

Silizium-PIN-Fotodiode

Silicon PIN Photodiode

Lead (Pb) Free Product - RoHS Compliant

BPX 65



Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 350 nm bis 1100 nm
- BPX 65: Hohe Fotoempfindlichkeit
- Hermetisch dichte Metallbauform (TO-18), geeignet bis 125 °C¹⁾

Features

- Especially suitable for applications from 350 nm to 1100 nm
- BPX 65: high photosensitivity
- Hermetically sealed metal package (TO-18), suitable up to 125 °C¹⁾

Anwendungen

- Schneller optischer Empfänger mit großer Modulationsbandbreite

Applications

- Fast optical sensor of high modulation bandwidth

Typ Type	Bestellnummer Ordering Code	Gehäuse Package
BPX 65	Q62702P0027	18 A3 DIN 41870, planes Glasfenster, hermetisch dichtet Gehäuse, Lötspieße im 2.54-mm-Raster (2/10"), Anodenkennzeichnung: Nase am Gehäuseboden 18 A3 DIN 41870, flat glass lens, hermetically sealed package, solder tabs 2.54 mm (2/10") lead spacing, anode marking: projection at package bottom

¹⁾ Eine Abstimmung der Einsatzbedingungen mit dem Hersteller wird empfohlen bei $T_A > 85$ °C.

¹⁾ For operating conditions of $T_A > 85$ °C please contact us.

Grenzwerte
Maximum Ratings

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Betriebs- und Lagertemperatur Operating and storage temperature range	$T_{op}; T_{stg}$	- 40 ... + 125	°C
Sperrspannung Reverse voltage	V_R	50	V
Verlustleistung, $T_A = 25\text{ °C}$ Total power dissipation	P_{tot}	250	mW

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

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Fotoempfindlichkeit, $V_R = 5\text{ V}$ Spectral sensitivity	S	10 (≥ 5.5)	nA/lx
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\text{ max}}$	850	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von S_{max} Spectral range of sensitivity $S = 10\%$ of S_{max}	λ	350 ... 1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	1.00	mm ²
Abmessung der bestrahlungsempfindlichen Fläche Dimensions of radiant sensitive area	$L \times B$ $L \times W$	1×1	mm ²
Halbwinkel Half angle	φ	± 40	Grad deg.
Dunkelstrom Dark current $V_R = 20\text{ V}$	I_R	1 (≤ 5)	nA
Spektrale Fotoempfindlichkeit, $\lambda = 850\text{ nm}$ Spectral sensitivity	S_λ	0.55	A/W
Quantenausbeute, $\lambda = 850\text{ nm}$ Quantum yield	η	0.80	<u>Electrons</u> Photon
Leerlaufspannung, $E_v = 1000\text{ lx}$ Open-circuit voltage	V_O	320 (≥ 270)	mV

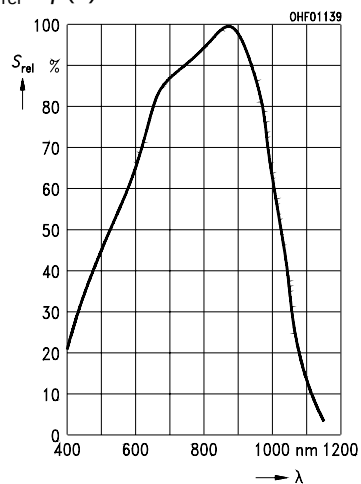
Kennwerte ($T_A = 25\text{ °C}$, Normlicht A, $T = 2856\text{ K}$)

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

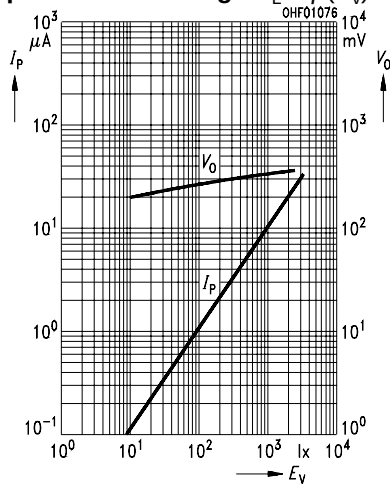
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Kurzschlussstrom, $E_V = 1000\text{ lx}$ Short-circuit current	I_{SC}	10	μA
Anstiegs und Abfallzeit des Fotostroms Rise and fall time of the photocurrent $R_L = 50\text{ }\Omega$; $V_R = 5\text{ V}$; $\lambda = 850\text{ nm}$; $I_p = 800\text{ }\mu\text{A}$	t_r, t_f	12	ns
Durchlassspannung, $I_F = 100\text{ mA}$, $E = 0$ Forward voltage	V_F	1.3	V
Kapazität, $V_R = 0\text{ V}$, $f = 1\text{ MHz}$, $E = 0$ Capacitance	C_0	11	pF
Temperaturkoeffizient von V_L Temperature coefficient of V_L	TC_V	- 2.6	mV/K
Temperaturkoeffizient von I_K Temperature coefficient of I_K	TC_I	0.2	%/K
Rauschäquivalente Strahlungsleistung Noise equivalent power $V_R = 20\text{ V}$, $\lambda = 850\text{ nm}$	NEP	3.3×10^{-14}	$\frac{\text{W}}{\sqrt{\text{Hz}}}$
Nachweisgrenze, $V_R = 20\text{ V}$, $\lambda = 850\text{ nm}$ Detection limit	D^*	3.1×10^{12}	$\frac{\text{cm} \times \sqrt{\text{Hz}}}{\text{W}}$

Relative Spectral Sensitivity

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

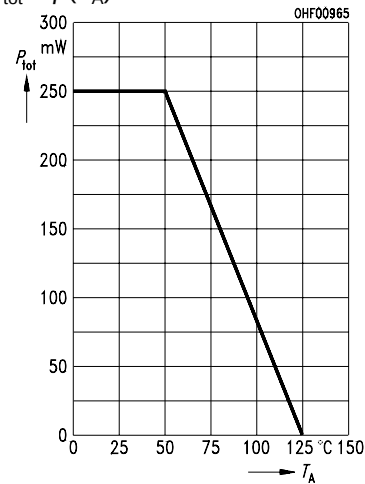


Photocurrent $I_P = f(E_V)$, $V_R = 5 \text{ V}$ Open-Circuit-Voltage $V_O = f(E_V)$



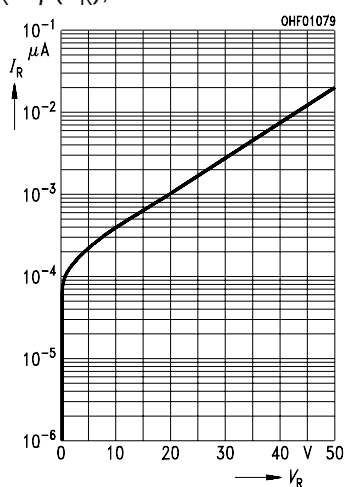
Total Power Dissipation

$$P_{\text{tot}} = f(T_A)$$



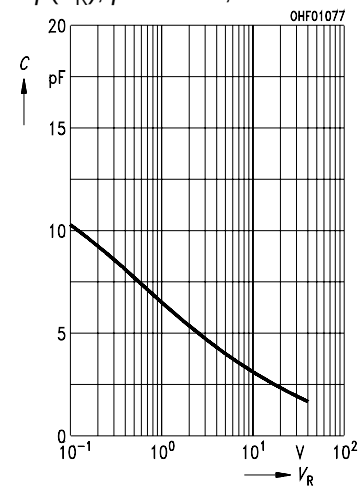
Dark Current

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



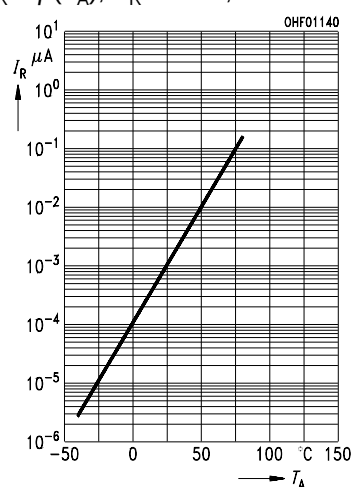
Capacitance

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



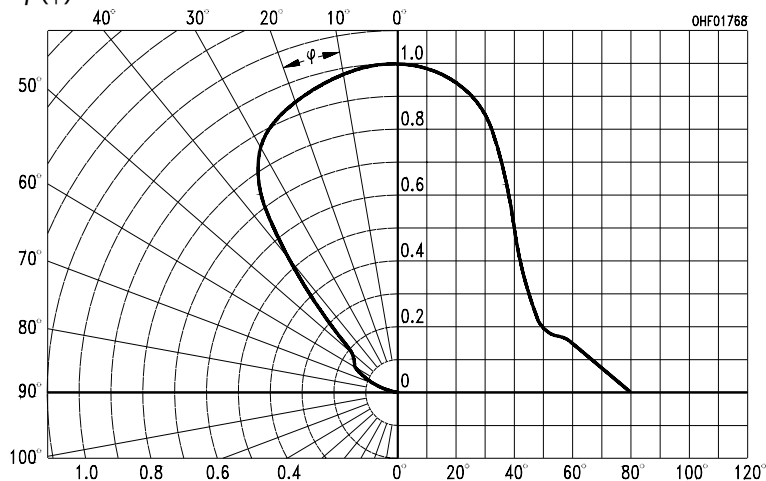
Dark Current

$$I_R = f(T_A), V_R = 20 \text{ V}, E = 0$$

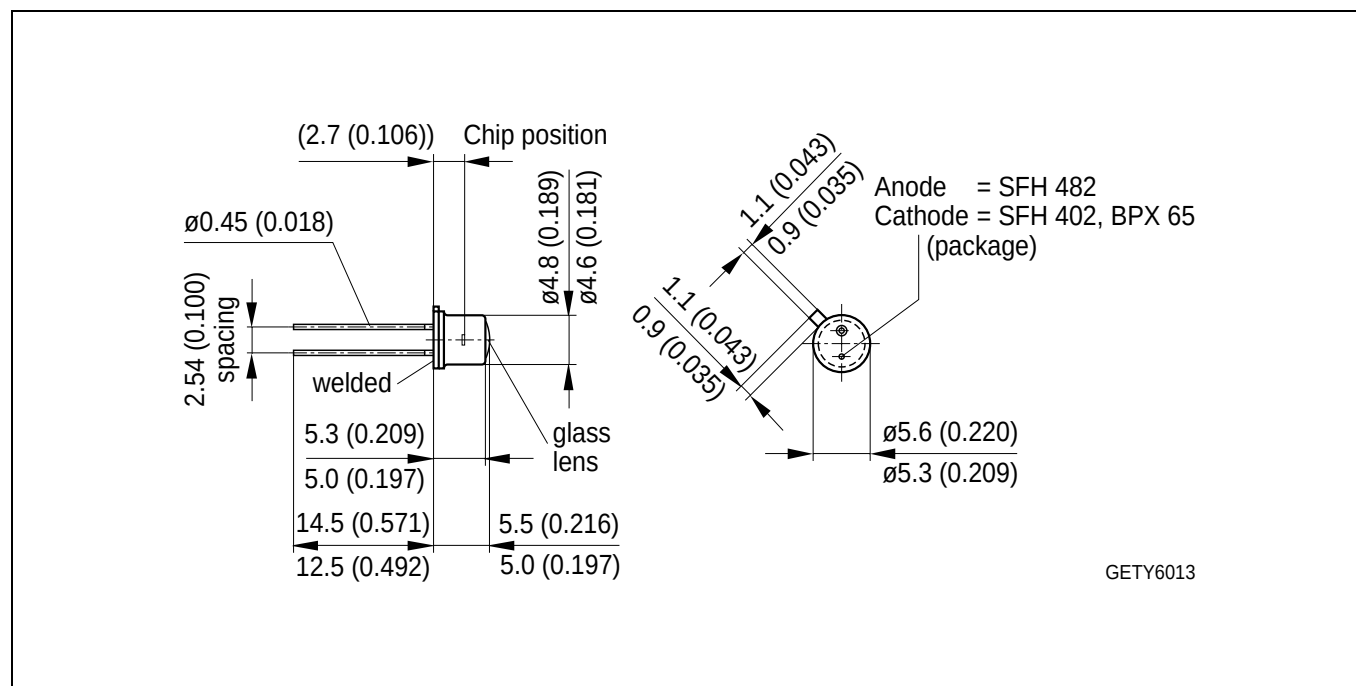


Directional Characteristics

$$S_{\text{rel}} = f(\varphi)$$



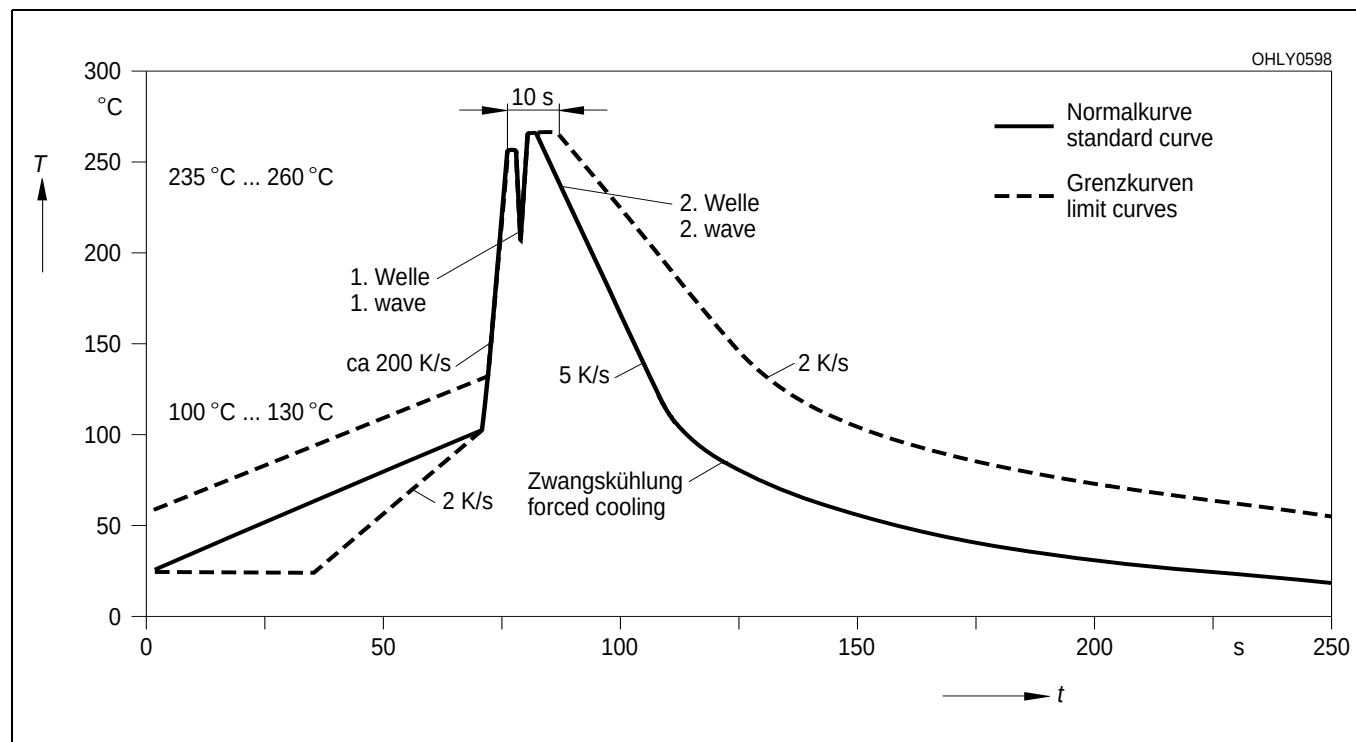
Maßzeichnung Package Outlines



Maße in mm (inch) / Dimensions in mm (inch).

Lötbedingungen
Soldering Conditions
Wellenlöten (TTW)
TTW Soldering

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



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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.