

NPN-Silizium-Fototransistor

Silicon NPN Phototransistor

BPX 81



Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 440 nm bis 1070 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 440 nm to 1070 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
BPX 81	Q62702-P20
BPX 81-2/3	Q62702-P3583
BPX 81-3	Q62702-P43-S3
BPX 81-3/4	Q62702-P3584
BPX 81-4	Q62702-P43-S4

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
Löttemperatur bei Tauchlötung Lötstelle ≥ 2 mm vom Gehäuse, Lötzeit $t \leq 3$ s Dip soldering temperature ≥ 2 mm distance from case bottom, soldering time $t \leq 3$ s	T_S	230	°C
Löttemperatur bei Kolbenlötung Lötstelle ≥ 2 mm vom Gehäuse, Lötzeit $t \leq 5$ s Iron soldering temperature ≥ 2 mm distance from case bottom, soldering time $t \leq 5$ s	T_S	300	°C
Kollektor-Emitterspannung Collector-emitter voltage	V_{CE}	32	V
Kollektorstrom Collector current	I_C	50	mA
Kollektorspitzenstrom, $\tau < 10 \mu s$ Collector surge current	I_{CS}	200	mA
Verlustleistung, $T_A = 25^\circ C$ 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	440 ... 1070	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	0.17	mm ²
Abmessung der Chipfläche Dimensions of chip area	$L \times B$ $L \times W$	0.6×0.6	mm × mm
Abstand Chipoberfläche zu Gehäuseoberfläche Distance chip front to case surface	H	1.3 ... 1.9	mm
Halbwinkel Half angle	φ	± 18	Grad deg.
Kapazität Capacitance $V_{\text{CE}} = 0\text{ V}$, $f = 1\text{ MHz}$, $E = 0$	C_{CE}	6	pF
Dunkelstrom Dark current $V_{\text{CE}} = 25\text{ V}$, $E = 0$	I_{CEO}	25 (≤ 200)	nA

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

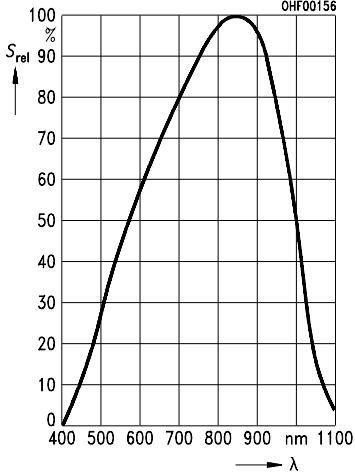
The phototransistors are grouped according to their spectral sensitivity and distinguished by arabian figures.

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 1.4	0.40 ... 0.80 2.2	≥ 0.63 3.4	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

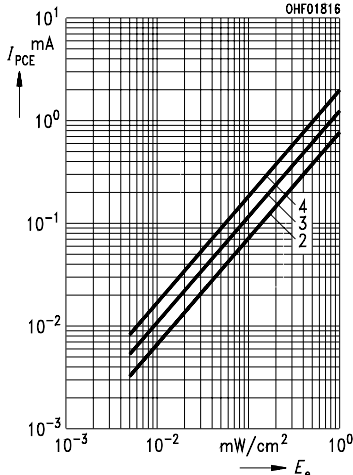
¹⁾ I_{PCEmin} ist der minimale Fotostrom der jeweiligen Gruppe.

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

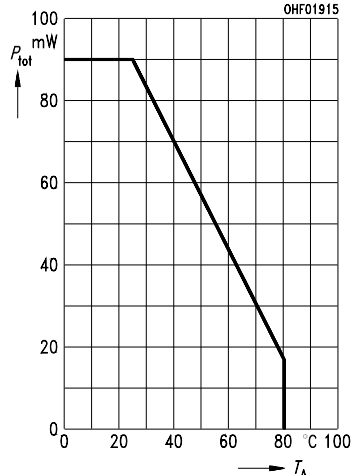
Relative Spectral Sensitivity
 $S_{rel} = f(\lambda)$



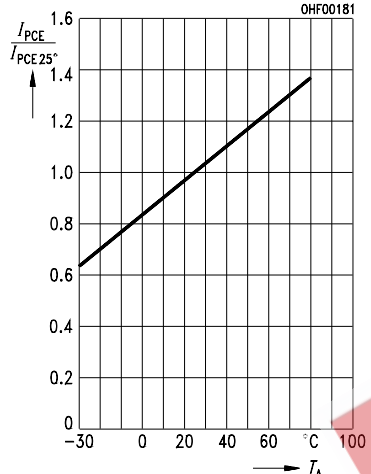
Photocurrent
 $I_{PCE} = f(E_e), V_{CE} = 5 \text{ V}$



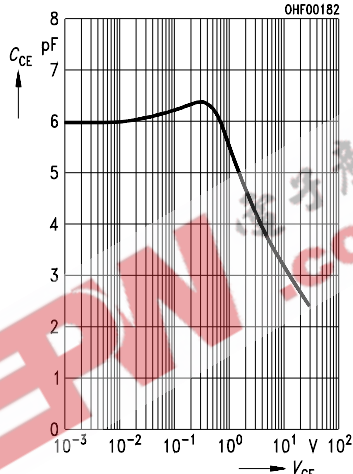
Total Power Dissipation
 $P_{tot} = f(T_A)$



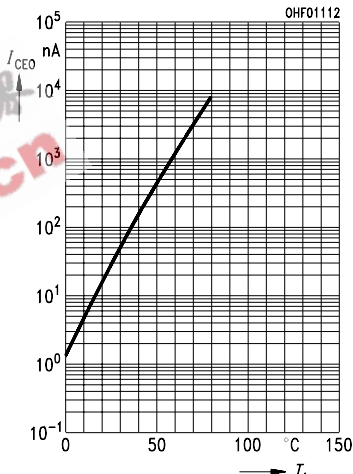
Photocurrent
 $I_{PCE}/I_{PCE25^\circ} = f(T_A), V_{CE} = 5 \text{ V}$



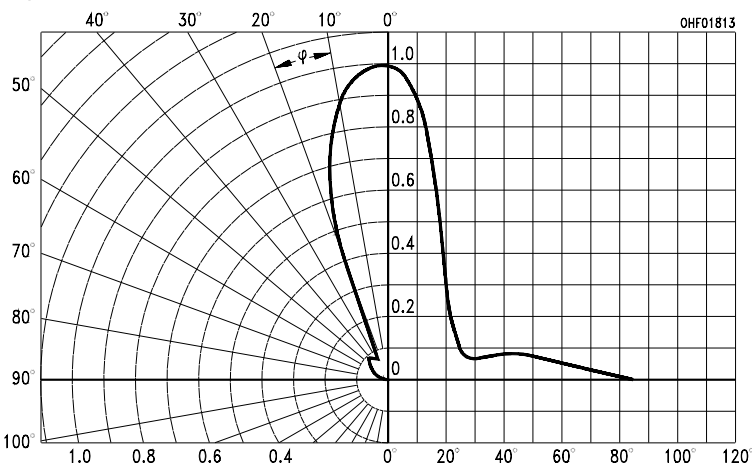
Collector-Emitter Capacitance
 $C_{CE} = f(V_{CE}), f = 1 \text{ MHz}, E = 0$



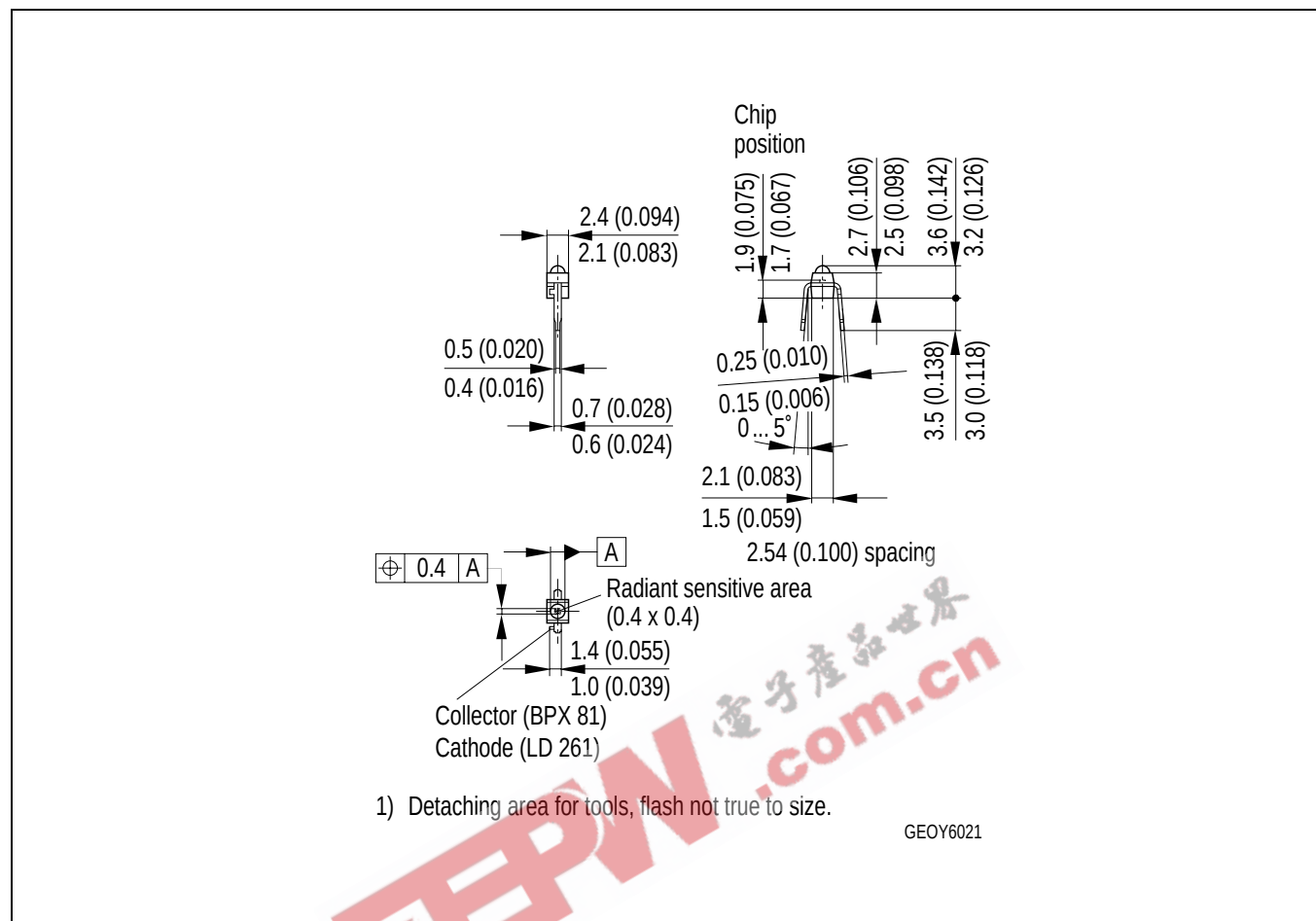
Dark Current
 $I_{CEO} = f(V_{CE}), E = 0$



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



Maßzeichnung Package Outlines



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

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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.

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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.