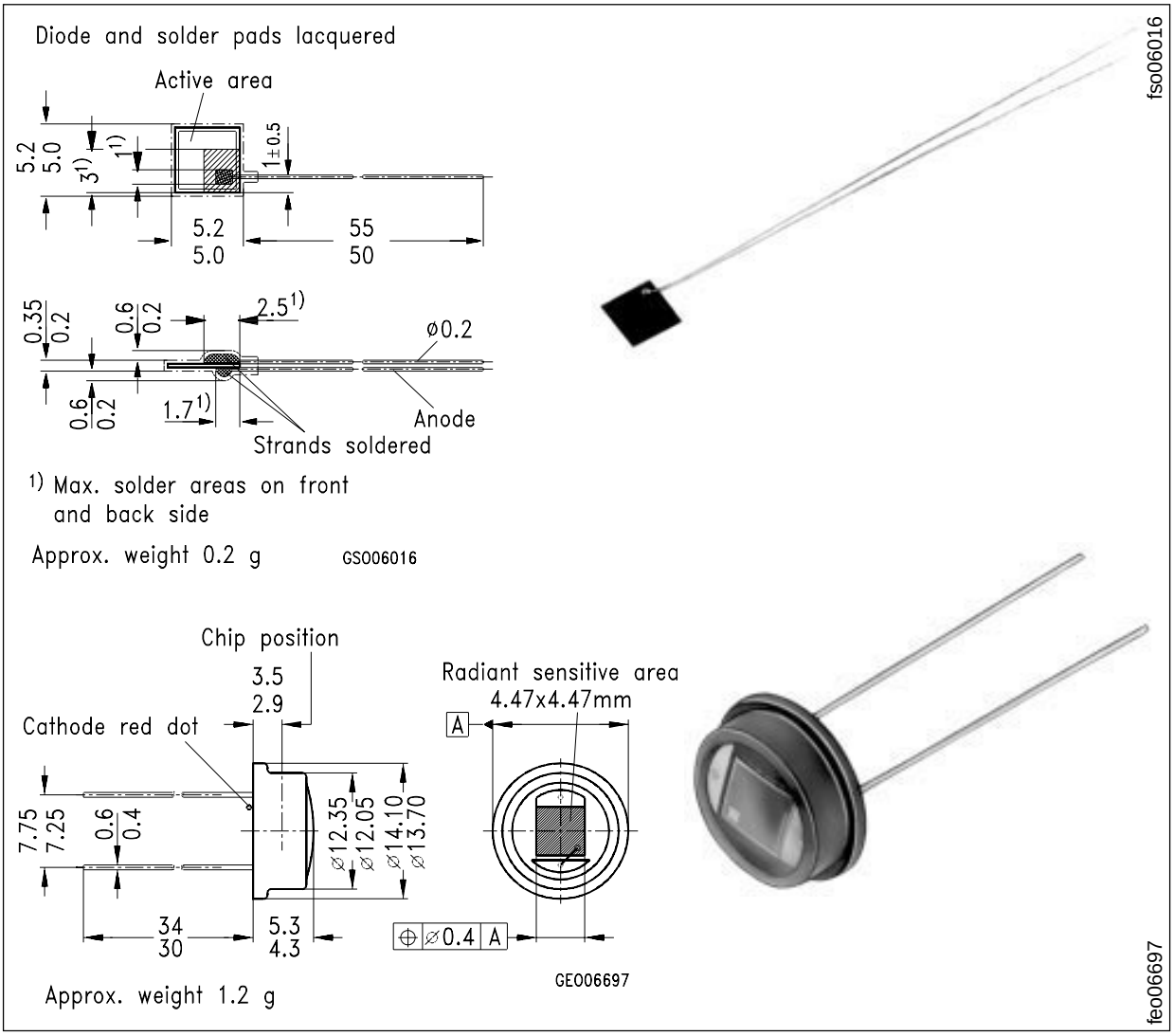
SIEMENS

Silizium-PIN-Fotodiode **BPY 12**
Silicon-PIN-Photodiode **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 °C Total power dissipation	P_{tot}	150	mW

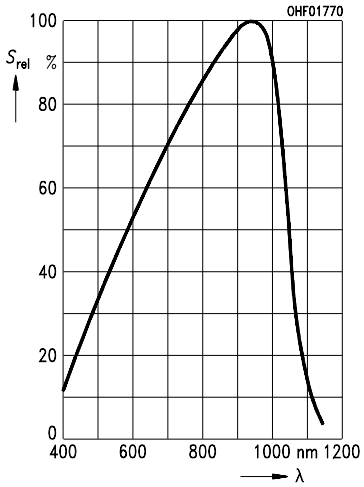
Kennwerte (T_A = 25 °C, Normlicht A, T = 2856 K)
Characteristics (T_A = 25 °C, standard light A, T = 2856 K)

Bezeichnung Description	Symbol Symbol	Wert Value	Einheit Unit
Fotoempfindlichkeit, V_R = 5 V Spectral sensitivity	S	180 (≥ 100)	nA/lx
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\ max}$	920	nm
Spektraler Bereich der Fotoempfindlichkeit S = 10 % von S_{max} Spectral range of sensitivity S = 10 % 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 V Dark current	I_R	10 (≤ 100)	nA

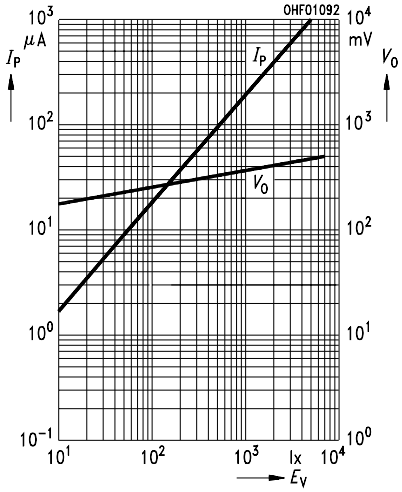
Kennwerte (T_A = 25 °C, Normlicht A, T = 2856 K)
Characteristics (T_A = 25 °C, standard light A, T = 2856 K)

Bezeichnung **Description**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Spektrale Fotoempfindlichkeit, λ = 850 nm Spectral sensitivity	S_λ	0.60	A/W
Quantenausbeute, λ = 850 nm Quantum yield	η	0.86	Electrons Photon
Leerlaufspannung, E_v = 1000 lx Open-circuit voltage	V_O	365 (≥ 310)	mV
Kurzschlußstrom, E_v = 1000 lx Short-circuit current	I_{SC}	180	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	25	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	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 V, λ = 850 nm	NEP	9.4×10^{-14}	$\frac{W}{\sqrt{Hz}}$
Nachweisgrenze, V_R = 20 V, λ = 850 nm Detection limit	D*	4.7×10^{12}	$\frac{cm \cdot \sqrt{Hz}}{W}$

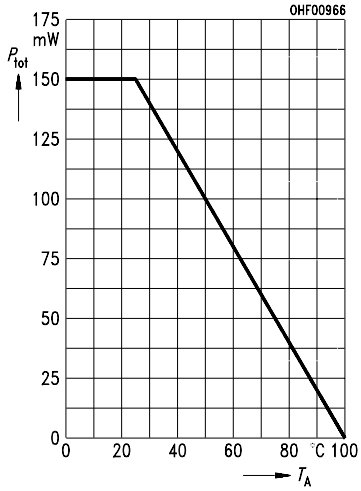
Relative spectral sensitivity
$S_{rel} = f\ (\lambda)$



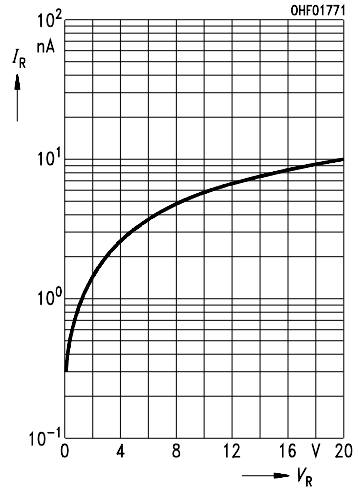
Photocurrent $I_P = f\ (E_v)$, V_R = 5 V
Open-circuit-voltage $V_O = f\ (E_v)$



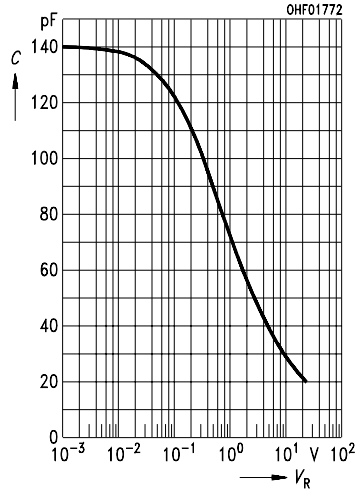
Total power dissipation
$P_{tot} = f\ (T_A)$



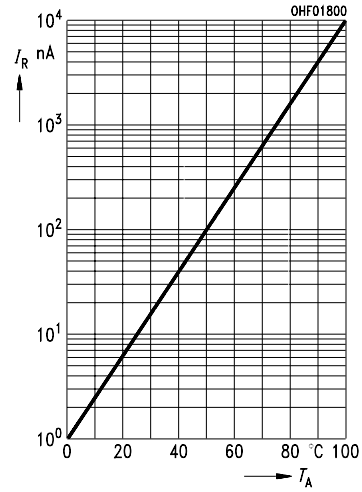
Dark current
$I_R = f\ (V_R)$, E = 0



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