Silizium-PIN-Fotodiode
Silicon PIN Photodiode

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 °C

Anwendungen

- Schneller optischer Empfänger mit groβer Modulationsbandbreite

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 °C

Applications

- Fast optical sensor of high modulation bandwidth

Typ Type	Bestellnummer Ordering Code	Gehäuse Package
BPX 65	Q62702-P27	18 A3 DIN 41870, planes Glasfenster, hermetisch dichtes Gehäuse, Lötspieβe 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

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
Löttemperatur (Lötstelle 2 mm vom Gehäuse entfernt bei Lötzeit $t \leq 3$ s) Soldering temperature in 2 mm distance from case bottom ($t \leq 3$ s)	T_S	230	°C
Sperrspannung Reverse voltage	V_R	50	V
Verlustleistung, $T_A = 25$ °C Total power dissipation	P_{tot}	250	mW

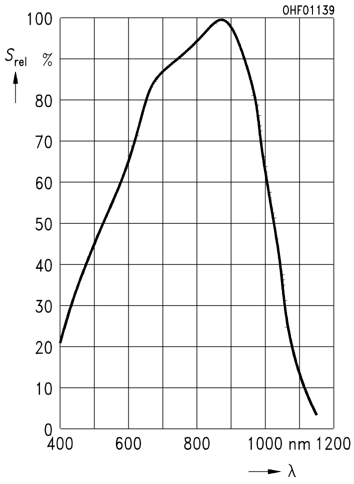
Kennwerte ($T_A = 25$ °C, Normlicht A, $T = 2856$ K)
Characteristics ($T_A = 25$ °C, standard light A, $T = 2856$ K)

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	$\lambda_{S\,max}$	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
Abstand Chipoberfläche zu Gehäuseoberfläche Distance chip front to case surface	H	2.25 … 2.55	mm
Halbwinkel Half angle	φ	± 40	Grad deg.
Dunkelstrom Dark current BPX 65: $V_R = 20$ V	I_R	1 (≤ 5)	nA

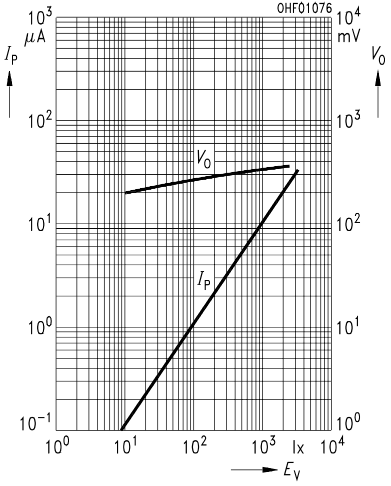
Kennwerte (T_A = 25 °C, Normlicht A, T = 2856 K)
Characteristics (T_A = 25 °C, standard light A, T = 2856 K) (cont'd)

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Spektrale Fotoempfindlichkeit, λ = 850 nm Spectral sensitivity	S_λ	0.55	A/W
Quantenausbeute, λ = 850 nm Quantum yield	η	0.80	$\frac{\text{Electrons}}{\text{Photon}}$
Leerlaufspannung, E_v = 1000 lx Open-circuit voltage	V_L	320 (≥ 270)	mV
Kurzschlußstrom, E_v = 1000 lx Short-circuit current	I_K	10	µA
Anstiegs und Abfallzeit des Fotostromes Rise and fall time of the photocurrent R_L= 50 Ω; V_R = 5 V; λ = 850 nm; I_p = 800 µA	t_r, t_f	12	ns
Durchlaßspannung, I_F = 100 mA, E = 0 Forward voltage	V_F	1.3	V
Kapazität, V_R = 0 V, f = 1 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 V, λ = 850 nm	NEP	3.3×10^{-14}	$\frac{\text{W}}{\sqrt{\text{Hz}}}$
Nachweisgrenze, V_R = 20 V, λ = 850 nm Detection limit	D*	3.1×10^{12}	$\frac{\text{cm} \times \sqrt{\text{Hz}}}{\text{W}}$

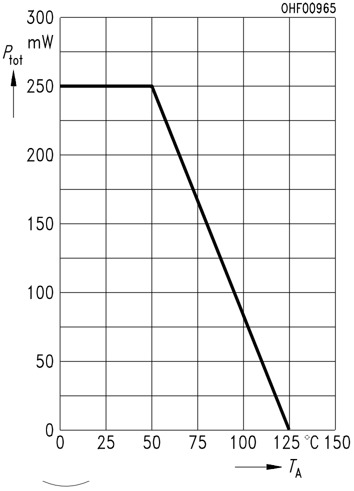
Relative Spectral Sensitivity
$S_{rel} = f(\lambda)$



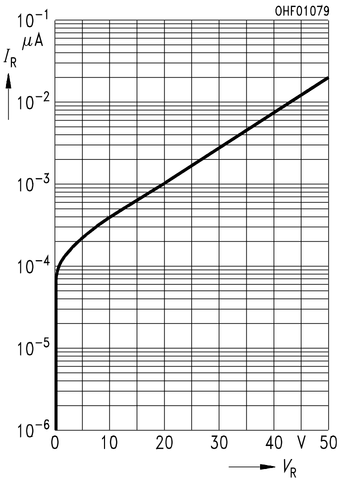
Photocurrent $I_P = f(E_V)$, V_R = 5 V Open-Circuit-Voltage $V_L = f(E_V)$



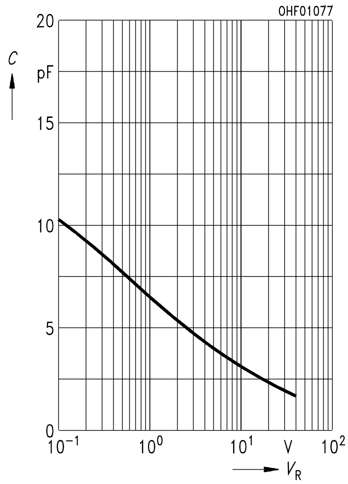
Total Power Dissipation
$P_{tot} = f(T_A)$



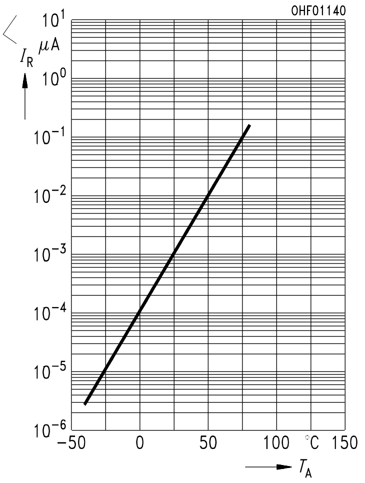
Dark Current
$I_R = f(V_R)$, $E = 0$



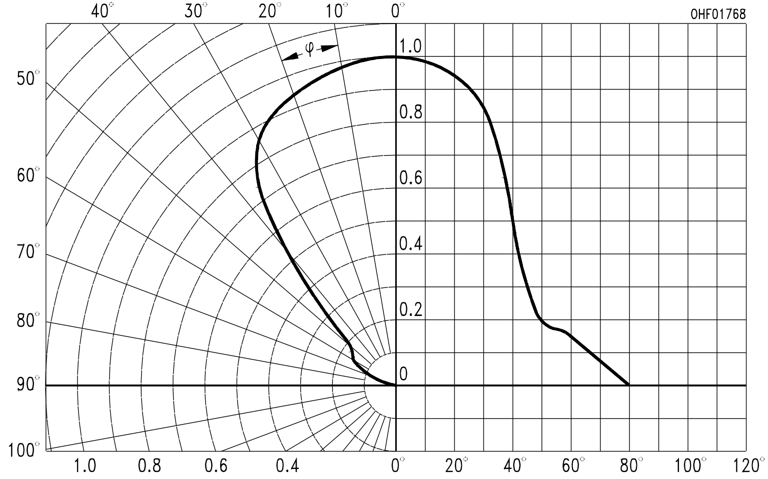
Capacitance
$C = f(V_R)$, f = 1 MHz, $E = 0$



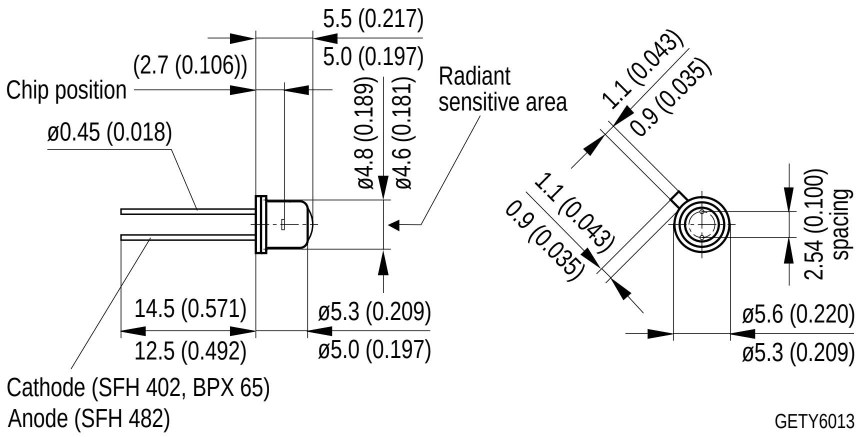
Dark Current
$I_R = f(T_A)$, V_R = 20 V, $E = 0$



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



Maßzeichnung
Package Outlines



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

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