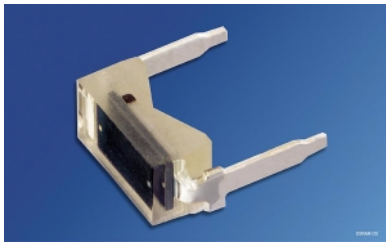
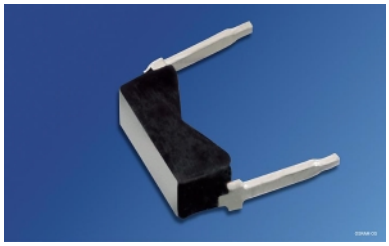
Silizium-Fotodiode
Silicon Photodiode

BPX 90
BPX 90 F



BPX 90



BPX 90 F

Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 400 nm bis 1100 nm (BPX 90) und bei 950 nm (BPX 90 F)
- Hohe Fotoempfindlichkeit
- DIL-Plastikbauform mit hoher Packungsdichte

Features

- Especially suitable for applications from 400 nm to 1100 nm (BPX 90) and of 950 nm (BPX 90 F)
- High photosensitivity
- DIL plastic package with high packing density

Anwendungen

- Industrieelektronik
- „Messen/Steuern/Regeln“

Applications

- Industrial electronics
- For control and drive circuits

Typ Type	Bestellnummer Ordering Code
BPX 90	Q62702-P47
BPX 90 F	Q62702-P928

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	32	V
Verlustleistung, T_A = 25 °C Total power dissipation	P_{tot}	100	mW

Kennwerte T_A = 25 °C
Characteristics

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**		**Einheit** **Unit**
		BPX 90	**BPX 90 F**	
Fotostrom Photocurrent V_R = 5 V, Normlicht/standard light A, T = 2856 K, E_V = 1000 lx	I_P	45 (≥ 32)	–	µA
V_R = 5 V, λ = 950 nm, E_e = 1 mW/cm²	I_P	–	26 (≥ 16)	µA
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\ max}$	830	950	nm
Spektraler Bereich der Fotoempfindlichkeit S = 10% von S_{max} Spectral range of sensitivity S = 10% of S_{max}	λ	400 … 1150	800 … 1150	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	5.5	5.5	mm²
Abmessung der bestrahlungsempfindlichen Fläche Dimensions of radiant sensitive area	$L \times B$ $L \times W$	1.75 × 3.15	1.75 × 3.15	mm × mm
Abstand Chipoberfläche zu Gehäuseoberfläche Distance chip front to case surface	H	0.5	0.5	mm
Halbwinkel Half angle	φ	± 60	± 60	Grad deg.

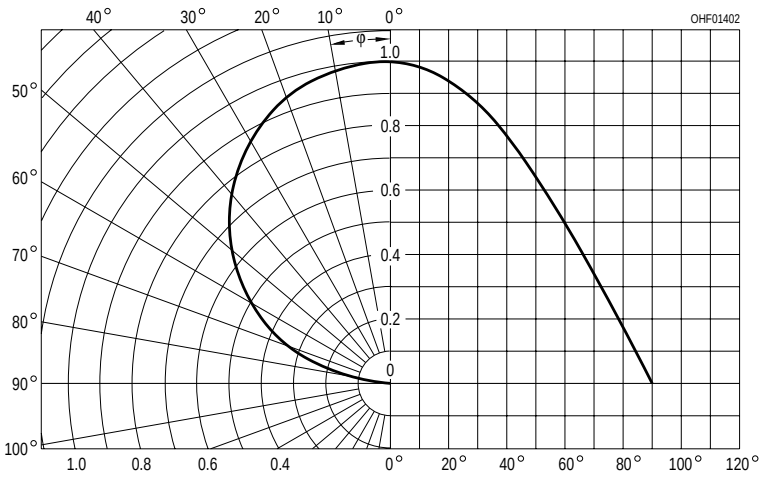
Kennwerte T_A = 25 °C
Characteristics (cont'd)

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**		**Einheit** **Unit**
		BPX 90	**BPX 90 F**	
Dunkelstrom, V_R = 10 V Dark current	I_R	5 (≤ 180)	5 (≤ 180)	nA
Spektrale Fotoempfindlichkeit, λ = 950 nm Spectral sensitivity	S_λ	0.48	0.48	A/W
Quantenausbeute, λ = 950 nm Quantum yield	η	0.62	0.62	Electrons Photon
Leerlaufspannung Open-circuit voltage E_v = 1000 lx, Normlicht/standard light A, T = 2856 K	V_O	450 (≥ 380)	–	mV
E_e = 0.5 mW/cm², λ = 950 nm	V_O	–	400 (≥ 340)	mV
Kurzschlußstrom Short-circuit current E_v = 1000 lx, Normlicht/standard light A, T = 2856 K	I_{SC}	45	–	µA
E_e = 0.5 mW/cm², λ = 950 nm	I_{SC}	–	13	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 = 30 µA	t_r, t_f	1.3	1.3	µs
Durchlaßspannung, I_F = 80 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	430	430	pF

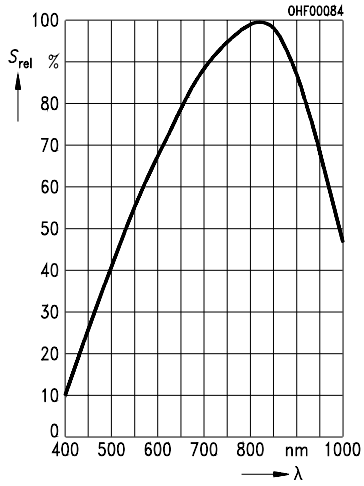
Kennwerte T_A = 25 °C
Characteristics (cont'd)

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**		**Einheit** **Unit**
		BPX 90	**BPX 90 F**	
Temperaturkoeffizient von V_O Temperature coefficient of V_O	TC_V	– 2.6	– 2.6	mV/K
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	8×10^{-14}	8×10^{-14}	$\frac{W}{\sqrt{Hz}}$
Nachweisgrenze, V_R = 10 V, λ = 950 nm Detection limit	D*	2.9×10^{12}	2.9×10^{12}	$\frac{cm \times \sqrt{Hz}}{W}$

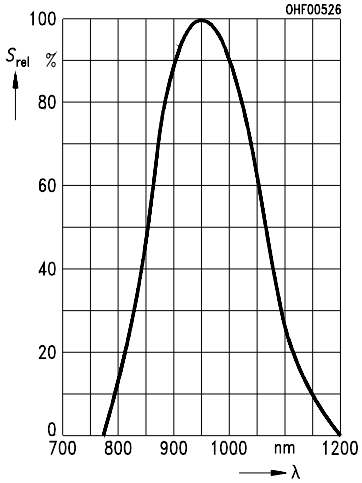
Directional Characteristics $S_{rel} = f(\varphi)$



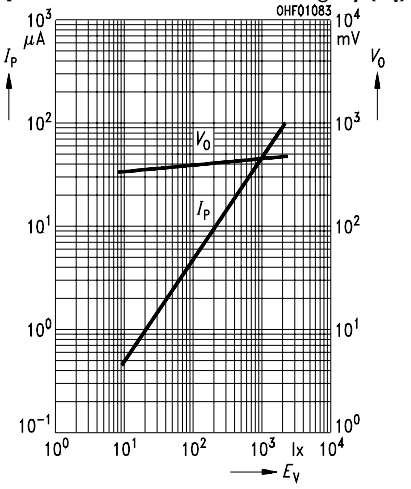
Relative Spectral Sensitivity
BPX 90 $S_{rel} = f(\lambda)$



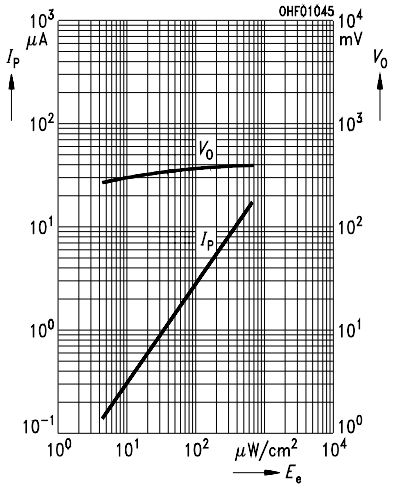
Relative Spectral Sensitivity
BPX 90 F $S_{rel} = f(\lambda)$



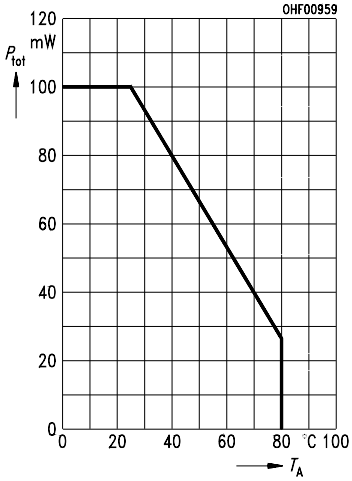
Photocurrent $I_P = f(E_v)$, V_R = 5 V
Open-Circuit Volt. BPX 90 $V_O = f(E_v)$



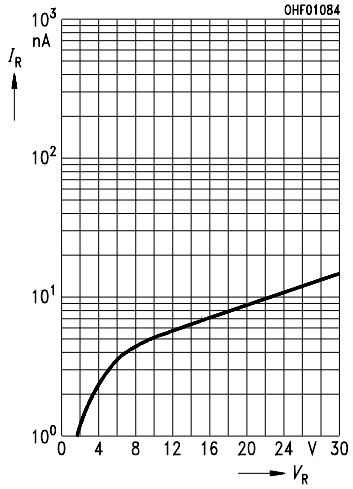
Photocurrent $I_P = f(E_e)$, V_R = 5 V
Open-Circuit Voltage $V_O = f(E_e)$
BPX 90 F



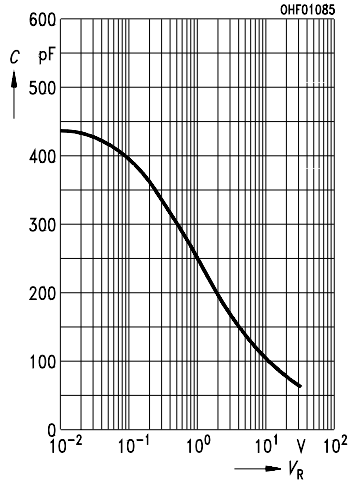
Total Power Dissipation
$P_{tot} = f(T_A)$



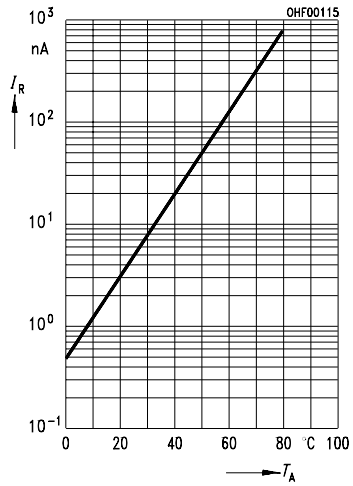
Dark Current
$I_R = f(V_R)$, E = 0



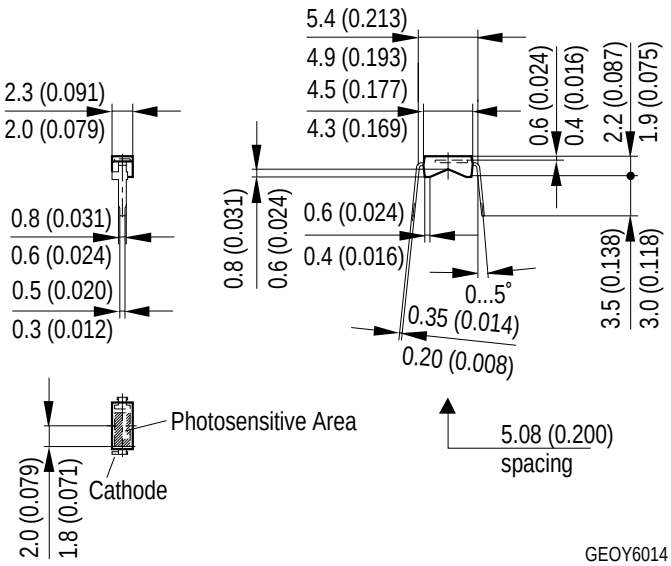
Capacitance
$C = f(V_R)$, f = 1 MHz, E = 0



Dark Current
$I_R = f(T_A)$, V_R = 10 V, E = 0



Maßzeichnung
Package Outlines



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

Published by OSRAM Opto Semiconductors GmbH & Co. OHG
Wernerwerkstrasse 2, D-93049 Regensburg

Attention please!
The information describes the type of component and shall not be considered as assured characteristics.
Terms of delivery and rights to change design reserved. Due to technical requirements components may contain dangerous substances. For information on the types in question please contact our Sales Organization.
Packing
Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.
Components used in life-support devices or systems must be expressly authorized for such purpose! Critical components [1] , may only be used in life-support devices or systems [2] with the express written approval of OSRAM OS.
[1] A critical component is a component usedin 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.