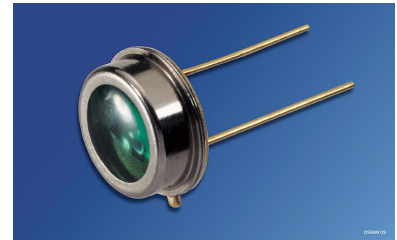


| Order code | Manufacturer code | Description |
|------------|-------------------|-------------|
| 58-0138 | n/a | n/a |

| | |
|--|--------------------------|
| | Page 1 of 7 |
| The enclosed information is believed to be correct, Information may change 'without notice' due to product improvement. Users should ensure that the product is suitable for their use. E. & O. E. | Revision A 04/07/2003 |

Silicon Photodiode for the Visible Spectral Range
Silicon Photodiode for the Visible Spectral Range
Lead (Pb) Free Product - RoHS Compliant

BPW 21



Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 350nm bis 820nm
- Angepaßt an die Augenempfindlichkeit (V_λ)
- Hermetisch dichte Metallbauform (ähnlich TO-5)

Features

- Especially suitable for applications from 350nm to 820nm
- Adapted to human eye sensitivity (V_λ)
- Hermetically sealed metal package (similar to TO-5)

Anwendungen

- Belichtungsmesser für Tageslicht
- Für Kunstlicht mit hoher Farbtemperatur in der Fotografie und Farbanalyse

Application

- Exposure meter for daylight
- For artificial light of high color temperature in photographic fields and color analysis

| Typ Type | Bestellnummer Ordering Code |
|-------------|--------------------------------|
| BPW 21 | Q62702P0885 |

Grenzwerte
Maximum Ratings

| Bezeichnung Parameter | Symbol Symbol | Wert Value | Einheit Unit |
|--|-------------------|---------------|-----------------|
| Betriebs- und Lagertemperatur Operating and storage temperature range | $T_{op}; T_{stg}$ | - 40 ... + 80 | °C |
| Sperrspannung Reverse voltage | V_R | 10 | V |
| Verlustleistung, $T_A = 25$ °C Total power dissipation | P_{tot} | 250 | mW |

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

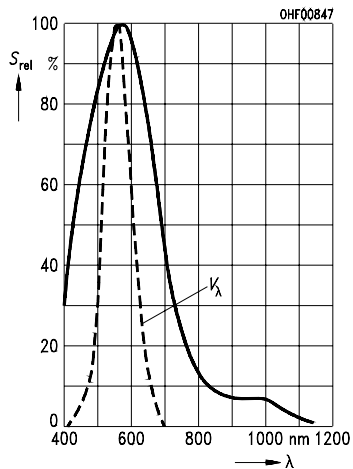
| Bezeichnung Parameter | Symbol Symbol | Wert Value | Einheit Unit |
|--|------------------------------|-------------------------------------|----------------------------|
| Fotoempfindlichkeit, $V_R = 5$ V Spectral sensitivity | S | 10 (≥ 5.5) | nA/lx |
| Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity | $\lambda_{S\ max}$ | 550 | nm |
| Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von S_{max} Spectral range of sensitivity $S = 10\%$ of S_{max} | λ | 350 ... 820 | nm |
| Bestrahlungsempfindliche Fläche Radiant sensitive area | A | 7.34 | mm ² |
| Abmessung der bestrahlungsempfindlichen Fläche Dimensions of radiant sensitive area | $L \times B$ $L \times W$ | 2.73×2.73 | mm \times mm |
| Halbwinkel Half angle | φ | ± 55 | Grad deg. |
| Dunkelstrom $V_R = 10$ V Dark current $V_R = 5$ V $V_R = 10$ mV | I_R I_R | 2 (≤ 30) 8 (≤ 200) | nA pA |
| Spektrale Fotoempfindlichkeit, $\lambda = 550$ nm Spectral sensitivity | S_λ | 0.34 | A/W |
| Quantenausbeute, $\lambda = 550$ nm Quantum yield | η | 0.80 | <u>Electrons</u> Photon |
| Leerlaufspannung, $E_v = 1000$ lx Open-circuit voltage | V_O | 400 (≥ 320) | mV |

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

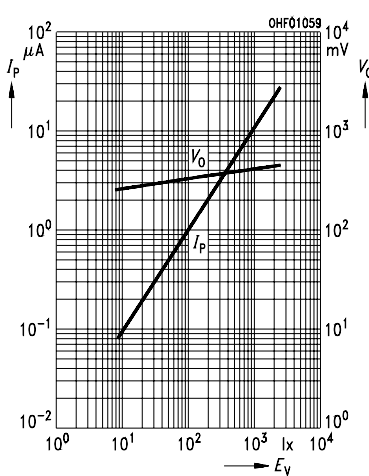
Characteristics ($T_A = 25\text{ °C}$, standard light A, $T = 2856\text{ K}$) (cont'd)

| Bezeichnung Parameter | Symbol Symbol | Wert Value | Einheit Unit |
|---|------------------|-----------------------|--|
| Kurzschlußstrom, $E_v = 1000\text{ lx}$ Short-circuit current | I_{SC} | 10 | μA |
| Anstiegs- und Abfallzeit des Fotostromes Rise and fall time of the photocurrent $R_L = 1\text{ k}\Omega$; $V_R = 5\text{ V}$; $\lambda = 550\text{ nm}$; $I_p = 10\text{ }\mu\text{A}$ | t_r, t_f | 1.5 | ns |
| Durchlaßspannung, $I_F = 100\text{ mA}$, $E = 0$ Forward voltage | V_F | 1.2 | V |
| Kapazität, $V_R = 0\text{ V}$, $f = 1\text{ MHz}$, $E = 0$ Capacitance | C_0 | 580 | 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 | - 0.05 | %/K |
| Rauschäquivalente Strahlungsleistung Noise equivalent power $V_R = 5\text{ V}$, $\lambda = 550\text{ nm}$ | NEP | 7.2×10^{-14} | $\frac{\text{W}}{\sqrt{\text{Hz}}}$ |
| Nachweisgrenze, $V_R = 5\text{ V}$, $\lambda = 550\text{ nm}$ Detection limit | D^* | 1×10^{12} | $\frac{\text{cm} \times \sqrt{\text{Hz}}}{\text{W}}$ |

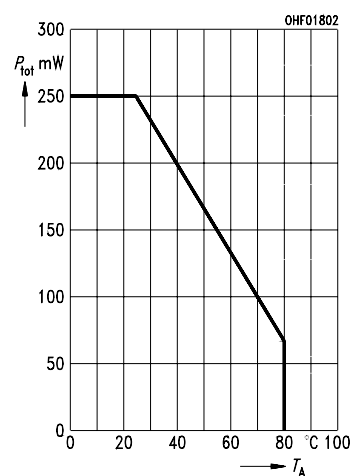
Relative Spectral Sensitivity
 $S_{rel} = f(\lambda)$



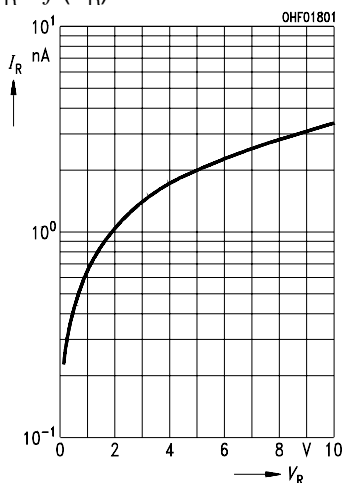
Photocurrent $I_P = f(E_V)$, $V_R = 5 V$
Open-Circuit Voltage $V_O = f(E_V)$



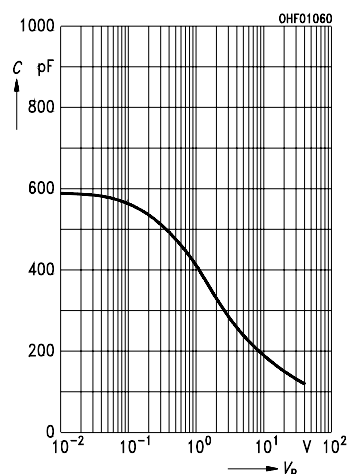
Total Power Dissipation
 $P_{tot} = f(T_A)$



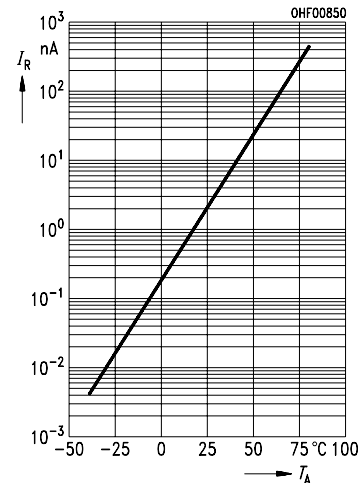
Dark Current
 $I_R = f(V_R)$



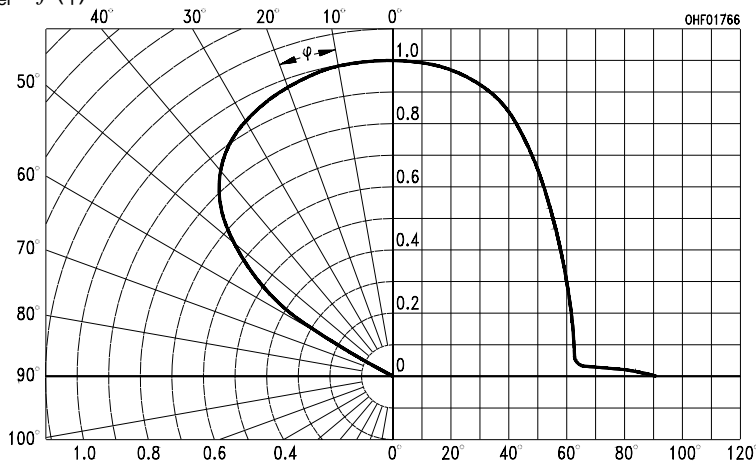
Capacitance
 $C = f(V_R), f = 1 \text{ MHz}, E = 0$



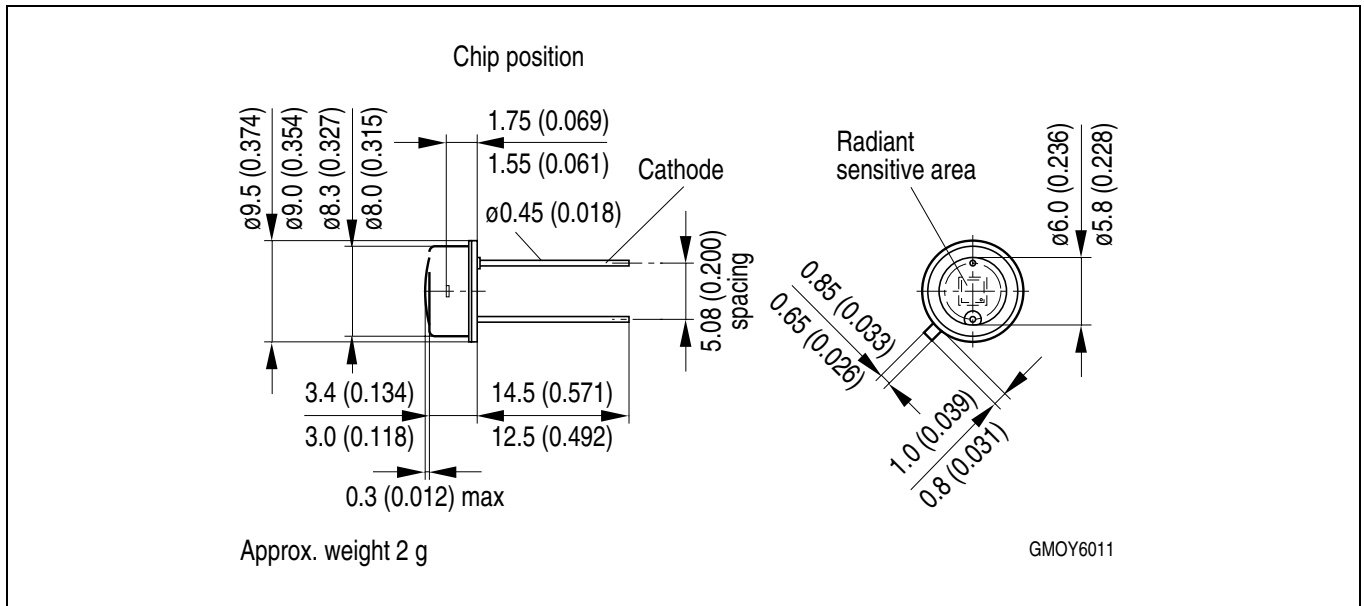
Dark Current
 $I_R = f(T_A), V_R = 5 V$



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



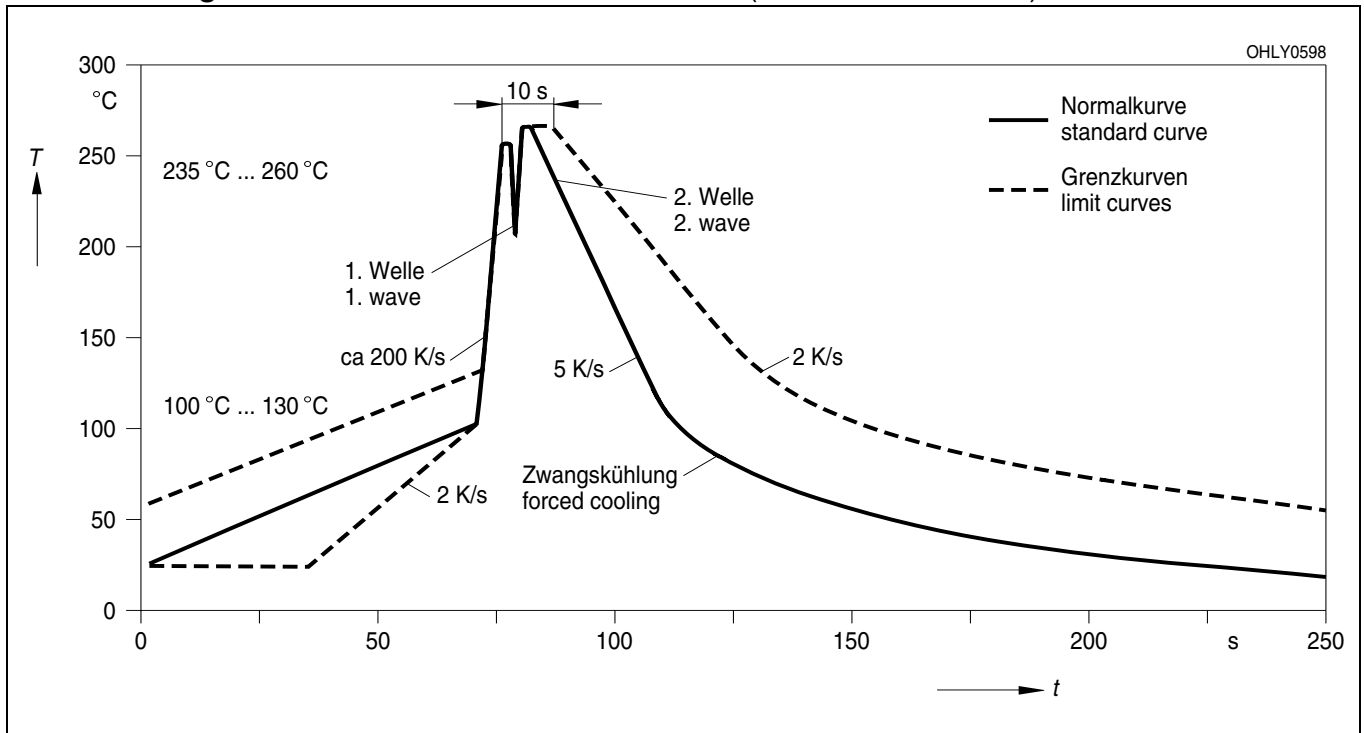
**Maßzeichnung
Package Outlines**



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

**Lötbedingungen
Soldering Conditions
Wellenlöten (TTW)
TTW Soldering**

(nach CECC 00802)
(acc. to CECC 00802)



Published by
OSRAM Opto Semiconductors GmbH
Wernerwerkstrasse 2, D-93049 Regensburg
www.osram-os.com

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¹ 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.

² 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.