, $T_A = 25 \text{ °C}$<br>Total power dissipation        | $P_{tot}$                          | 150            | mW              |

**Kennwerte ( $T_A = 25 \text{ °C}$ ,  $\lambda = 870 \text{ nm}$ )**  
**Characteristics**

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

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

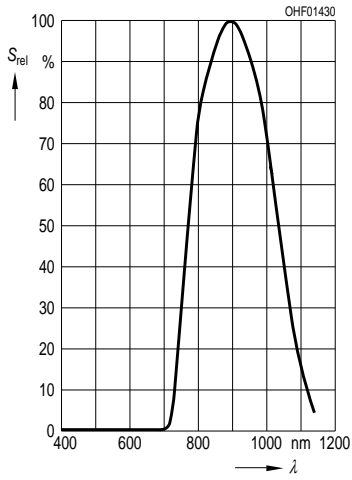
**Kennwerte** ( $T_A = 25\text{ °C}$ ,  $\lambda = 870\text{ nm}$ )

**Characteristics** (cont'd)

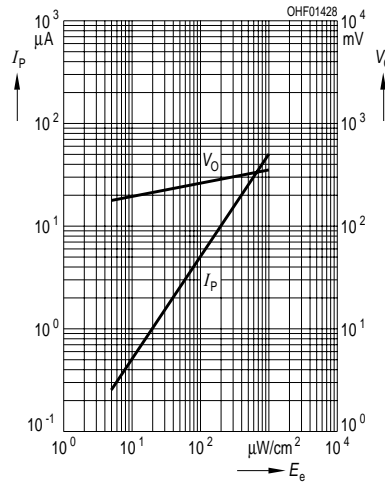
| Bezeichnung<br>Parameter   | Symbol<br>Symbol | Wert<br>Value         | Einheit<br>Unit                                      |
|--|------------------|-----------------------|--|
| Kurzschlußstrom, $E_e = 0.5\text{ mW/cm}^2$<br>Short-circuit current   | $I_{SC}$         | 23                    | $\mu\text{A}$  |
| Anstiegs- und Abfallzeit des Fotostromes<br>Rise and fall time of the photocurrent<br>$R_L = 50\ \Omega$ ; $V_R = 5\text{ V}$ ; $\lambda = 850\text{ nm}$ ; $I_p = 800\ \mu\text{A}$ | $t_r, t_f$       | 20                    | ns   |
| Durchlaßspannung, $I_F = 100\text{ mA}$ , $E = 0$<br>Forward voltage   | $V_F$            | 1.3                   | V  |
| Kapazität, $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$ , $E = 0$<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>$V_R = 10\text{ V}$  | $NEP$            | $3.9 \times 10^{-14}$ | $\frac{\text{W}}{\sqrt{\text{Hz}}}$                  |
| Nachweisgrenze, $V_R = 10\text{ V}$ ,<br>Detection limit   | $D^*$            | $6.8 \times 10^{12}$  | $\frac{\text{cm} \times \sqrt{\text{Hz}}}{\text{W}}$ |

**Relative Spectral Sensitivity**

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

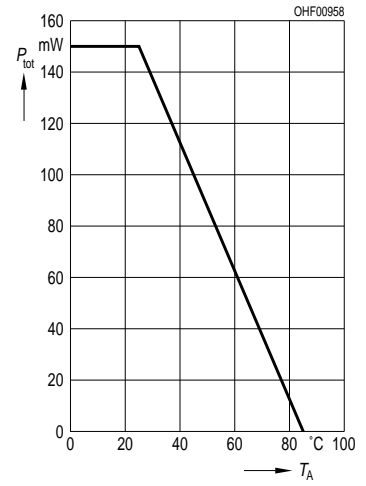


**Photocurrent  $I_P = f(E_e)$ ,  $V_R = 5 V$   
Open-Circuit Voltage  $V_O = f(E_e)$**



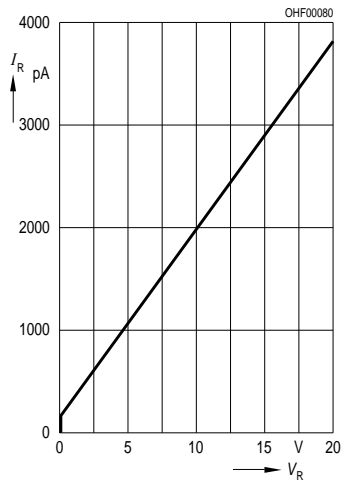
**Total Power Dissipation**

$P_{tot} = f(T_A)$



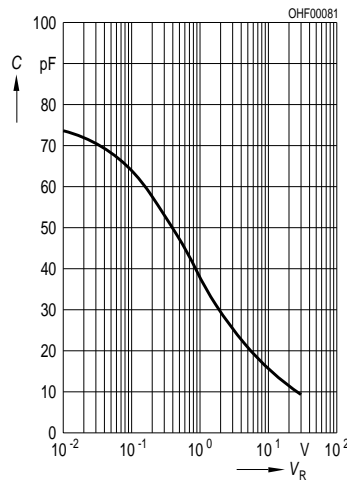
**Dark Current**

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



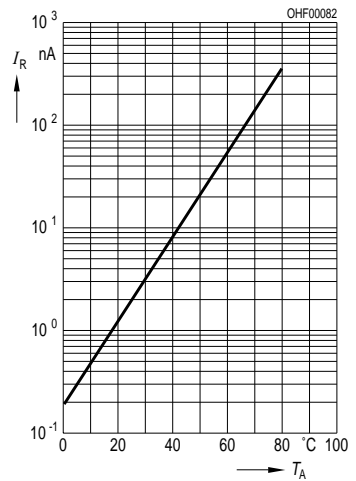
**Capacitance**

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



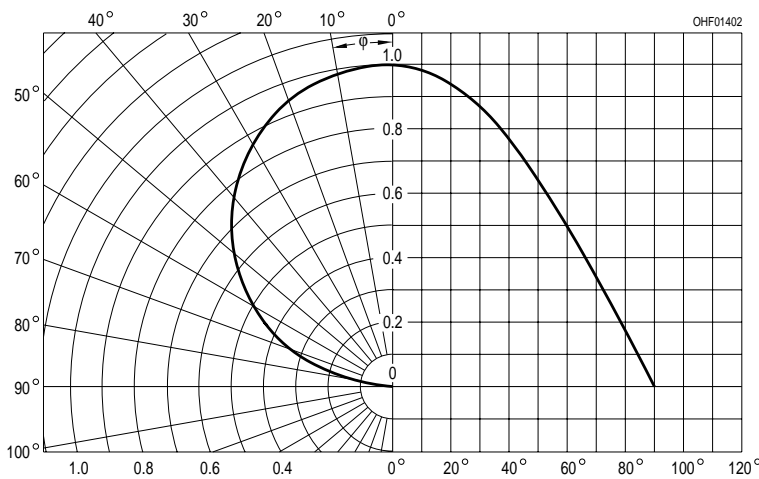
**Dark Current**

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

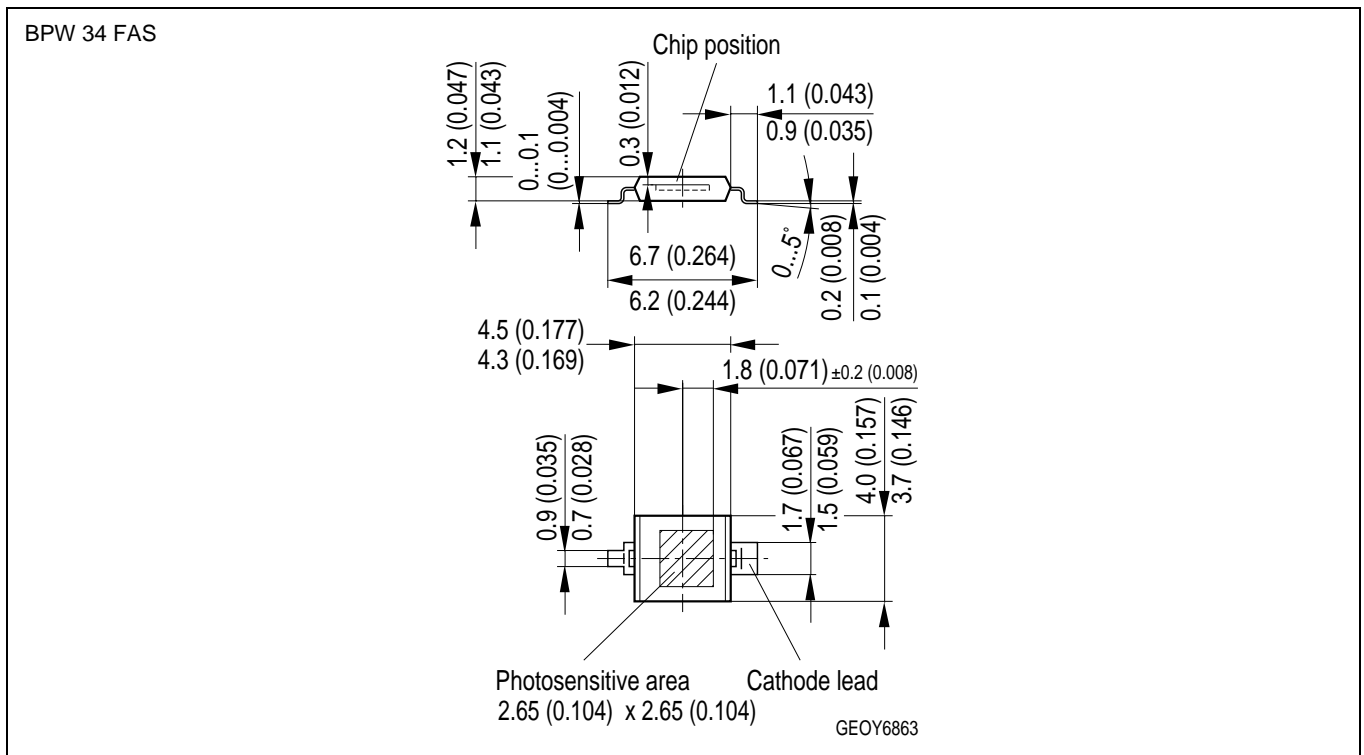
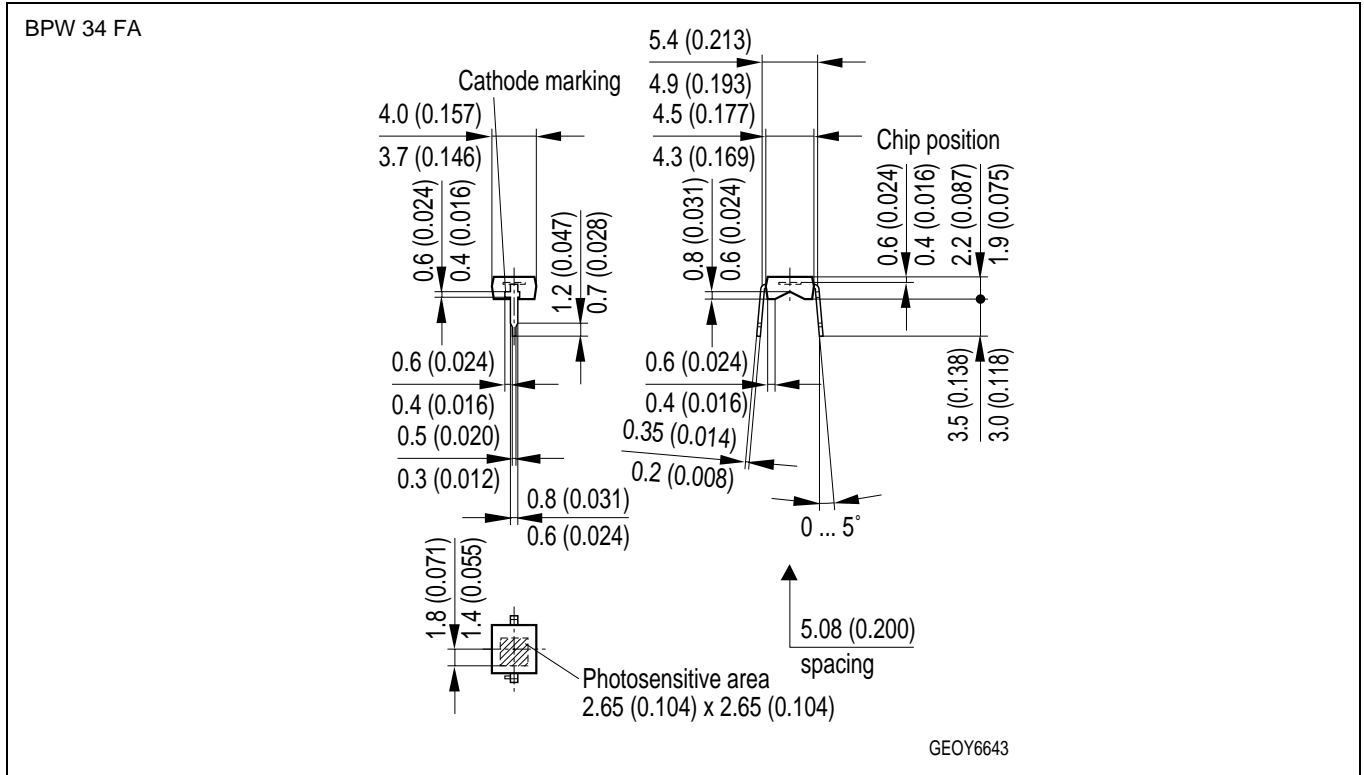


**Directional Characteristics**

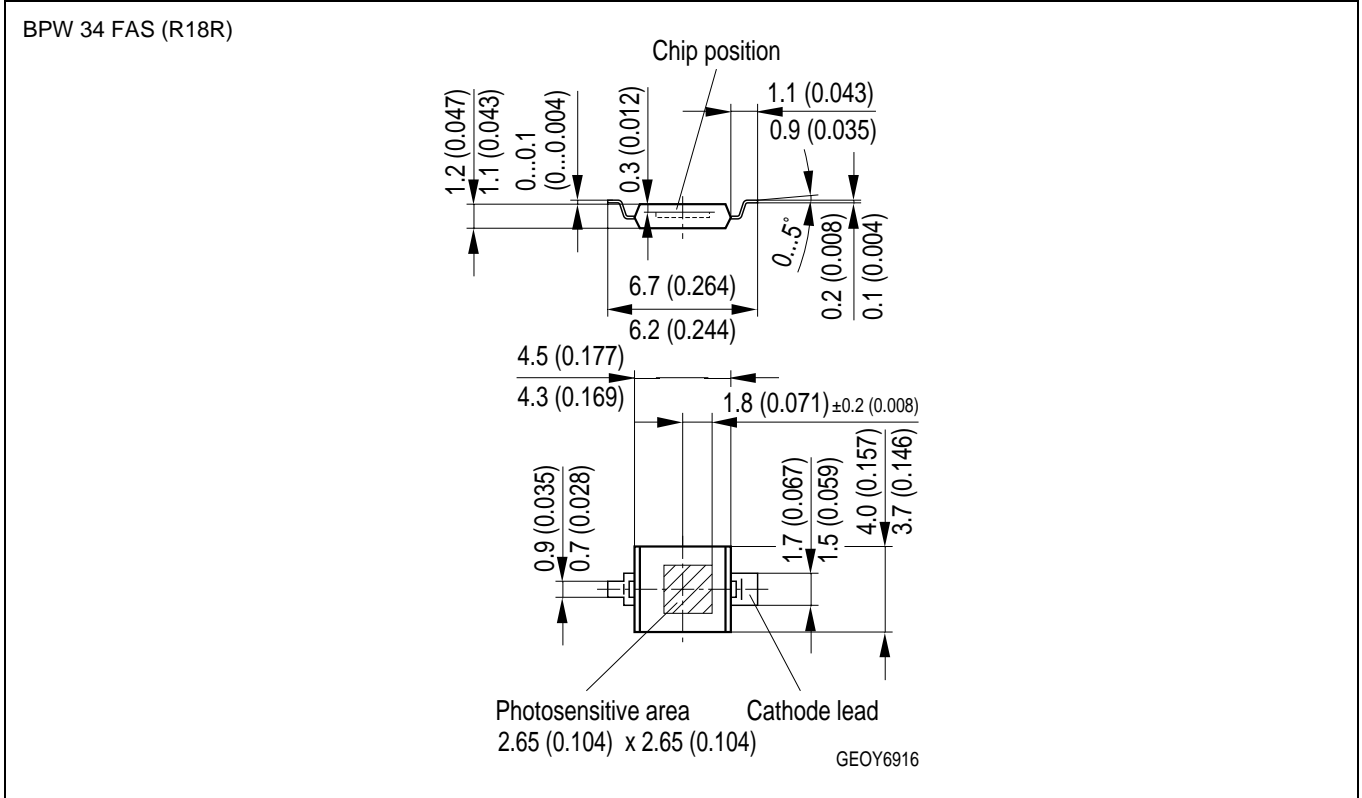
$S_{rel} = f(\phi)$



Maßzeichnung  
Package Outlines



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



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>2</sup> Life support devices or systems are intended (a) to be implanted in the human body, or (b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health of the user may be endangered.