NPN-Silizium-Fototransistor
Silicon NPN Phototransistor
Lead (Pb) Free Product - RoHS Compliant

BP 103

Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 450 nm bis 1100 nm
- Hohe Linearität
- TO-18, Bodenplatte, klares Epoxy-Gießharz, mit Basisanschluss

Features

- Especially suitable for applications from 450 nm to 1100 nm
- High linearity
- TO-18, base plate, transparent epoxy resin lens, with base connection

Anwendungen

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

Applications

- Computer-controlled flashes
- Photointerrupters
- Industrial electronics
- For control and drive circuits

Typ **Type**	**Bestellnummer** **Ordering Code**	**Fotostrom** , E_e= 0.5mW/cm^2, λ = 950nm, V_{CE} = 5 V **Photocurrent** I_{PCE} (µA)
BP 103	Q62702P0075	> 80
BP 103-3/4	Q62702P3577	> 125…400

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	100	mA
Kollektorspitzenstrom, $\tau < 10$ µs Collector surge current	I_{CS}	200	mA
Emitter-Basisspannung Emitter-base voltage	V_{EB}	7	V
Verlustleistung, T_A = 25 °C Total power dissipation	P_{tot}	150	mW
Wärmewiderstand Thermal resistance	R_{thJA}	500	K/W

Kennwerte (T_A = 25 °C, λ = 950 nm)
Characteristics

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
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	450 … 1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	0.11	mm^2
Abmessungen der Chipfläche Dimensions of chip area	$L \times B$ $L \times W$	0.5 × 0.5	mm × mm
Halbwinkel Half angle	φ	± 55	Grad deg.
Fotostrom der Kollektor-Basis-Fotodiode Photocurrent of collector-base photodiode E_e = 0.5 mW/cm², V_{CB} = 5 V E_v = 1000 lx, Normlicht/standard light A V_{CB} = 5 V	 I_{PCB} I_{PCB}	 1.0 3.1	 µA µA
Kapazität Capacitance V_{CE} = 0 V, f = 1 MHz, E = 0 V_{CB} = 0 V, f = 1 MHz, E = 0 V_{EB} = 0 V, f = 1 MHz, E = 0	 C_{CE} C_{CB} C_{EB}	 7.5 13 19	 pF pF pF
Dunkelstrom Dark current V_{CE} = 20V, E = 0	I_{CEO}	1 (≤ 50)	nA

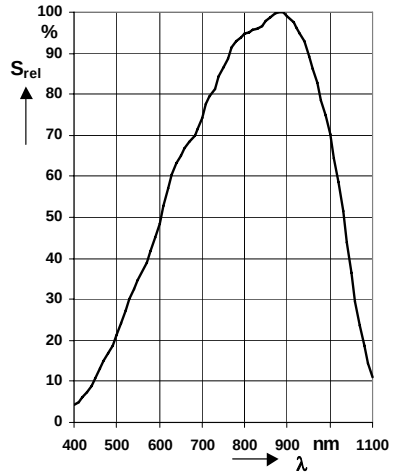
Die Fototransistoren werden nach ihrer Fotoempfindlichkeit gruppiert und mit arabischen Ziffern gekennzeichnet.
The phototransistors are grouped according to their spectral sensitivity and distinguished by arabian figures.

Bezeichnung Parameter	Symbol Symbol	Wert Value				Einheit Unit
		-2	-3	-4	-5	
Fotostrom Photocurrent E_e= 0.5mW/cm², λ = 950nm, V_{CE} = 5 V E_v = 1000 lx ,Normlicht/standard light A V_{CE} = 5 V	I_{PCE} I_{PCE}	80…160 0.38	125…250 0.6	200…400 0.95	≥ 320 1.4	µA mA
Anstiegszeit/Abfallzeit Rise and fall time I_C = 1 mA, V_{CC} = 5 V, R_L = 1 kΩ	t_r, t_f	5	7	9	12	µs
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage $I_C = I_{PCEmin}$[1] × 0.3 E_e = 0.5 mW/cm²	V_{CEsat}	150	150	150	150	mV
Stromverstärkung Current gain E_e = 0.5 mW/cm², V_{CE} = 5 V	$\frac{I_{PCE}}{I_{PCB}}$	120	190	300	480	–

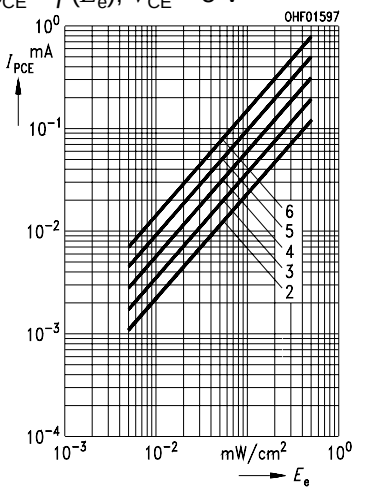
[1] I_{PCEmin} ist der minimale Fotostrom der jeweiligen Gruppe.

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

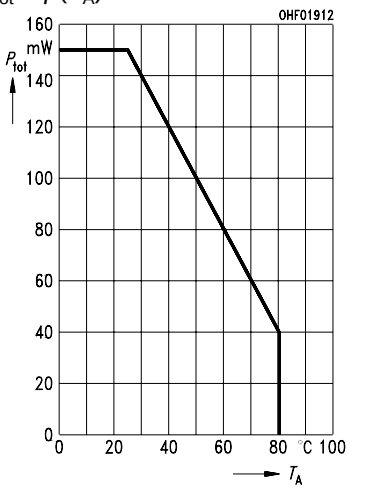
Relative Spectral Sensitivity
$S_{rel} = f(\lambda)$



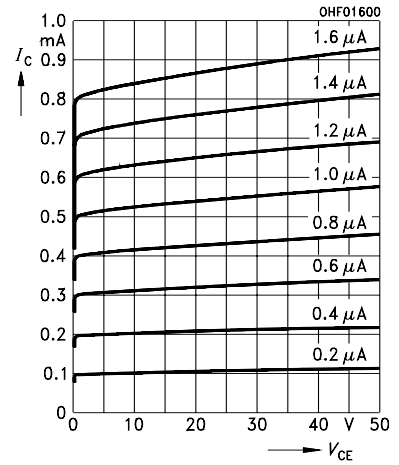
Photocurrent
$I_{PCE} = f(E_e)$, V_{CE} = 5 V



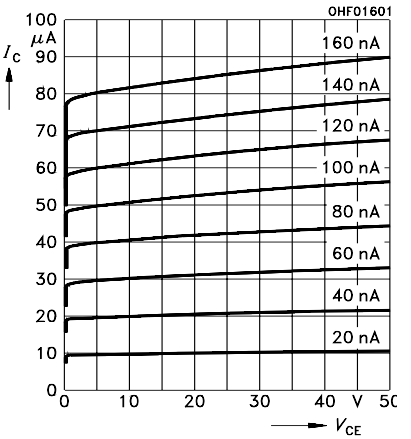
Total Power Dissipation
$P_{tot} = f(T_A)$



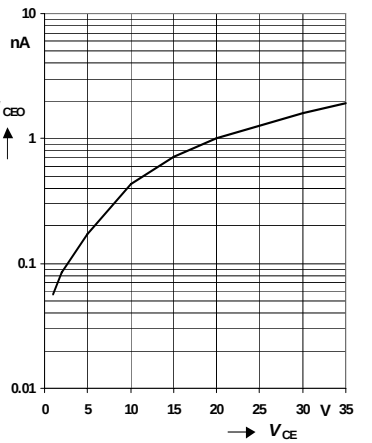
Output Characteristics
$I_C = f(V_{CE})$, I_B = Parameter



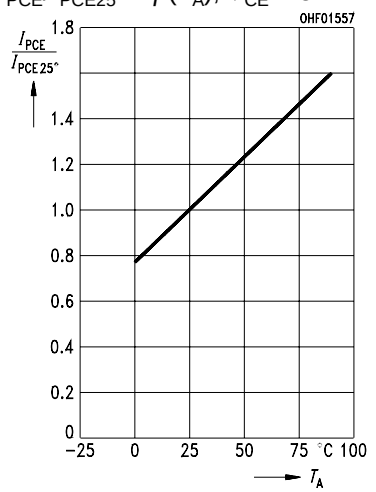
Output Characteristics
$I_C = f(V_{CE})$, I_B = Parameter



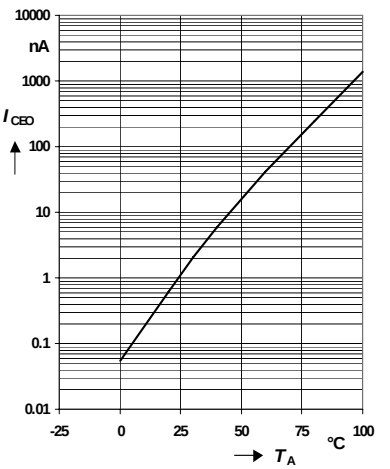
Dark Current
$I_{CEO} = f(V_{CE})$, E = 0



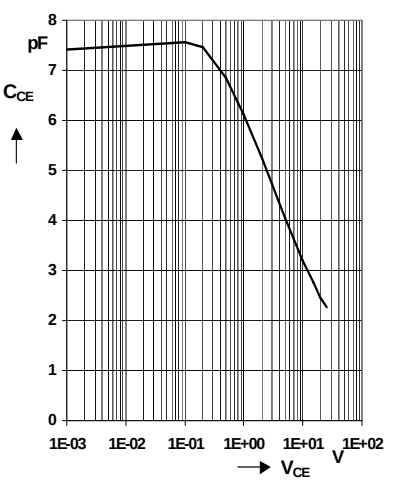
Photocurrent
$I_{PCE}/I_{PCE25°} = f(T_A)$, V_{CE} = 5 V



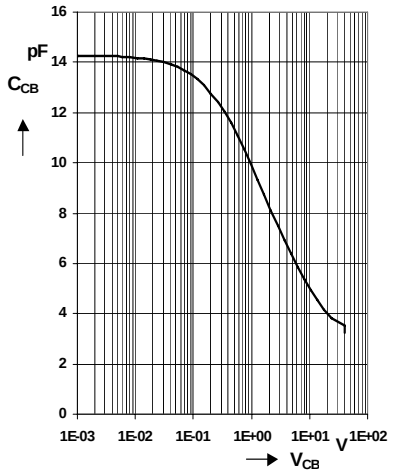
Dark Current
$I_{CEO} = f(T_A)$, V_{CE} = 20 V, E = 0



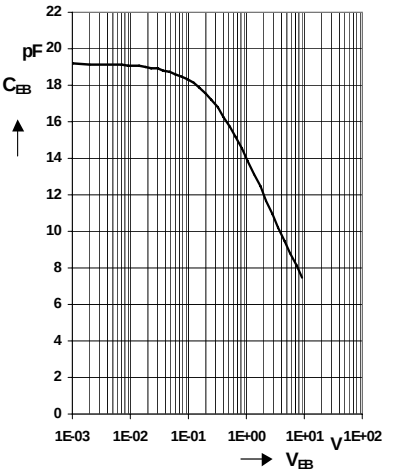
Collector-Emitter Capacitance
$C_{CE} = f(V_{CE})$, f = 1 MHz, E = 0



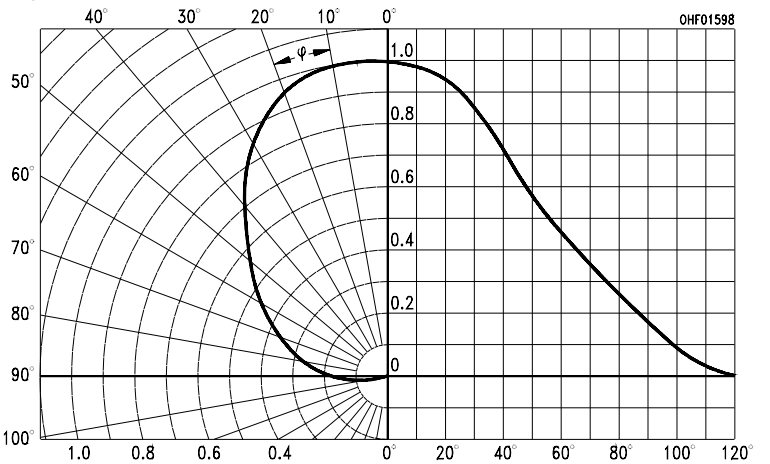
Collector-Emitter Capacitance
$C_{CB} = f(V_{CB})$, f = 1 MHz, E = 0



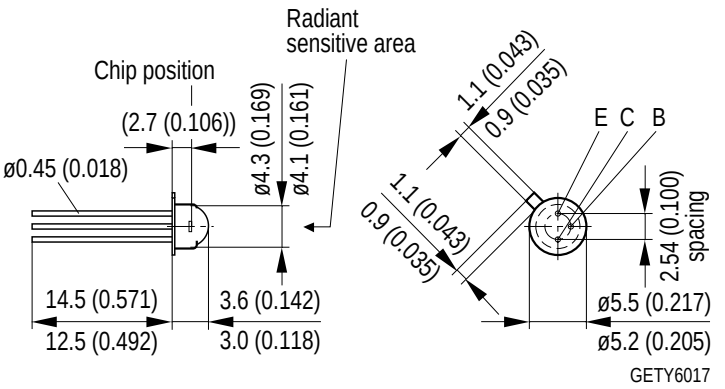
Emitter-Base Capacitance
$C_{EB} = f(V_{EB})$, f = 1 MHz, E = 0



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

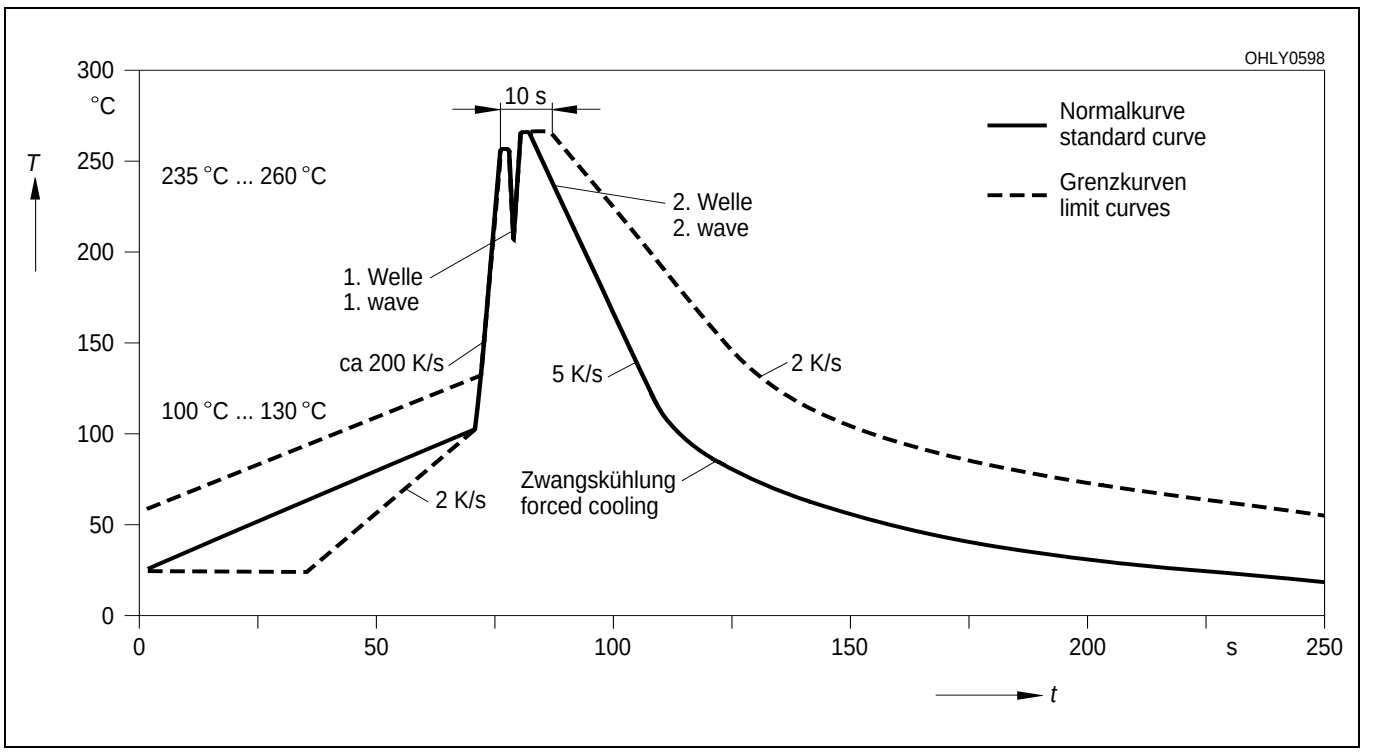


Maßzeichnung
Package Outlines



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

Lötbedingungen
Soldering Conditions
Wellenlöten (TTW) (nach CECC 00802)
TTW Soldering (acc. to CECC 00802)



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