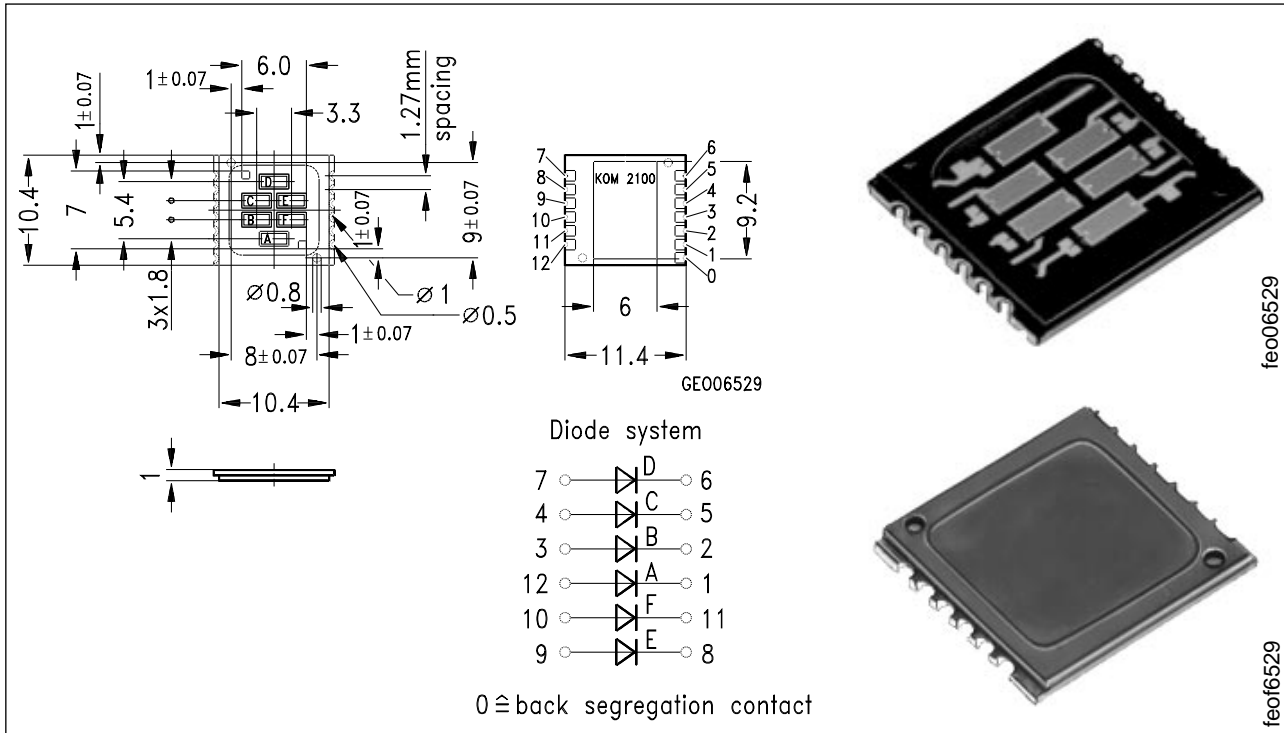


## 6fach-Silizium-PIN-Fotodiodenarray 6-Chip Silicon PIN Photodiode Array

KOM 2100 B  
KOM 2100 BF



Maße in mm, wenn nicht anders angegeben/Dimensions in mm, unless otherwise specified.

### Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 400 nm bis 1100 nm (KOM 2100 B) und bei 880 nm (KOM 2100 BF)
- Kurze Schaltzeit (typ. 13 ns)
- Kathode = Chipunterseite
- Geeignet für Diodenbetrieb (mit Vorspannung) und Elementbetrieb
- SMT-fähig

### Anwendungen

- Universell, z.B. Drehwinkelgeber

### Features

- Especially suitable for applications from 400 nm to 1100 nm (KOM 2100 B) and of 880 nm (KOM 2100 BF)
- Short switching time (typ. 13 ns)
- Cathode = back contact
- Available as photodiode with reverse voltage or photovoltaic cell
- Suitable for SMT

### Applications

- General-purpose, e.g. encoders

| Typ<br>Type | Bestellnummer<br>Ordering Code | Gehäuse<br>Package   |
|-------------|--------------------------------|--|
| KOM 2100 B  | Q62702-K35                     | Platine mit SMT-Flanken, Abdeckrahmen mit klarem bzw. schwarzem Epoxyverguß<br>pcb with SMT flanks, cover frame sealed with transparent or black epoxy |
| KOM 2100 BF | Q62702-K34                     |  |

## Grenzwerte Maximum Ratings

| Bezeichnung<br>Description   | Symbol<br>Symbol | Wert<br>Value | Einheit<br>Unit |
|--|------------------|---------------|-----------------|
| Betriebs- und Lagertemperatur<br>Operating and storage temperature range | $T_A; T_{stg}$   | - 40 ... + 80 | °C              |
| Sperrspannung<br>Reverse voltage   | $V_R$            | 20            | V               |
| Verlustleistung, $T_A = 25\text{ °C}$<br>Total power dissipation         | $P_{tot}$        | 150           | mW              |

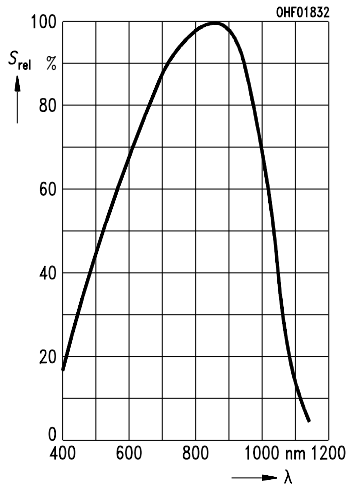
## Kennwerte ( $T_A = 25\text{ °C}$ , $\lambda = 950\text{ nm}$ ) für jede Einzeldiode Characteristics ( $T_A = 25\text{ °C}$ , $\lambda = 950\text{ nm}$ ) per single diode

| Bezeichnung<br>Description   | Sym-<br>bol                  | Wert<br>Value   |                    | Einheit<br>Unit |
|--|------------------------------|-----------------|--------------------|-----------------|
|  |                              | KOM 2100 B      | KOM 2100 BF        |                 |
| Fotoempfindlichkeit<br>Spectral sensitivity<br>$V_R = 5\text{ V}$ , $E_e = 0.5\text{ mW/cm}^2$   | $S$                          | 9 ( $\geq 7$ )  | 8.5 ( $\geq 6.6$ ) | $\mu\text{A}$   |
| Wellenlänge der max. Fotoempfindlichkeit<br>Wavelength of max. sensitivity   | $\lambda_{S\text{ max}}$     | 870             | 870                | nm              |
| Spektraler Bereich der Fotoempfindlichkeit<br>$S = 10\%$ von $S_{\text{max}}$<br>Spectral range of sensitivity<br>$S = 10\%$ of $S_{\text{max}}$ | $\lambda$                    | 400 ... 1100    | 730 ... 1100       | nm              |
| Bestrahlungsempfindliche Fläche<br>Radiant sensitive area  | $A$                          | 2.5             | 2.5                | $\text{mm}^2$   |
| Abmessung der<br>bestrahlungsempfindlichen Fläche<br>Dimensions of radiant sensitive area  | $L \times B$<br>$L \times W$ | $1 \times 2.5$  | $1 \times 2.5$     | mm x mm         |
| Abstand Chipoberfläche zu Vergußober-<br>fläche<br>Distance chip front to case seal  | $H$                          | 0.4 ... 0.6     | 0.4 ... 0.6        | mm              |
| Halbwinkel<br>Half angle   | $\varphi$                    | $\pm 60$        | $\pm 60$           | Grad<br>deg.    |
| Dunkelstrom, $V_R = 10\text{ V}$<br>Dark current   | $I_R$                        | 1 ( $\leq 10$ ) | 1 ( $\leq 10$ )    | nA              |
| Spektrale Fotoempfindlichkeit<br>Spectral sensitivity  | $S_\lambda$                  | 0.68            | 0.64               | A/W             |

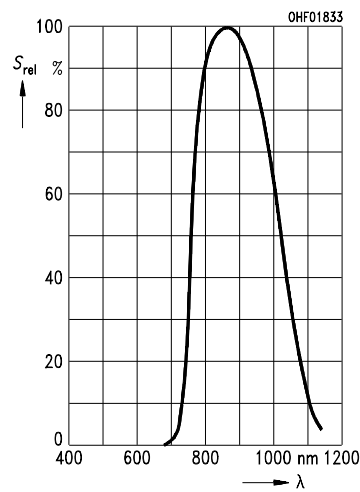
**Kennwerte** ( $T_A = 25\text{ °C}$ ,  $\lambda = 950\text{ nm}$ ) für jede Einzeldiode  
**Characteristics** ( $T_A = 25\text{ °C}$ ,  $\lambda = 950\text{ nm}$ ) per single diode

| Bezeichnung<br>Description  | Sym-<br>bol | Wert<br>Value         |                       | Einheit<br>Unit                                     |
|---|-------------|-----------------------|-----------------------|---|
|   |             | KOM 2100 B            | KOM 2100 BF           |   |
| Quantenausbeute<br>Quantum yield  | $\eta$      | 0.9                   | 0.85                  | <u>Electrons</u><br>Photon                          |
| Maximale Abweichung der<br>Fotoempfindlichkeit vom Mittelwert<br>Max. deviation of the system spectral<br>sensitivity from the average  | $\Delta S$  | $\pm 10$              | $\pm 10$              | %   |
| Kurzschlußstrom, $E_e = 0.5\text{ mW/cm}^2$<br>Short-circuit current  | $I_{SC}$    | 8.5                   | 8                     | $\mu\text{A}$                                       |
| Leerlaufspannung, $E_e = 0.5\text{ mW/cm}^2$<br>Open-circuit voltage  | $V_O$       | 320 ( $\geq 250$ )    | 320 ( $\geq 250$ )    | mV  |
| Anstiegszeit/Abfallzeit des Fotostromes<br>Rise and fall time of the photocurrent<br>$R_L = 50\ \Omega$ , $V_R = 10\text{ V}$ ;<br>$\lambda = 850\text{ nm}$ ; $I_P = 800\ \mu\text{A}$ | $t_r, t_f$  | 13                    | 13                    | ns  |
| Durchlaßspannung, $I_F = 100\text{ mA}$ ; $E = 0$<br>Forward voltage  | $V_F$       | 1.2                   | 1.2                   | V   |
| Kapazität<br>Capacitance<br>$V_R = 0\text{ V}$ ; $f = 1\text{ MHz}$ ; $E = 0$   | $C_0$       | 25                    | 25                    | pF  |
| Temperaturkoeffizient von $V_O$<br>Temperature coefficient of $V_O$   | $TC_V$      | - 2.6                 | - 2.6                 | mV/K  |
| Temperaturkoeffizient von $I_P$<br>Temperature coefficient of $I_P$   | $TC_I$      | 0.18                  | 0.18                  | %/K   |
| Rauschäquivalente Strahlungsleistung<br>Noise equivalent power<br>$V_R = 10\text{ V}$   | $NEP$       | $2.6 \times 10^{-14}$ | $2.8 \times 10^{-14}$ | $\frac{\text{W}}{\sqrt{\text{Hz}}}$                 |
| Nachweisgrenze, $V_R = 10\text{ V}$<br>Detection limit  | $D^*$       | $6.1 \times 10^{12}$  | $5.7 \times 10^{12}$  | $\frac{\text{cm} \cdot \sqrt{\text{Hz}}}{\text{W}}$ |

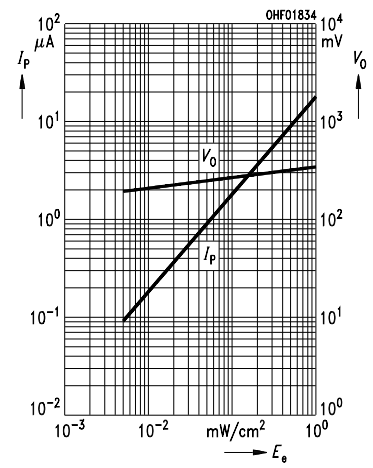
**Relative spectral sensitivity**  
KOM 2100 B,  $S_{rel} = f(\lambda)$



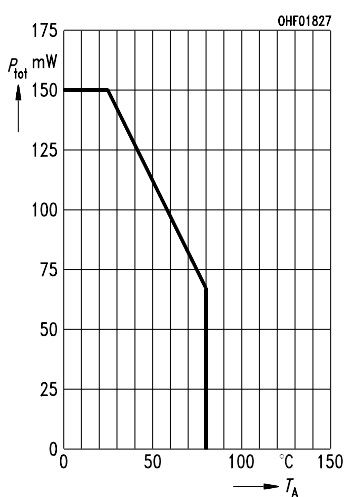
**Relative spectral sensitivity**  
KOM 2100 BF,  $S_{rel} = f(\lambda)$



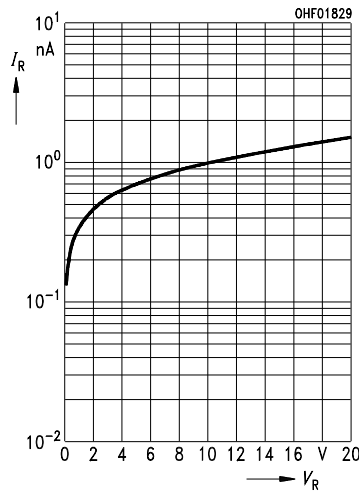
**Photocurrent,  $I_P = f(E_e)$ ;  $V_R = 5\text{ V}$ ,  
Open-circuit voltage  $V_O = f(E_e)$**



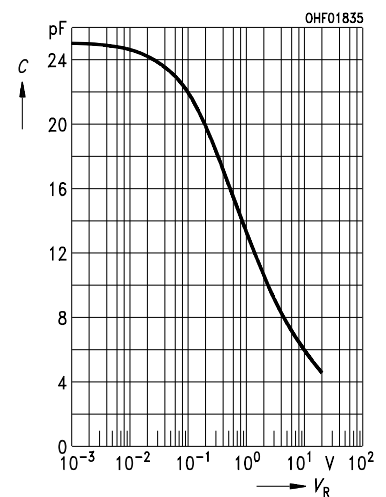
**Total power dissipation**  
 $P_{tot} = f(T_A)$



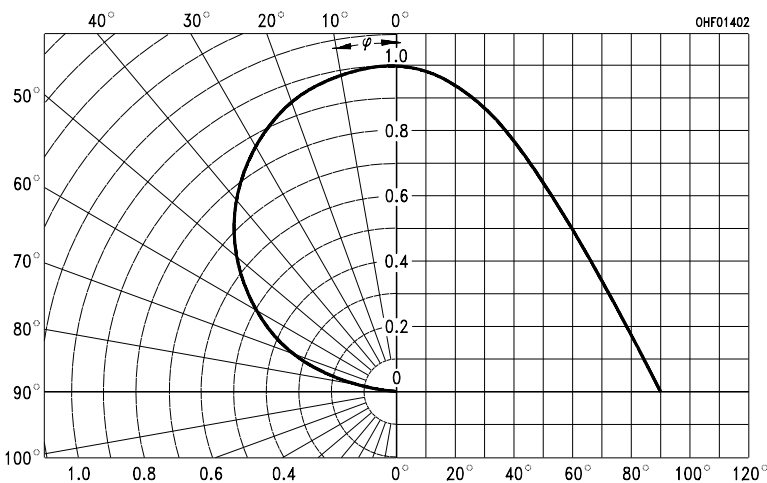
**Dark current  $I_R = f(V_R)$ ,  
 $E = 0$**



**Capacitance  $C = f(V_R)$ ,  
 $f = 1\text{ MHz}$ ,  $E = 0$**



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



**Dark current  $I_R = f(T_A)$ ,  
 $V_R = 10\text{ V}$ ,  $E = 0$**

