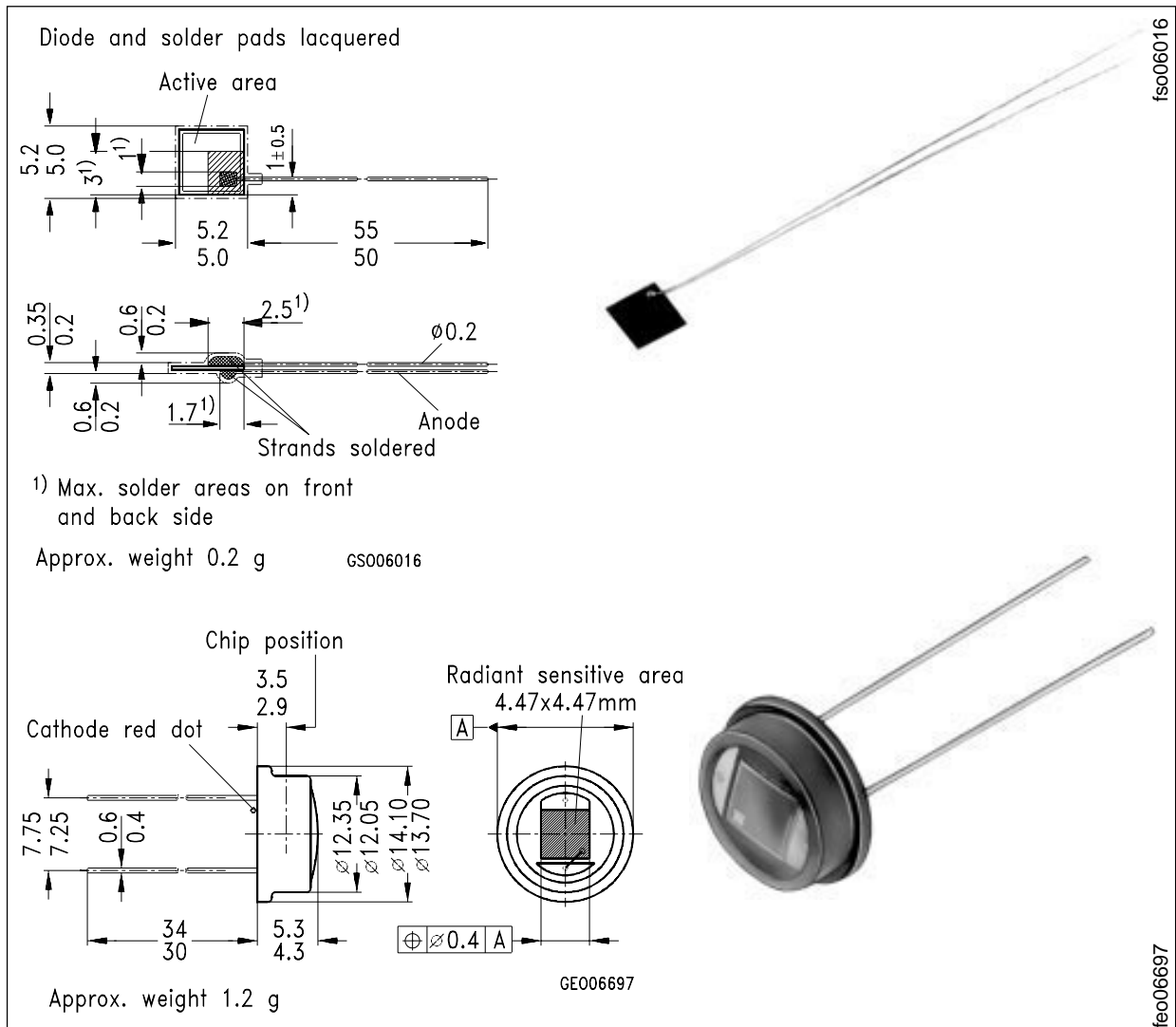


Silizium-PIN-Fotodiode Silicon-PIN-Photodiode

BPY 12
BPY 12 H 1



Maße in mm, wenn nicht anders angegeben/Dimensions in mm, unless otherwise specified.

Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 400 nm bis 1100 nm
- Kurze Schaltzeit (typ. 25 ns)

Anwendungen

- Industrieelektronik
- "Messen/Steuern/Regeln"

Features

- Especially suitable for applications from 400 nm to 1100 nm
- Short switching time (typ. 25 ns)

Applications

- Industrial electronics
- For control and drive circuits

Typ Type	Bestellnummer Ordering Code
BPY 12	Q62702-P9
BPY 12 H 1	Q62702-P1029

Grenzwerte Maximum Ratings

Bezeichnung Description	Symbol Symbol	Wert Value	Einheit Unit
Betriebs- und Lagertemperatur Operating and storage temperature range	$T_{op}; T_{stg}$	- 55 ... + 100	°C
Sperrspannung Reverse voltage	V_R	20	V
Verlustleistung, $T_A = 25\text{ °C}$ Total power dissipation	P_{tot}	150	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 Description	Symbol Symbol	Wert Value	Einheit Unit
Fotoempfindlichkeit, $V_R = 5\text{ V}$ Spectral sensitivity	S	180 (≥ 100)	nA/lx
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\text{ max}}$	920	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\text{ %}$ von S_{max} Spectral range of sensitivity $S = 10\text{ %}$ of S_{max}	λ	400 ... 1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	20	mm ²
Abmessung der bestrahlungsempfindlichen Fläche Dimensions of radiant sensitive area	$L \times B$ $L \times W$	4.47 × 4.47	mm
Halbwinkel Half angle	φ	± 60	Grad deg.
Dunkelstrom, $V_R = 20\text{ V}$ Dark current	I_R	10 (≤ 100)	nA

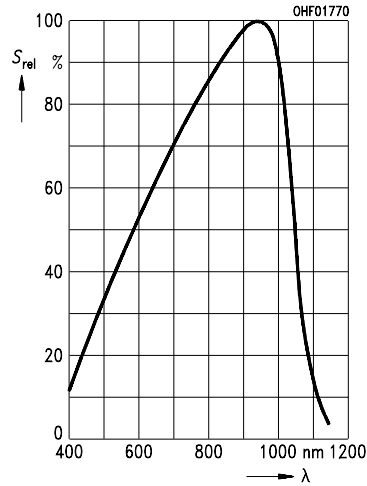
Kennwerte ($T_A = 25\text{ °C}$, Normlicht A, $T = 2856\text{ K}$)

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

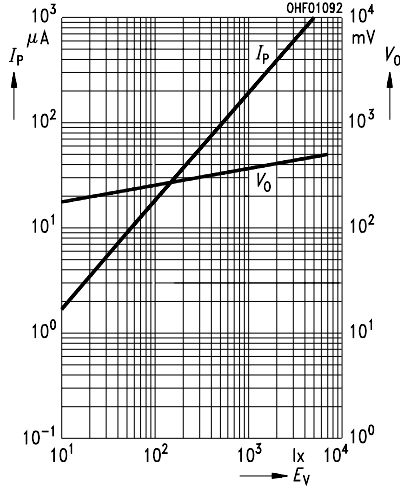
Bezeichnung Description	Symbol Symbol	Wert Value	Einheit Unit
Spektrale Fotoempfindlichkeit, $\lambda = 850\text{ nm}$ Spectral sensitivity	S_λ	0.60	A/W
Quantenausbeute, $\lambda = 850\text{ nm}$ Quantum yield	η	0.86	<u>Electrons</u> Photon
Leerlaufspannung, $E_v = 1000\text{ lx}$ Open-circuit voltage	V_O	365 (≥ 310)	mV
Kurzschlußstrom, $E_v = 1000\text{ lx}$ Short-circuit current	I_{SC}	180	μA
Anstiegs- und Abfallzeit des Fotostromes Rise and fall time of the photocurrent $R_L = 50\ \Omega$; $V_R = 5\text{ V}$; $\lambda = 850\text{ nm}$; $I_p = 800\ \mu\text{A}$	t_r, t_f	25	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	140	pF
Temperaturkoeffizient für V_O Temperature coefficient of V_O	TC_V	- 2.6	mV/K
Temperaturkoeffizient für I_{SC} Temperature coefficient of I_{SC}	TC_I	0.15	%/K
Rauschäquivalente Strahlungsleistung Noise equivalent power $V_R = 20\text{ V}$, $\lambda = 850\text{ nm}$	NEP	9.4×10^{-14}	$\frac{\text{W}}{\sqrt{\text{Hz}}}$
Nachweisgrenze, $V_R = 20\text{ V}$, $\lambda = 850\text{ nm}$ Detection limit	D^*	4.7×10^{12}	$\frac{\text{cm} \cdot \sqrt{\text{Hz}}}{\text{W}}$

Relative spectral sensitivity

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

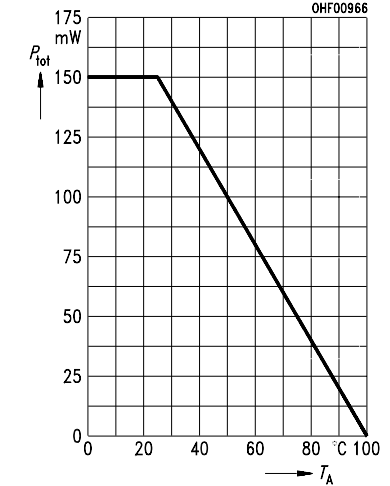


Photocurrent $I_P = f(E_V), V_R = 5 V$ Open-circuit-voltage $V_O = f(E_V)$



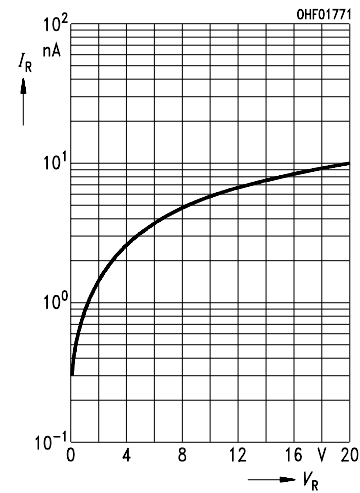
Total power dissipation

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



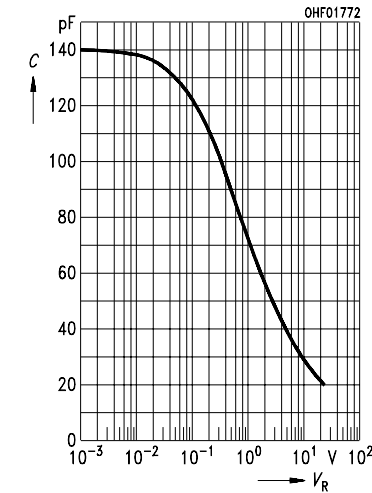
Dark current

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



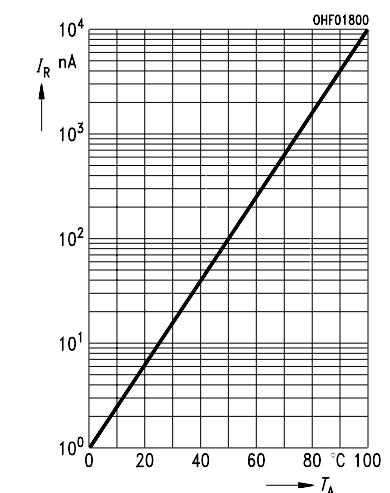
Capacitance

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



Dark current

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



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

