

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

**BPY 62**



**Wesentliche Merkmale**

- Speziell geeignet für Anwendungen im Bereich von 400 nm bis 1100 nm
- Hohe Linearität
- Hermetisch dichte Metallbauform (TO-18) mit Basisanschluss, geeignet bis 125 °C
- Gruppierbar

**Anwendungen**

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

**Features**

- Especially suitable for applications from 400 nm to 1100 nm
- High linearity
- Hermetically sealed metal package (TO-18) with base connection, suitable up to 125 °C
- Available in groups

**Applications**

- Photointerrupters
- Industrial electronics
- For control and drive circuits

<b>Typ Type</b>	<b>Bestellnummer Ordering Code</b>	<b>Fotostrom , <math>E_e = 0.5 \text{ mW/cm}^2</math>, <math>\lambda = 950 \text{ nm}</math>, <math>V_{CE} = 5 \text{ V}</math> Photocurrent <math>I_{PCE} \text{ (mA)}</math></b>
BPY 62	Q60215Y0062	> 0.5
BPY 62-3	Q60215Y1112	0.8...1.6
BPY 62-3/4	Q60215Y5198	0.8...2.5
BPY 62-4	Q60215Y1113	1.25...2.5

**Grenzwerte**  
**Maximum Ratings**

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Betriebs- und Lagertemperatur Operating and storage temperature range	$T_{op}; T_{stg}$	- 40 ... + 125	°C
Kollektor-Emitterspannung Collector-emitter voltage	$V_{CE}$	35	V
Kollektorstrom Collector current	$I_C$	100	mA
Kollektorspitzenstrom, $\tau < 10 \mu s$ Collector surge current	$I_{CS}$	200	mA
Emitter-Basisspannung Emitter-base voltage	$V_{EB}$	7	V
Verlustleistung, $T_A = 25 \text{ °C}$ Total power dissipation	$P_{tot}$	200	mW
Wärmewiderstand Thermal resistance	$R_{thJA}$	500	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	$\lambda_{S\text{ max}}$	830	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von $S_{\text{max}}$ Spectral range of sensitivity $S = 10\%$ of $S_{\text{max}}$	$\lambda$	400 ... 1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	$A$	0.11	mm <sup>2</sup>
Abmessung der Chipfläche Dimensions of chip area	$L \times B$ $L \times W$	$0.5 \times 0.5$	mm $\times$ mm
Halbwinkel Half angle	$\varphi$	$\pm 8$	Grad deg.
Fotostrom der Kollektor-Basis-Fotodiode Photocurrent of collector-base photodiode $E_e = 0.5\text{ mW/cm}^2$ , $V_{CB} = 5\text{ V}$ $E_v = 1000\text{ lx}$ , Normlicht/standard light A, $V_{CB} = 5\text{ V}$	$I_{PCB}$ $I_{PCB}$	5.5 17	$\mu\text{A}$ $\mu\text{A}$
Kapazität Capacitance $V_{CE} = 0\text{ V}$ , $f = 1\text{ MHz}$ , $E = 0$ $V_{CB} = 0\text{ V}$ , $f = 1\text{ MHz}$ , $E = 0$ $V_{EB} = 0\text{ V}$ , $f = 1\text{ MHz}$ , $E = 0$	$C_{CE}$ $C_{CB}$ $C_{EB}$	7.5 14 19	pF pF pF
Dunkelstrom Dark current $V_{CE} = 20\text{ V}$ , $E = 0$	$I_{CEO}$	1 ( $\leq 50$ )	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.

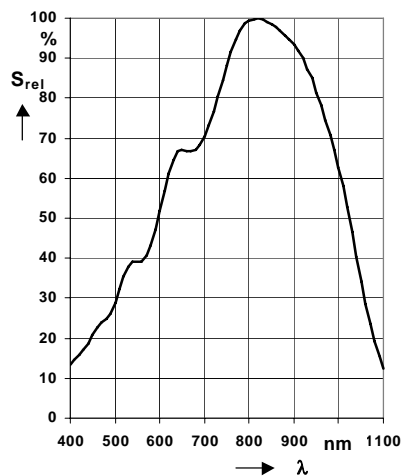
Bezeichnung Parameter	Symbol Symbol	Wert Value				Einheit Unit
		-2	-3	-4	-5	
Fotostrom Photocurrent $E_e = 0.5 \text{ mW/cm}^2$ , $\lambda = 950 \text{ nm}$ , $V_{CE} = 5 \text{ V}$ $E_v = 1000 \text{ lx}$ , Normlicht/standard light A, $V_{CE} = 5 \text{ V}$	$I_{PCE}$ $I_{PCE}$	0.5...1.0 2.4	0.8...1.6 3.8	1.25...2.5 5.8	$\geq 2.0$ 9.6	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	7	9	12	$\mu\text{s}$
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	160	180	mV
Stromverstärkung Current gain $E_e = 0.5 \text{ mW/cm}^2$ , $V_{CE} = 5 \text{ V}$	$\frac{I_{PCE}}{I_{PCB}}$	140	220	340	550	–

<sup>1)</sup>  $I_{PCEmin}$  ist der minimale Fotostrom der jeweiligen Gruppe.

<sup>1)</sup>  $I_{PCEmin}$  is the min. photocurrent of the specified group.

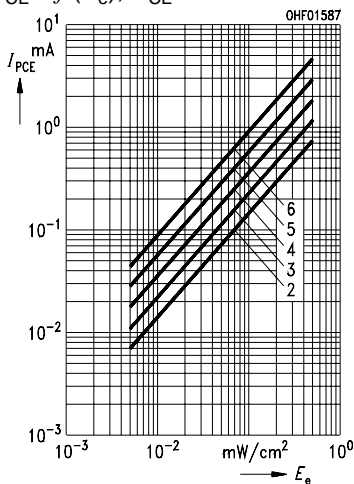
**Relative Spectral sensitivity**

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



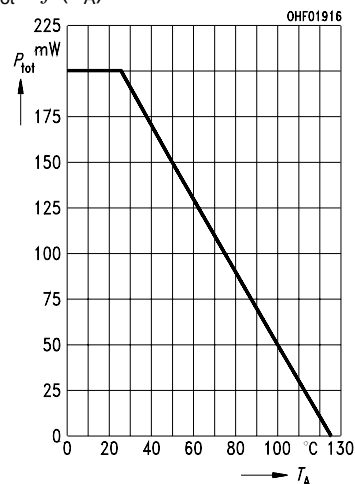
**Photocurrent**

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



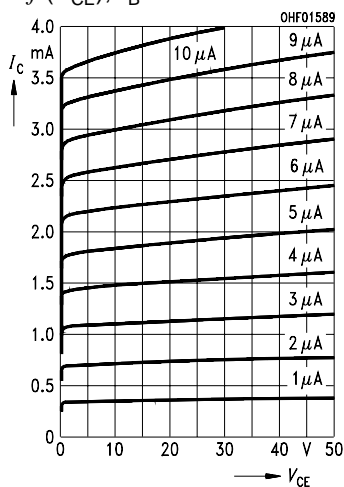
**Total Power Dissipation**

$P_{tot} = f(T_A)$



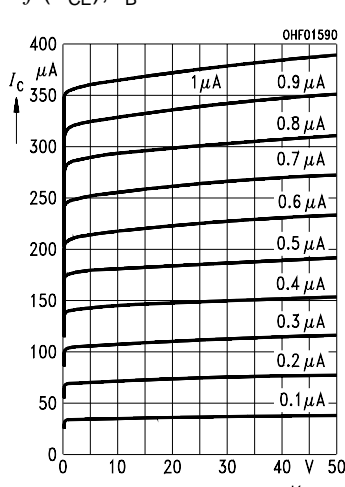
**Output Characteristics**

$I_C = f(V_{CE}), I_B = \text{Parameter}$



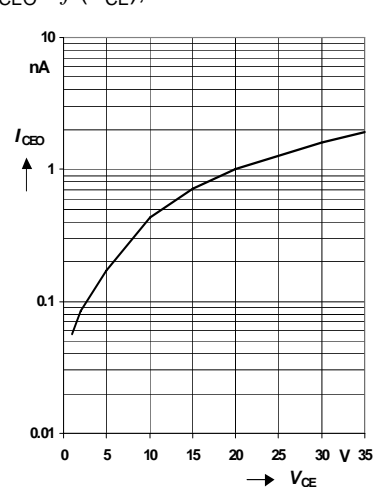
**Output Characteristics**

$I_C = f(V_{CE}), I_B = \text{Parameter}$



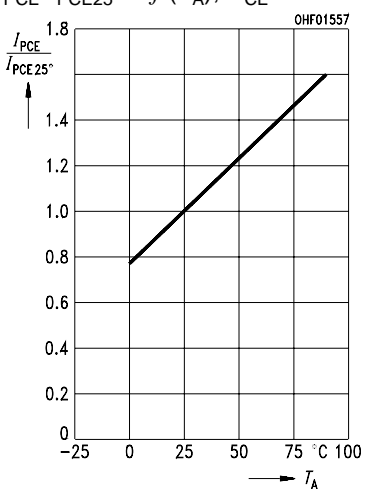
**Dark Current**

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



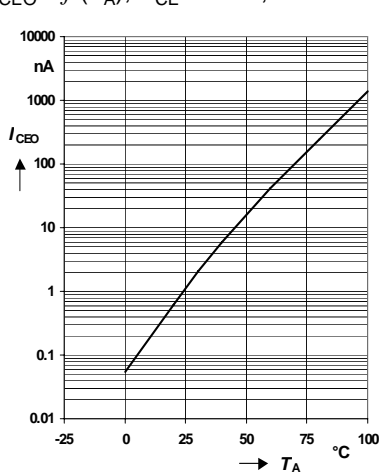
**Photocurrent**

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



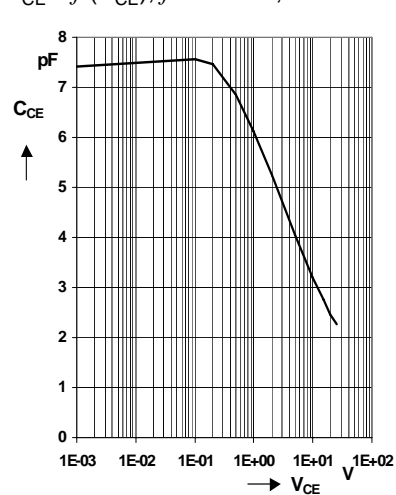
**Dark Current**

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



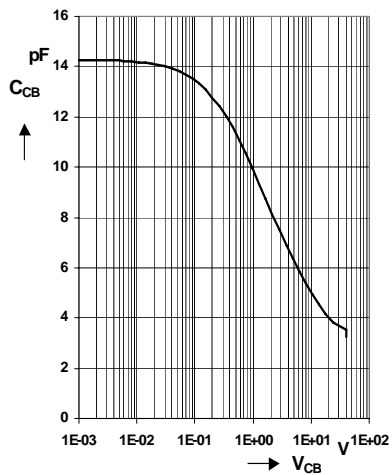
**Collector-Emitter Capacitance**

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



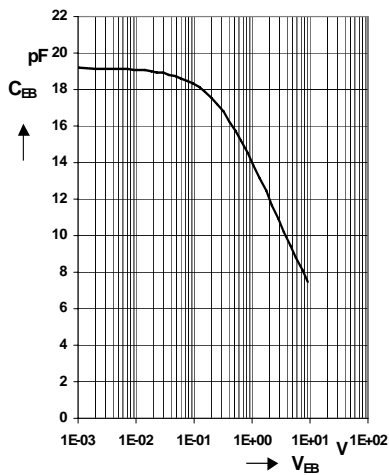
**Collector-Base Capacitance**

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



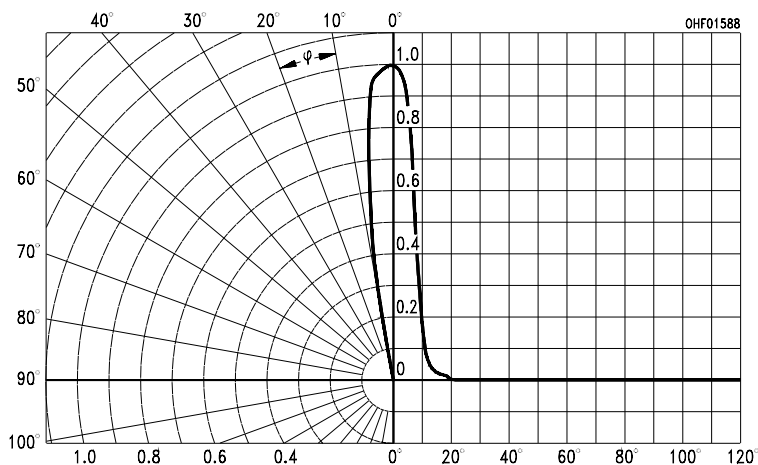
**Emitter-Base Capacitance**

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

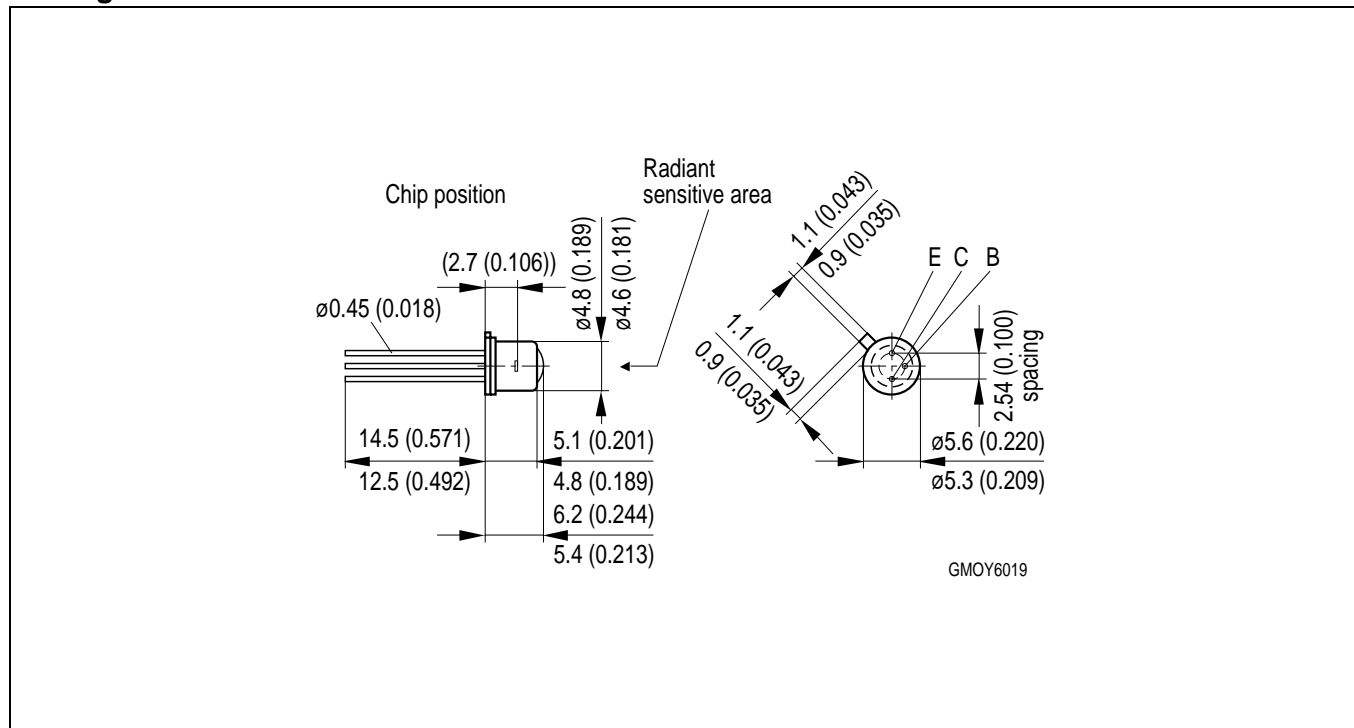


**Directional Characteristics**

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



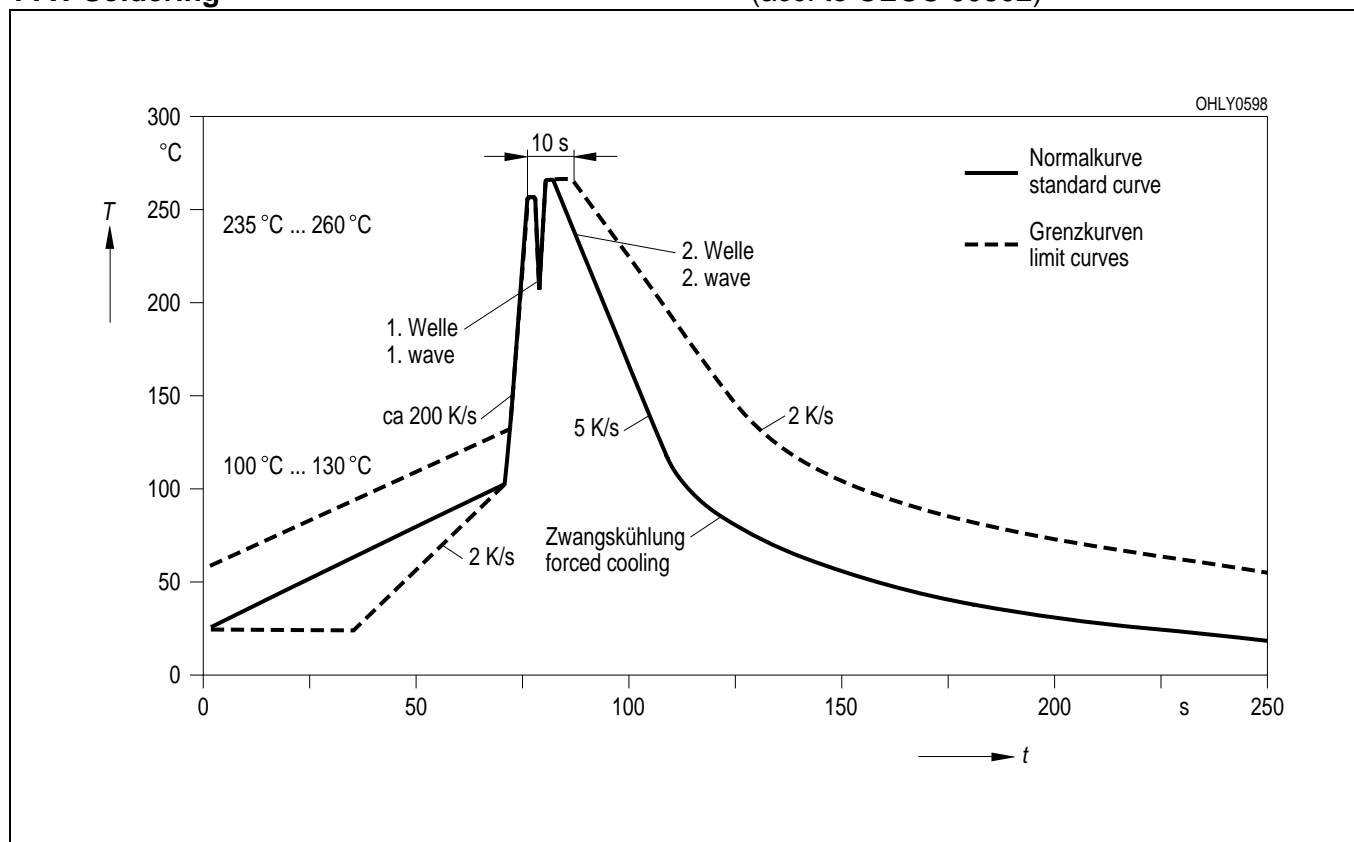
Maßzeichnung  
Package Outlines



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

**Lötbedingungen**  
**Soldering Conditions**  
**Wellenlöten (TTW)**  
**TTW Soldering**

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



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