

NPN-Silizium-Fototransistor

Silicon NPN Phototransistor

Lead (Pb) Free Product - RoHS Compliant

BPX 81



Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 450 nm bis 1100 nm
- Hohe Linearität
- Einstellige Zeilenbauform aus klarem Epoxy
- Gruppiert lieferbar

Anwendungen

- Computer-Blitzlichtgeräte
- Miniaturlichtschranken für Gleich- und Wechsellichtbetrieb
- Industrieelektronik
- „Messen/Steuern/Regeln“

Features

- Especially suitable for applications from 450 nm to 1100 nm
- High linearity
- One-digit array package of transparent epoxy
- Available in groups

Applications

- Computer-controlled flashes
- Miniature photointerrupters
- Industrial electronics
- For control and drive circuits

Typ Type	Bestellnummer Ordering Code	Fotostrom , $E_e = 0.5 \text{ mW/cm}^2$, $\lambda = 950 \text{ nm}$, $V_{CE} = 5 \text{ V}$ Photocurrent $I_{PCE} \text{ (mA)}$
BPX 81	Q62702P0020	> 0.25
BPX 81-2/3	Q62702P3583	0.25...0.80
BPX 81-3	Q62702P0043S0003	0.40...0.80
BPX 81-3/4	Q62702P3584	> 0.40
BPX 81-4	Q62702P0043S0004	> 0.63

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
Kollektor-Emitterspannung Collector-emitter voltage	V_{CE}	35	V
Kollektorstrom Collector current	I_C	50	mA
Kollektorspitzenstrom, $\tau < 10 \mu s$ Collector surge current	I_{CS}	200	mA
Verlustleistung, $T_A = 25 \text{ °C}$ Total power dissipation	P_{tot}	90	mW
Wärmewiderstand Thermal resistance	R_{thJA}	750	K/W

Kennwerte ($T_A = 25\text{ °C}$, $\lambda = 950\text{ nm}$)

Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\text{ max}}$	850	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von S_{max} Spectral range of sensitivity $S = 10\%$ of S_{max}	λ	450 ... 1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	0.11	mm ²
Abmessung der Chipfläche Dimensions of chip area	$L \times B$ $L \times W$	0.5×0.5	mm × mm
Halbwinkel Half angle	φ	± 18	Grad deg.
Kapazität Capacitance $V_{CE} = 0\text{ V}$, $f = 1\text{ MHz}$, $E = 0$	C_{CE}	7.5	pF
Dunkelstrom Dark current $V_{CE} = 20\text{ V}$, $E = 0$	I_{CEO}	1 (≤ 50)	nA

Die Fototransistoren werden nach ihrer Fotoempfindlichkeit gruppiert und mit arabischen Ziffern gekennzeichnet.

The phototransistors are grouped according to their spectral sensitivity and distinguished by arabian figures.

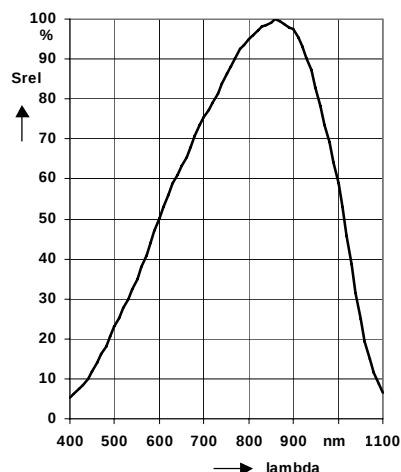
Bezeichnung Parameter	Symbol Symbol	Wert Value			Einheit Unit
		-2	-3	-4	
Fotostrom, $\lambda = 950 \text{ nm}$ Photocurrent $E_e = 0.5 \text{ mW/cm}^2$, $V_{CE} = 5 \text{ V}$ $E_v = 1000 \text{ lx}$, Normlicht/standard light A, $V_{CE} = 5 \text{ V}$	I_{PCE} I_{PCE}	0.25...0.50 1.2	0.40...0.80 1.9	≥ 0.63 2.9	mA mA
Anstiegszeit/Abfallzeit Rise and fall time $I_C = 1 \text{ mA}$, $V_{CC} = 5 \text{ V}$, $R_L = 1 \text{ k}\Omega$	t_r , t_f	5.5	6	8	μs
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage $I_C = I_{PCEmin}^{1)} \times 0.3$ $E_e = 0.5 \text{ mW/cm}^2$	V_{CEsat}	150	150	150	mV

¹⁾ I_{PCEmin} ist der minimale Fotostrom der jeweiligen Gruppe.

¹⁾ I_{PCEmin} is the min. photocurrent of the specified group.

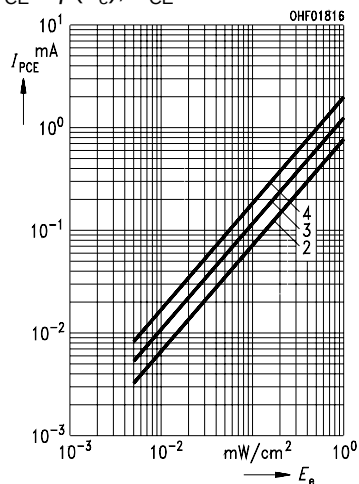
Relative Spectral Sensitivity

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



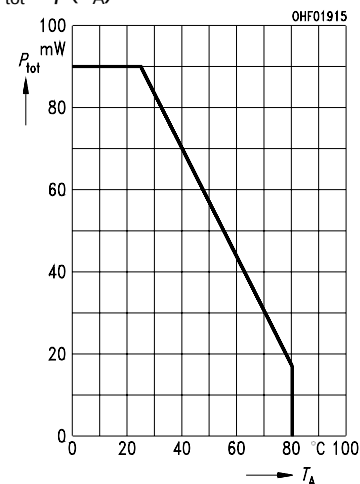
Photocurrent

$$I_{PCE} = f(E_e), V_{CE} = 5 \text{ V}$$



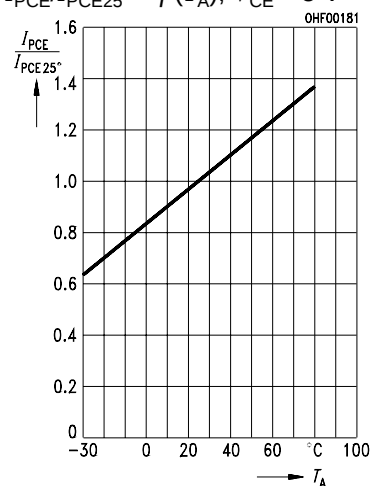
Total Power Dissipation

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



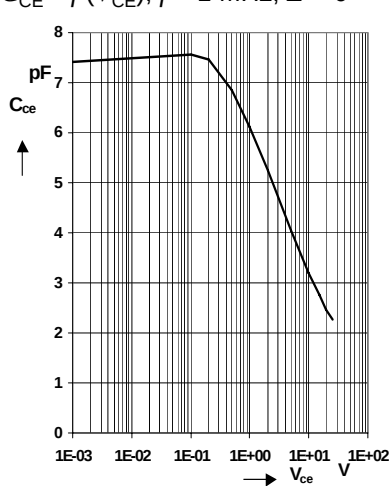
Photocurrent

$$I_{PCE}/I_{PCE25^\circ} = f(T_A), V_{CE} = 5 \text{ V}$$



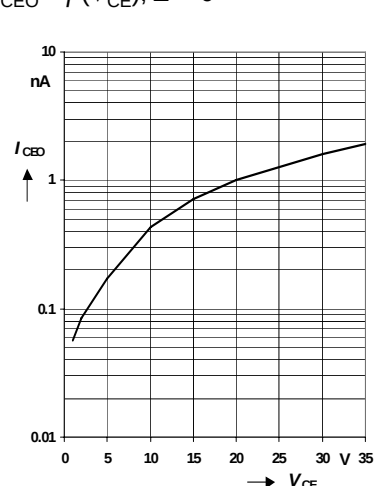
Collector-Emitter Capacitance

$$C_{CE} = f(V_{CE}), f = 1 \text{ MHz}, E = 0$$



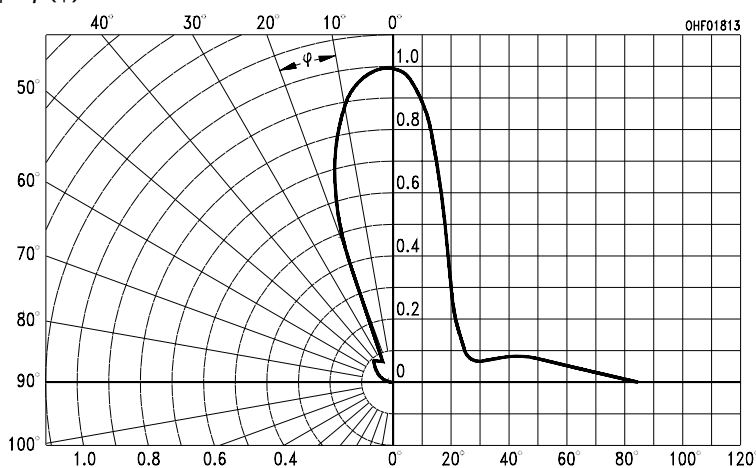
Dark Current

$$I_{CEO} = f(V_{CE}), E = 0$$



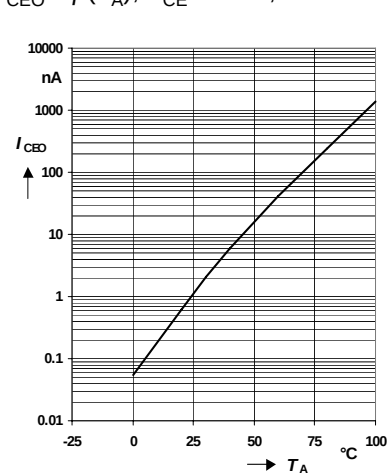
Directional Characteristics

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

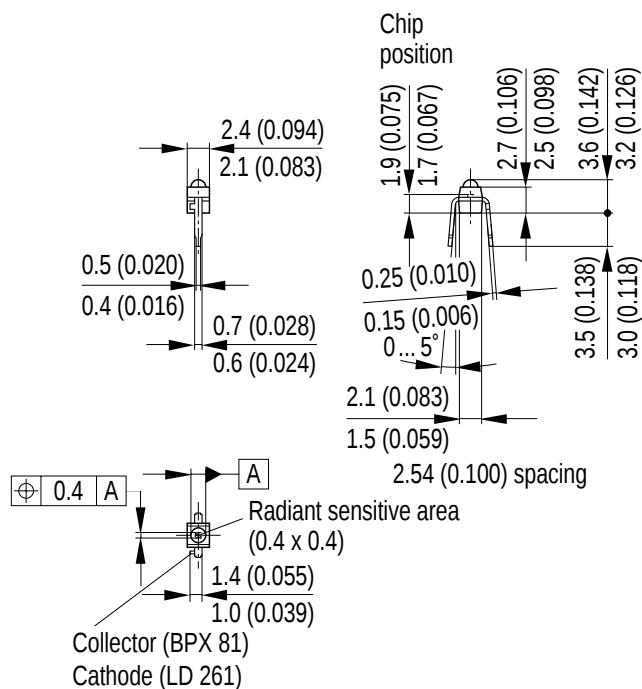


Dark Current

$$I_{CEO} = f(T_A), V_{CE} = 20 \text{ V}, E = 0$$



Maßzeichnung Package Outlines



1) Detaching area for tools, flash not true to size.

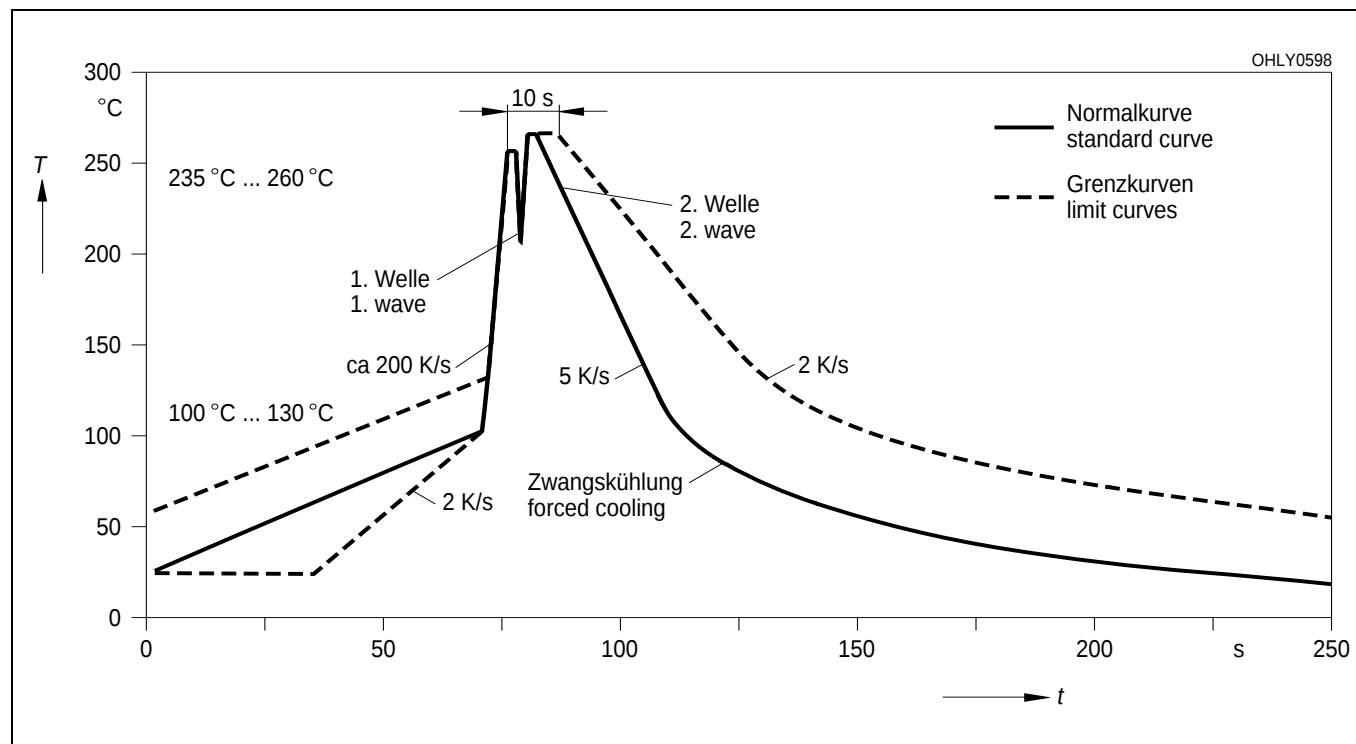
Approx. weight 0.03 g

GEOY6021

Maße in mm (inch) / Dimensions in mm (inch).

Lötbedingungen
Soldering Conditions
Wellenlöten (TTW)
TTW Soldering

(nach CECC 00802)
 (acc. to CECC 00802)



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¹ A critical component is a component used in 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.