

# **Silizium-Fotodiode mit sehr kleinem Dunkelstrom**

## **Silicon Photodiode with Very Low Dark Current**

### **BPX 63**



#### **Wesentliche Merkmale**

- Speziell geeignet für Anwendungen im Bereich von 350 nm bis 1100 nm
- Sperrstromarm (typ. 5 pA)
- TO-18, Bodenplatte, mit klarem Epoxy-Gießharz

#### **Anwendungen**

- Belichtungsmesser, Belichtungsautomaten

#### **Features**

- Especially suitable for applications from 350 nm to 1100 nm
- Low reverse current (typ. 5 pA)
- TO-18, base plate, transparent epoxy resin lens

#### **Applications**

- Exposure meters, automatic exposure timers

<b>Typ Type</b>	<b>Bestellnummer Ordering Code</b>
BPX 63	Q62702-P55

**Grenzwerte****Maximum Ratings**

<b>Bezeichnung Parameter</b>	<b>Symbol Symbol</b>	<b>Wert Value</b>	<b>Einheit Unit</b>
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	$V_R$	7	V
Verlustleistung, $T_A = 25$ °C Total power dissipation	$P_{tot}$	200	mW

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

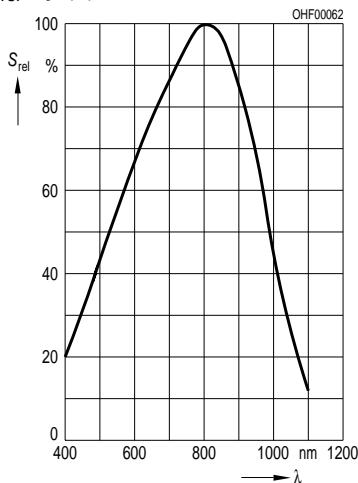
<b>Bezeichnung Parameter</b>	<b>Symbol Symbol</b>	<b>Wert Value</b>	<b>Einheit Unit</b>
Fotoempfindlichkeit, $V_R = 5$ V Spectral sensitivity	$S$	10 ( $\geq 8$ )	nA/lx
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\max}$	800	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von $S_{max}$ Spectral range of sensitivity $S = 10\%$ of $S_{max}$	$\lambda$	350 ... 1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	$A$	0.97	mm <sup>2</sup>
Abmessung der bestrahlungsempfindlichen Fläche Dimensions of radiant sensitive area	$L \times B$ $L \times W$	0.985 × 0.985	mm × mm
Abstand Chipoberfläche zu Gehäuseoberfläche Distance chip front to case surface	$H$	0.2 ... 0.8	mm
Halbwinkel Half angle	$\phi$	± 75	Grad deg.
Dunkelstrom, $V_R = 1$ V Dark current	$I_R$	5 ( $\leq 20$ )	pA
Nullpunktsteilheit, $E = 0$ Zero crossover	$S_0$	≤ 0.4	pA/mV

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

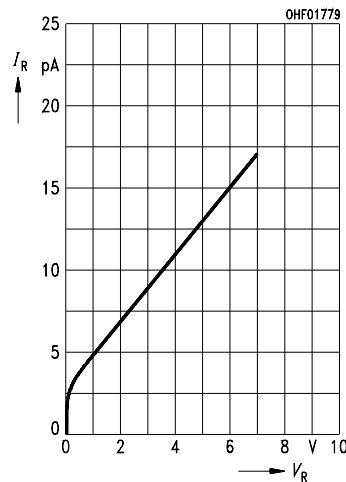
**Characteristics** ( $T_A = 25^\circ\text{C}$ , standard light A,  $T = 2856\text{ K}$ ) (cont'd)

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Spektrale Fotoempfindlichkeit, $\lambda = 850\text{ nm}$ Spectral sensitivity	$S_\lambda$	0.50	A/W
Quantenausbeute, $\lambda = 850\text{ nm}$ Quantum yield	$\eta$	0.73	Electrons Photon
Leerlaufspannung, $E_v = 1000\text{ Ix}$ Open-circuit voltage	$V_O$	450 ( $\geq 380$ )	mV
Kurzschlußstrom, $E_v = 1000\text{ Ix}$ Short-circuit current	$I_{SC}$	10	$\mu\text{A}$
Anstiegs- und Abfallzeit des Fotostromes Rise and fall time of the photocurrent $R_L = 1\text{ k}\Omega$ ; $V_R = 5\text{ V}$ ; $\lambda = 850\text{ nm}$ ; $I_p = 10\text{ }\mu\text{A}$	$t_r, t_f$	1.3	$\mu\text{s}$
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	$C_0$	100	pF
Temperaturkoeffizient von $V_O$ Temperature coefficient of $V_O$	$TC_V$	-2.6	mV/K
Temperaturkoeffizient von $I_{SC}$ Temperature coefficient of $I_{SC}$	$TC_I$	0.16	%/K
Rauschäquivalente Strahlungsleistung Noise equivalent power $V_R = 1\text{ V}$ , $\lambda = 850\text{ nm}$	$NEP$	$2.5 \times 10^{-15}$	$\frac{\text{W}}{\sqrt{\text{Hz}}}$
Nachweisgrenze, $V_R = 1\text{ V}$ , $\lambda = 850\text{ nm}$ Detection limit	$D^*$	$3.9 \times 10^{13}$	$\frac{\text{cm} \times \sqrt{\text{Hz}}}{\text{W}}$

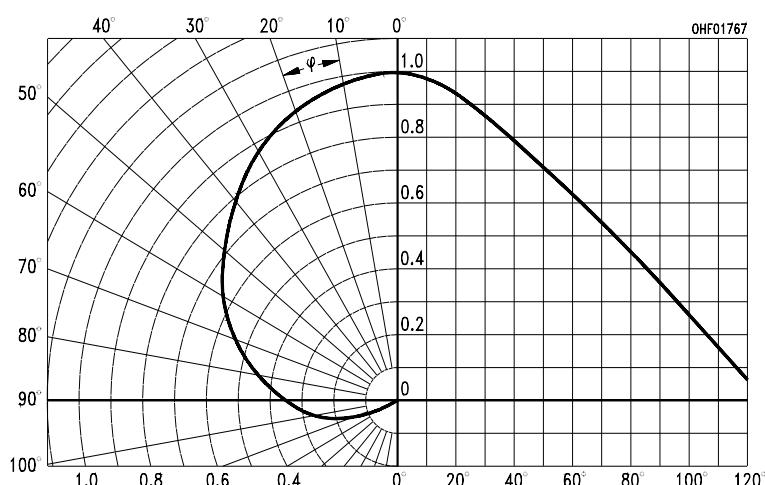
**Relative Spectral Sensitivity**  
 $S_{\text{rel}} = f(\lambda)$

**Dark Current**

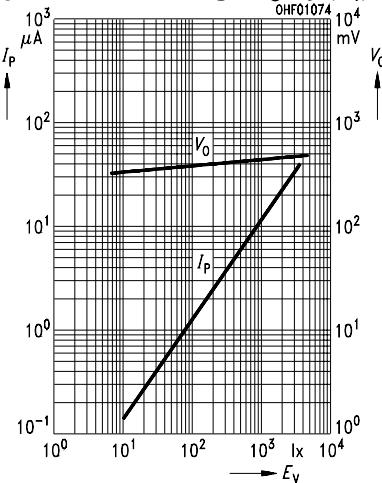
$$I_R = f(V_R), E = 0$$

**Directional Characteristics**

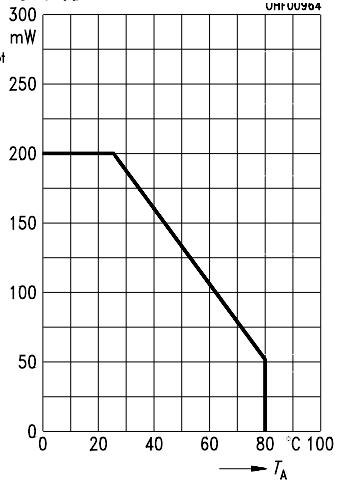
$$S_{\text{rel}} = f(\phi)$$



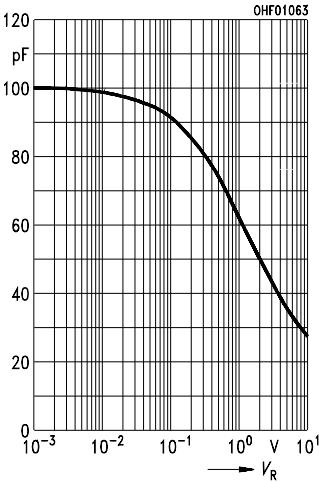
**Photocurrent  $I_P = f(E_V)$ ,  $V_R = 5$  V**  
**Open-Circuit Voltage  $V_O = f(E_V)$**

**Total Power Dissipation**

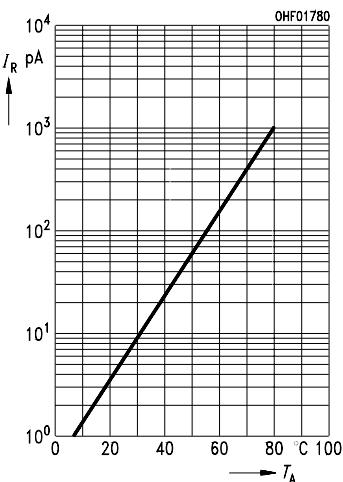
$$P_{\text{tot}} = f(T_A)$$

**Capacitance**

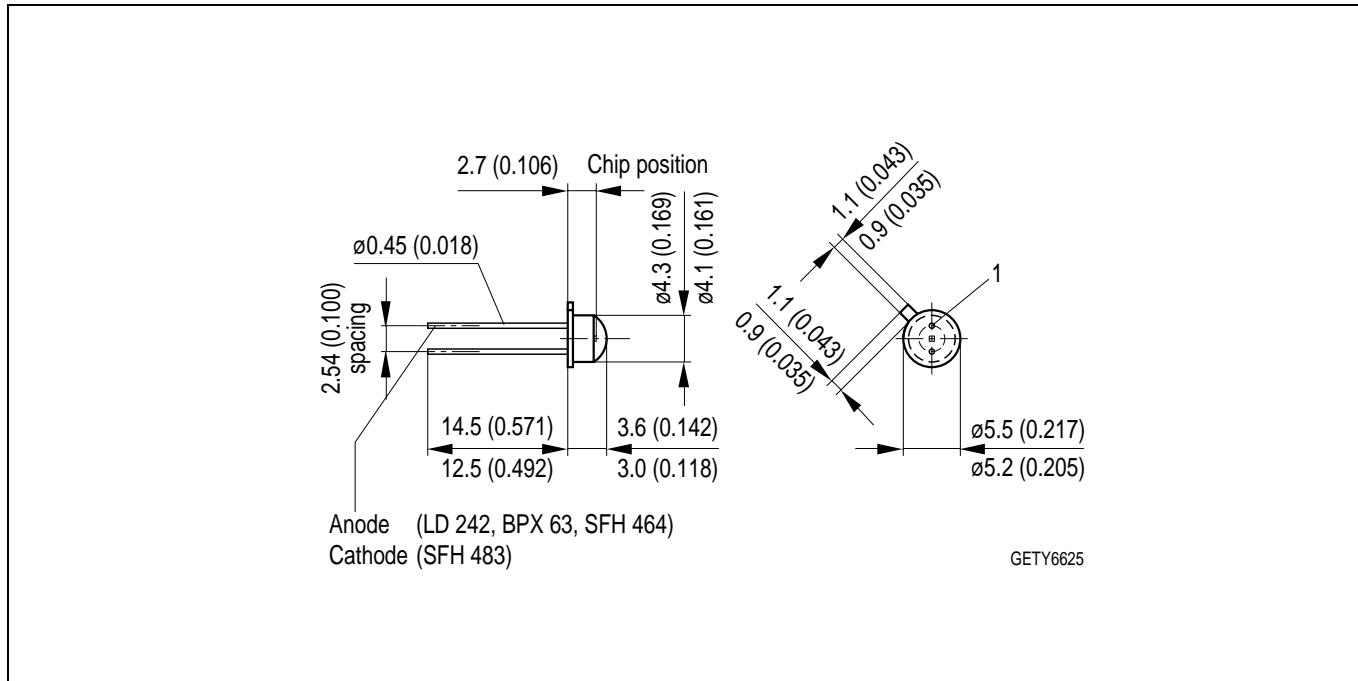
$$C = f(V_R), f = 1 \text{ MHz}, E = 0$$

**Dark Current**

$$I_R = f(T_A), E_V = 0 \text{ V}, V_R = 1 \text{ V}$$



## 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

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### 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<sup>1</sup>, may only be used in life-support devices or systems<sup>2</sup> with the express written approval of OSRAM OS.

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