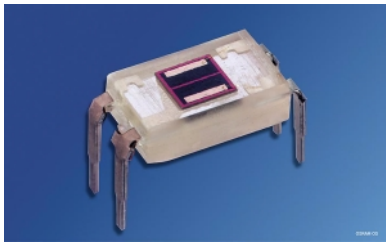
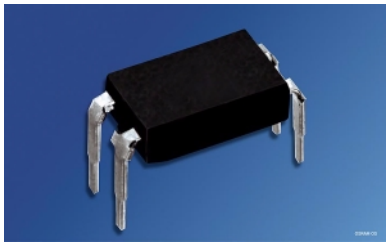
Silizium-Differential-Fotodiode
Silicon Differential Photodiode

BPX 48
BPX 48 F



BPX 48



BPX 48 F

Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 400 nm bis 1100 nm (BPX 48) und bei 920 nm (BPX 48 F)
- Hohe Fotoempfindlichkeit
- DIL-Plastikbauform mit hoher Packungsdichte
- Doppeldiode mit extrem hoher Gleichmäßigkeit

Features

- Especially suitable for applications from 400 nm to 1100 nm (BPX 48) and of 920 nm (BPX 48 F)
- High photosensitivity
- DIL plastic package with high packing density
- Double diode with extremely high homogeneousness

Anwendungen

- Nachlaufsteuerung
- Kantenführungen
- Weg- bzw. Winkelabtastungen
- Industrieelektronik
- „Messen/Steuern/Regeln“

Application

- Follow-up control
- Edge control
- Path and angle scanning
- Industrial electronics
- For control and drive circuits

Typ Type	Bestellnummer Ordering Code
BPX 48	Q62702-P17-S1
BPX 48 F	Q62702-P305

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
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	10	V
Verlustleistung, T_A = 25 °C Total power dissipation	P_{tot}	50	mW

Kennwerte (T_A = 25 °C) für jede Einzeldiode
Characteristics (T_A = 25 °C) per single diode system

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**		**Einheit** **Unit**
		BPX 48	**BPX 48 F**	
Fotostrom Photocurrent V_R = 5 V, Normlicht/standard light A, T = 2856 K, E_V = 1000 lx V_R = 5 V, λ = 950 nm, E_e = 0.5 mW/cm²	I_P I_P	24 (≥ 15) –	– 7.5 (≥ 4.0)	µA µA
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\ max}$	900	920	nm
Spektraler Bereich der Fotoempfindlichkeit S = 10% von S_{max} Spectral range of sensitivity S = 10% of S_{max}	λ	400 … 1150	750 … 1150	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	1.54	1.54	mm²
Abmessung der bestrahlungsempfindlichen Fläche Dimensions of radiant sensitive area	$L \times B$ $L \times W$	0.7 × 2.2	0.7 × 2.2	mm × mm
Abstand Chipoberfläche zu Gehäuseoberfläche Distance chip front to case surface	H	0.5	0.5	mm

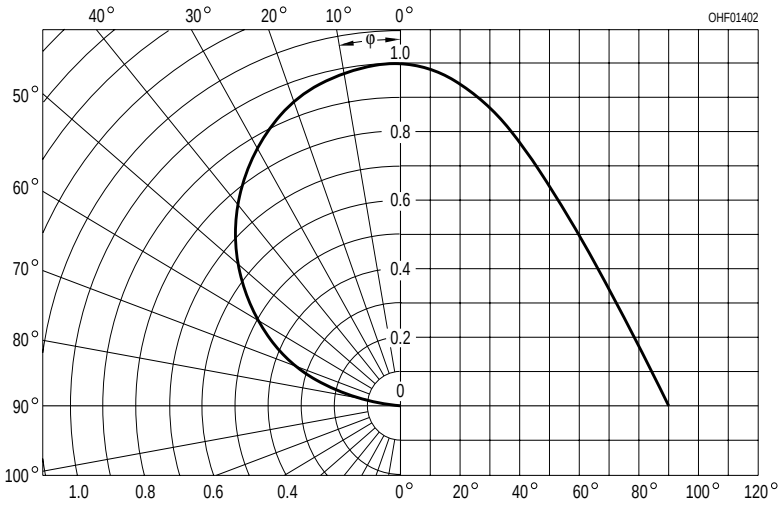
Kennwerte (T_A = 25 °C) für jede Einzeldiode
Characteristics (T_A = 25 °C) per single diode system (cont'd)

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**		**Einheit** **Unit**
		BPX 48	**BPX 48 F**	
Halbwinkel Half angle	φ	± 60	± 60	Grad deg.
Dunkelstrom, V_R = 10 V Dark current	I_R	10 (≤ 100)	10 (≤ 100)	nA
Spektrale Fotoempfindlichkeit Spectral sensitivity λ = 850 nm λ = 950 nm	 S_λ S_λ	 0.55 –	 – 0.65	 A/W
Max. Abweichung der Fotoempfindlichkeit der Systeme vom Mittelwert Max. deviation of the system spectral sensitivity from the average	ΔS	± 5	± 5	%
Quantenausbeute Quantum yield λ = 850 nm λ = 950 nm	 η η	 0.8 –	 – 0.95	Electrons Photon
Leerlaufspannung Open-circuit voltage E_v = 1000 lx, Normlicht/standard light A, T = 2856 K E_e = 0.5 mW/cm², λ = 950 nm	 V_O V_O	 330 (≥ 280) –	 – 300 (≥ 280)	 mV mV
Kurzschlußstrom Short-circuit current E_v = 1000 lx, Normlicht/standard light A, T = 2856 K E_e = 0.5 mW/cm², λ = 950 nm	 I_{SC} I_{SC}	 24 –	 – 7	 µA µA
Anstiegs- und Abfallzeit des Fotostromes Rise and fall time of the photocurrent R_L = 1 kΩ; V_R = 5 V; λ = 850 nm; I_p = 20 µA	t_r, t_f	500	500	ns
Durchlaßspannung, I_F = 40 mA, E = 0 Forward voltage	V_F	1.3	1.3	V
Kapazität, V_R = 0 V, f = 1 MHz, E = 0 Capacitance	C_0	25	25	pF
Temperaturkoeffizient von V_O Temperature coefficient of V_O	TC_V	– 2.6	– 2.6	mV/K

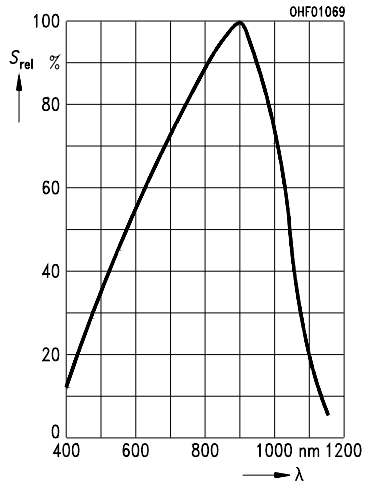
Kennwerte (T_A = 25 °C) für jede Einzeldiode
Characteristics (T_A = 25 °C) per single diode system (cont'd)

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**		**Einheit** **Unit**
		BPX 48	**BPX 48 F**	
Temperaturkoeffizient von I_{SC} Temperature coefficient of I_{SC} Normlicht/standard light A λ = 950 nm	 TC_I TC_I	 0.18 –	 – 0.2	 %/K %/K
Rauschäquivalente Strahlungsleistung Noise equivalent power V_R = 10 V, λ = 950 nm	NEP	1.0×10^{-13}	1.0×10^{-13}	$\frac{W}{\sqrt{Hz}}$
Nachweisgrenze, V_R = 10 V, λ = 950 nm Detection limit	D*	1.2×10^{12}	1.2×10^{12}	$\frac{cm \times \sqrt{Hz}}{W}$

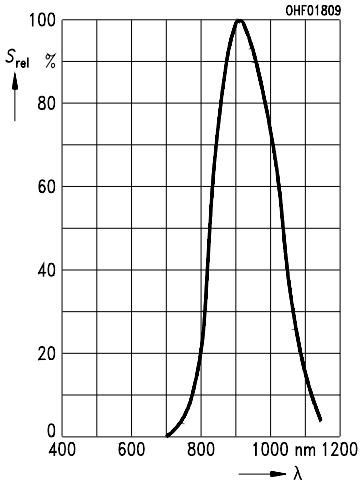
Directional Characteristics
$S_{rel} = f(\varphi)$



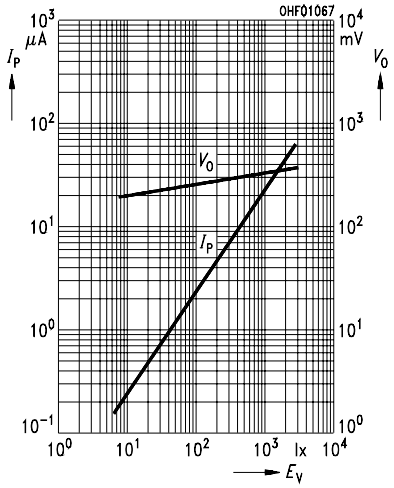
Relative Spectral Sensitivity
BPX 48 $S_{rel} = f(\lambda)$



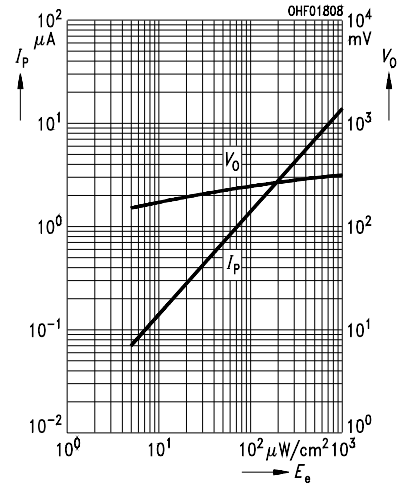
Relative Spectral Sensitivity
BPX 48 F $S_{rel} = f(\lambda)$



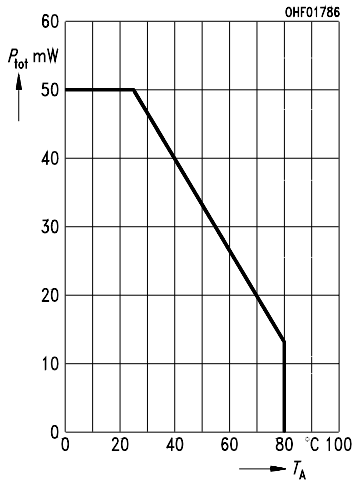
Photocurrent $I_P = f(E_v)$, V_R = 5 V
Open-Circuit Voltage $V_O = f(E_v)$
BPX 48



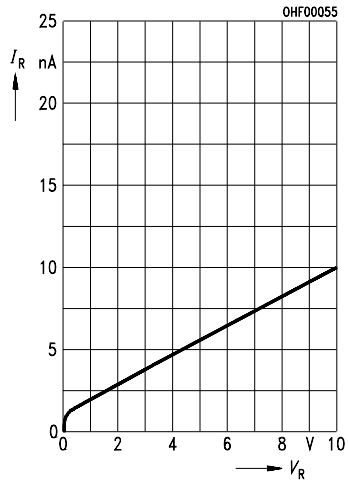
Photocurrent $I_P = f(E_e)$, V_R = 5 V
Open-Circuit-Voltage $V_O = f(E_e)$
BPX 48 F



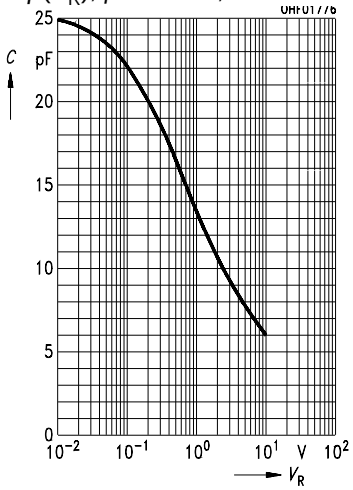
Total Power Dissipation
$P_{tot} = f(T_A)$



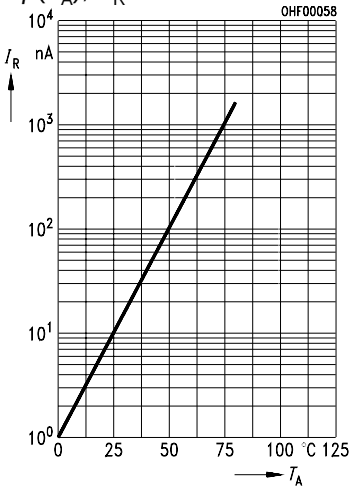
Dark Current
$I_R = f(V_R)$, E = 0



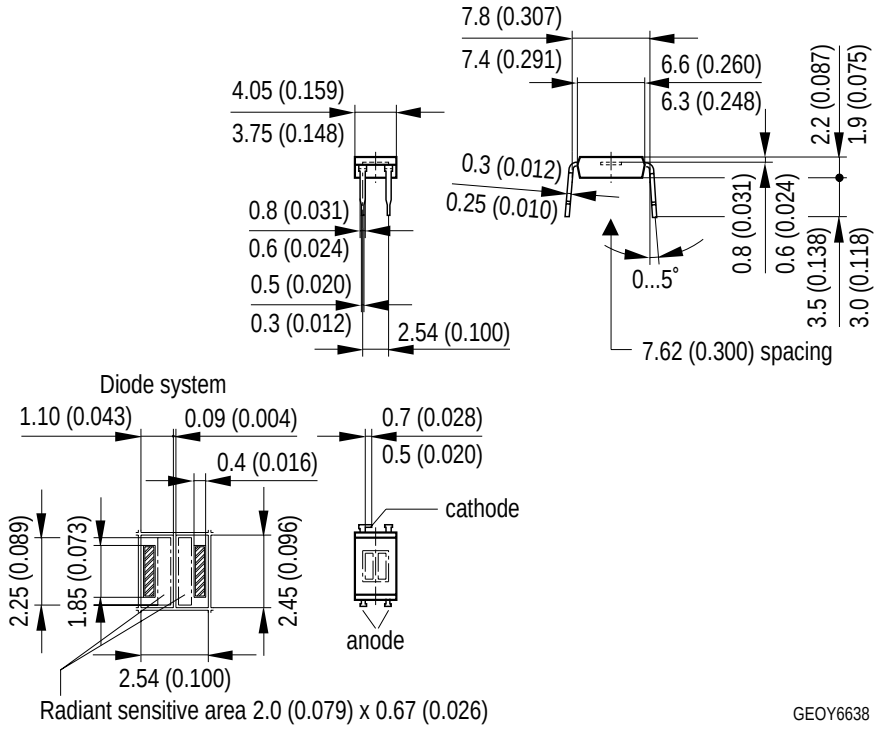
Capacitance
$C = f(V_R)$, f = 1 MHz, E = 0



Dark Current
$I_R = f(T_A)$, V_R = 10 V



Maßzeichnung
Package Outlines



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

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