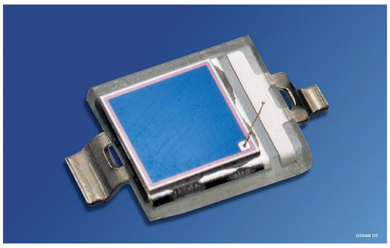
Silizium-PIN-Fotodiode
Silicon PIN Photodiode
Lead (Pb) Free Product - RoHS Compliant

BP 104 S



BP 104 S

Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 400 nm bis 1100 nm
- Kurze Schaltzeit (typ. 20 ns)
- Geeignet für Vapor-Phase Löten und IR-Reflow-Löten
- SMT-fähig

Anwendungen

- Lichtschranken für Gleich- und Wechsellichtbetrieb
- IR-Fernsteuerungen
- Industrieelektronik
- „Messen/Steuern/Regeln“

Features

- Especially suitable for applications from 400 nm to 1100 nm
- Short switching time (typ. 20 ns)
- Suitable for vapor-phase and IR-reflow soldering
- Suitable for SMT

Applications

- Photointerrupters
- IR remote controls
- Industrial electronics
- For control and drive circuits

Typ Type	Bestellnummer Ordering Code
BP 104 S	Q65110A2626

Grenzwerte
Maximum Ratings

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Betriebs- und Lagertemperatur Operating and storage temperature range	T_{op}; T_{stg}	– 40 … + 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)

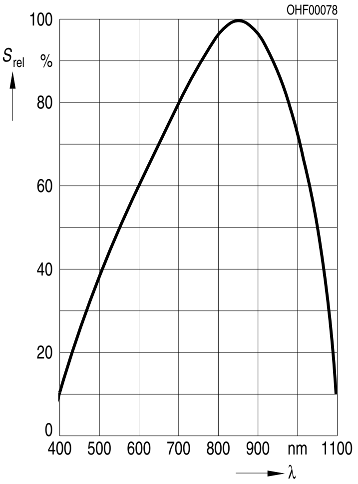
Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Fotostrom $V_R = 5$ V Photocurrent	I_P	55 (≥ 40)	nA/lx
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\ max}$	850	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von S_{max} Spectral range of sensitivity $S = 10\%$ of S_{max}	λ	400 … 1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	4.84	mm^2
Abmessung der bestrahlungsempfindlichen Fläche Dimensions of radiant sensitive area	$L \times B$ $L \times W$	2.20 × 2.20	mm × mm
Halbwinkel Half angle	φ	±60	Grad deg.
Dunkelstrom, $V_R = 10$ V Dark current	I_R	2 (≤30)	nA
Spektrale Fotoempfindlichkeit, $\lambda = 850$ nm Spectral sensitivity	S_λ	0.62	A/W
Quantenausbeute, $\lambda = 850$ nm Quantum yield	η	0.90	Electrons Photon
Leerlaufspannung, $E_V = 1000$ lx Open-circuit voltage	V_O	360 (≥ 280)	mV

Kennwerte (T_A = 25 °C, Normlicht A, T = 2856 K)
Characteristics (T_A = 25 °C, standard light A, T = 2856 K) (cont'd)

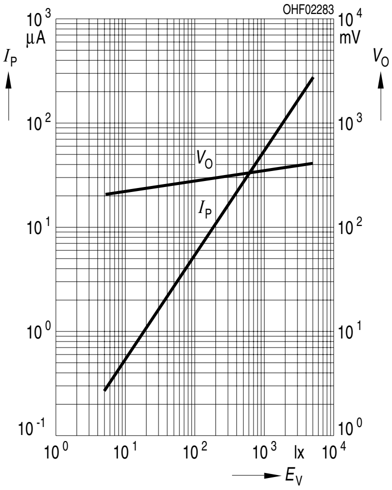
Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Kurzschlussstrom, E_V = 1000 lx Short-circuit current	I_{SC}	50	µA
Anstiegs- und Abfallzeit des Fotostromes Rise and fall time of the photocurrent R_L = 50 Ω; V_R = 5 V; λ = 850 nm; I_p = 800 µA	t_r, t_f	20	ns
Durchlassspannung, 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	48	pF
Temperaturkoeffizient von V_O Temperature coefficient of V_O	TK_V	– 2.6	mV/K
Temperaturkoeffizient von I_{SC} Temperature coefficient of I_{SC}	TK_I	0.18	%/K
Rauschäquivalente Strahlungsleistung Noise equivalent power V_R = 10 V, λ = 850 nm	NEP	3.6×10^{-14}	$\frac{W}{\sqrt{Hz}}$
Nachweisgrenze, V_R = 10 V, λ = 850 nm Detection limit	D*	6.1×10^{12}	$\frac{cm \times \sqrt{Hz}}{W}$

Relative Spectral Sensitivity

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

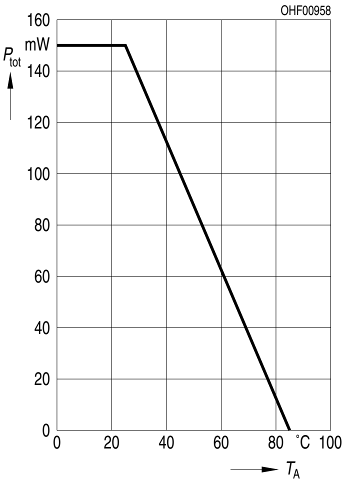


Photocurrent $I_P = f(E_v)$, V_R = 5 V
Open-Circuit Voltage $V_O = f(E_v)$



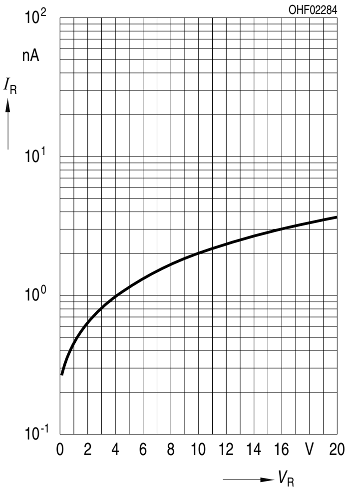
Total Power Dissipation

$P_{tot} = f(T_A)$



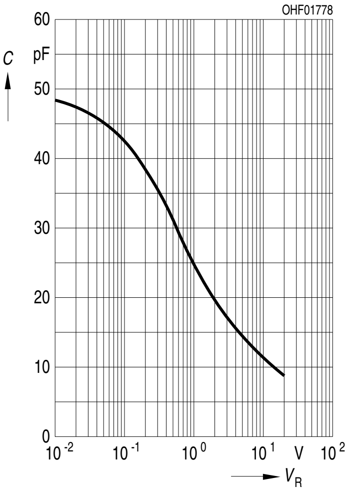
Dark Current

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



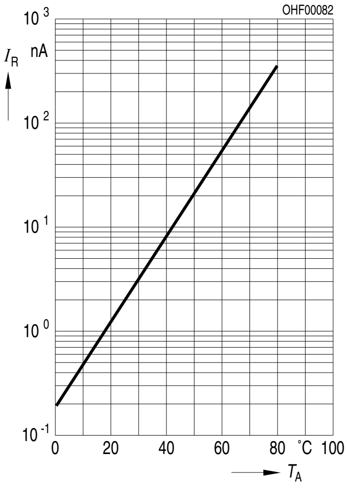
Capacitance

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



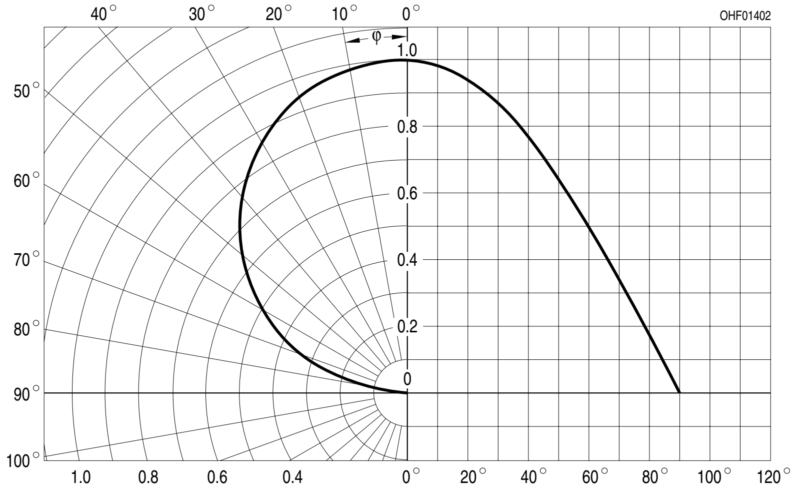
Dark Current

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

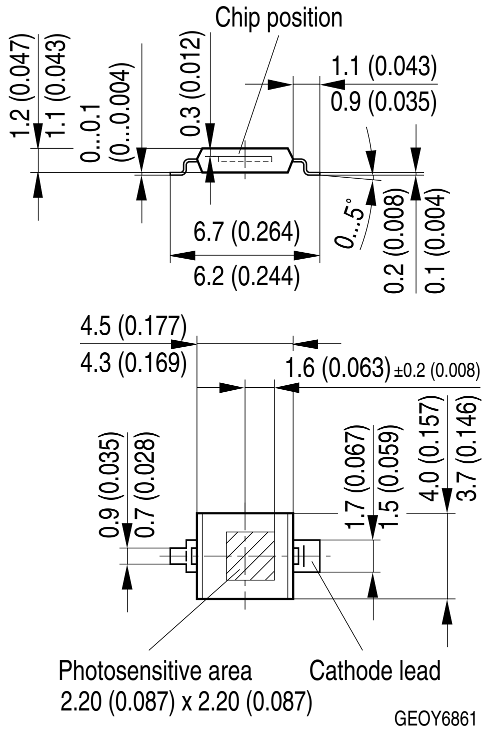


Birectional Characteristics

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

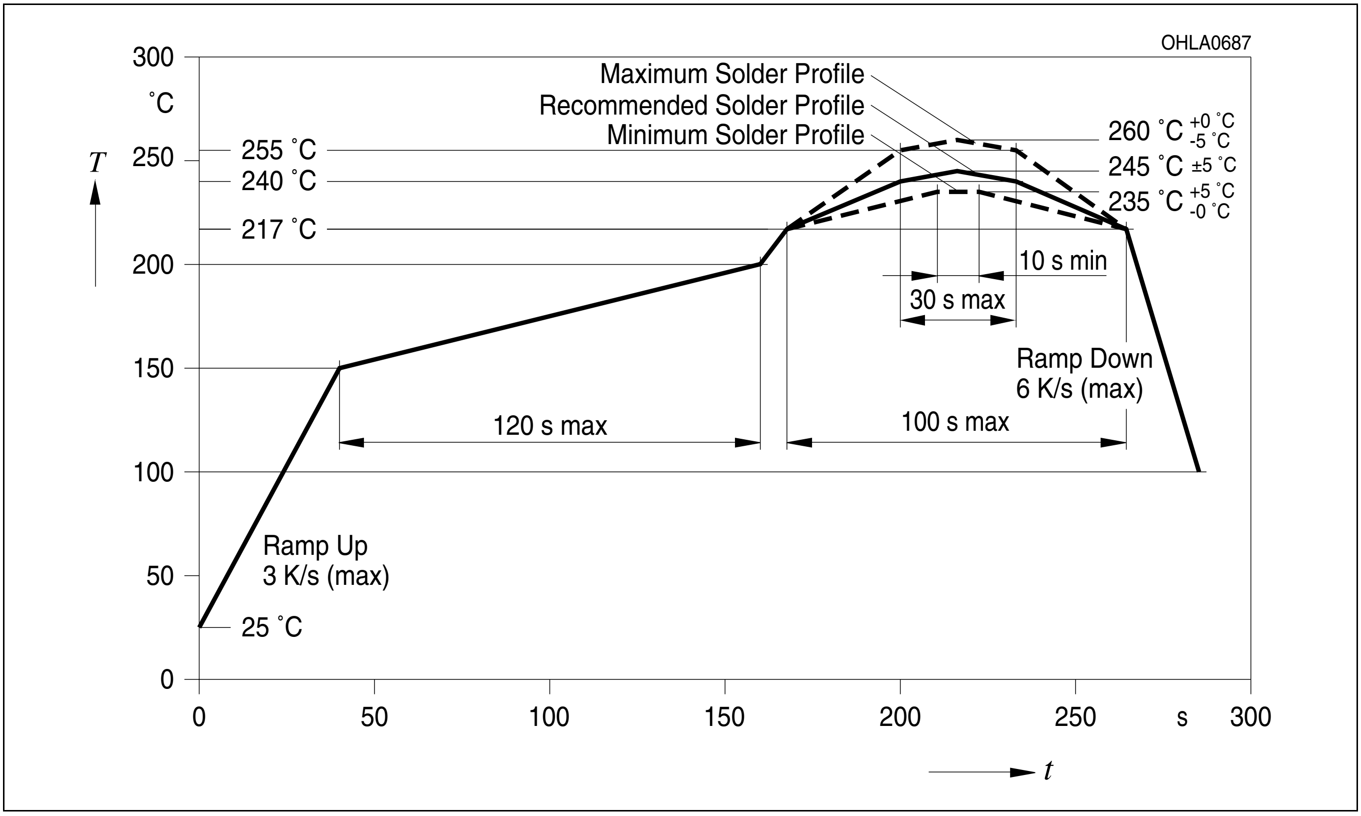


Maßzeichnung
Package Outlines



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

Lötbedingungen Vorbehandlung nach JEDEC Level 4
Soldering Conditions Preconditioning acc. to JEDEC Level 4
IR-Reflow Lötprofil für bleifreies Löten (nach J-STD-020B)
IR Reflow Soldering Profile for lead free soldering (acc. to J-STD-020B)



Published by
OSRAM Opto Semiconductors GmbH
Wernerwerkstrasse 2, D-93049 Regensburg
www.osram-os.com

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