

# NPN-Si-Fototransistor mit $V_{\lambda}$ Charakteristik

## Silicon NPN Phototransistor with $V_{\lambda}$ Characteristics

### SFH 3410



#### Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 350 nm bis 970 nm
- Angepaßt an die Augenempfindlichkeit ( $V_{\lambda}$ )
- SMT-Bauform ohne Basisanschluß, geeignet für Vapor Phase-Löten und IR-Reflow-Löten (JEDEC level 4)
- Nur gegurtet lieferbar

#### Anwendungen

- Umgebungslicht-Detektor
- Beleuchtungsmesser
- Dimmungssensor für Hintergrundbeleuchtung
- „Messen/Steuern/Regeln“

#### Features

- Especially suitable for applications from 350 nm to 970 nm
- Adapted to human eye sensitivity ( $V_{\lambda}$ )
- SMT package without base connection, suitable for vapor phase and IR reflow soldering (JEDEC level 4)
- Only available on tape and reel

#### Applications

- Ambient light detector
- Exposure meter for daylight and artificial light
- Sensor for Backlight-Dimming
- For control and drive circuits

ISilicon NPN Phototransistor with  $V_{\lambda}$  Characteristics

Typ Type	Bestellnummer Ordering Code	Fotostrom $E_v = 20 \text{ lx}$ , Standard light A, $V_{CE} = 5 \text{ V}$ Photocurrent $I_{pce} (\mu\text{A})$
SFH 3410	Q62702-P5160	>3.2
SFH 3410 -1/2	Q65110A0049	3.2...10
SFH 3410 -2/3	Q65110A0050	5...16
SFH 3410 -3/4	Q65110A0051	8...25

**Grenzwerte** ( $T_A = 25\text{ °C}$ )**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
Kollektor-Emitterspannung Collector-emitter voltage	$V_{CE}$	5.5	V
Kollektorstrom Collector current	$I_C$	20	mA
Emitter-Kollektorspannung Emitter-collector voltage	$V_{EC}$	0.5	V

**Kennwerte** ( $T_A = 25\text{ °C}$ )**Characteristics**

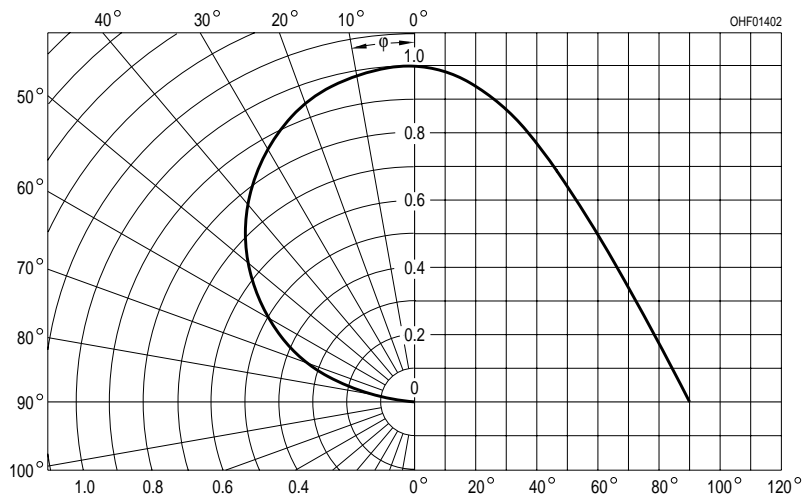
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{Smax}$	570	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von $S_{max}$ Spectral range of sensitivity $S = 10\%$ of $S_{max}$	$\lambda$	350 ... 970	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	$A$	0.29	mm <sup>2</sup>
Abmessung der Chipfläche Dimensions of chip area	$L \times B$ $L \times W$	$0.75 \times 0.75$	mm × mm
Halbwinkel Half angle	$\varphi$	$\pm 60$	Grad. deg.
Kapazität, $V_{CE} = 0\text{ V}$ , $f = 1\text{ MHz}$ , $E = 0$ Capacitance	$C_{CE}$	16	pF
Dunkelstrom Dark current $V_R = 5\text{ V}$	$I_{CEO}$	3 (< 50)	nA
Fotostrom Photocurrent $E_v = 20\text{ lx}$ , Normlicht/standard light A, $V_{CE} = 5\text{ V}$	$I_{PCE}$	>3.2	μA

Bezeichnung Parameter	Symbol Symbol	Wert Value				Einheit Unit
		-1	-2	-3	-4	
Fotostrom Photocurrent $E_V = 20 \text{ lx}$ , Normlicht/standard light A $V_{CE} = 5 \text{ V}$	$I_{PCE}$	3.2...6.3	5...10	8...16	12.5...25	$\mu\text{A}$
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage $I_C = I_{PCEmin}^{1)} \times 0.3$ , $E_V = 20 \text{ lx}$	$V_{CEsat}$	100	100	100	100	mV

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

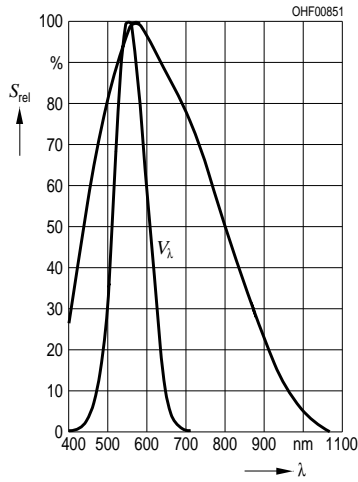
1)  $I_{PCEmin}$  is the min. photocurrent of the specified group

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



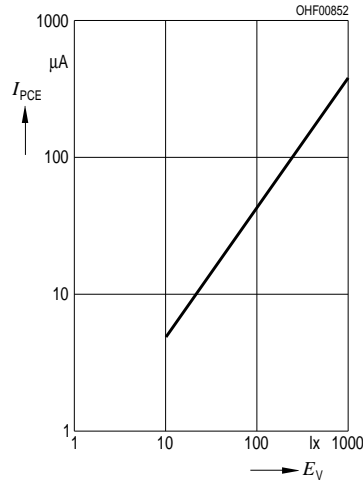
**Relative Spectral Sensitivity**

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



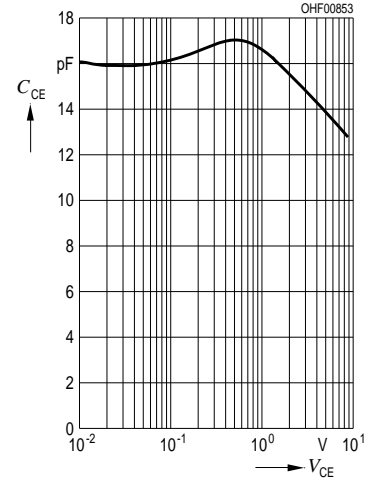
**Photocurrent**

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



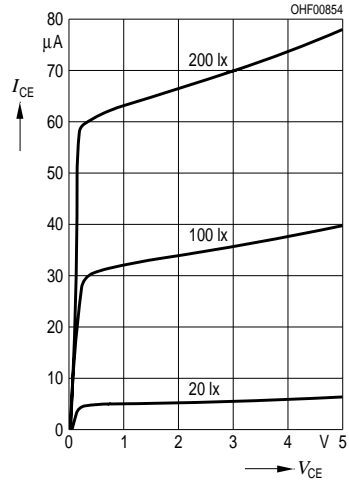
**Collector-Emitter Capacitance**

$C_{CE} = f(V_{CE})$



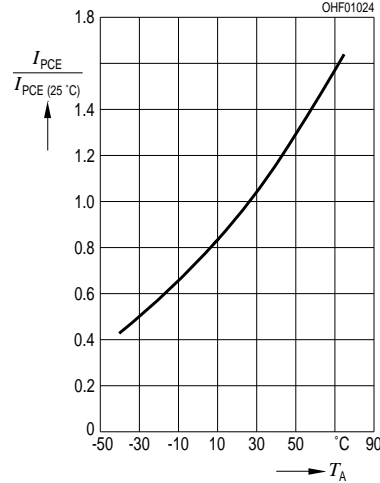
**Collector-Emitter Current**

$I_{CE} = f(V_{CE}; E_V)$

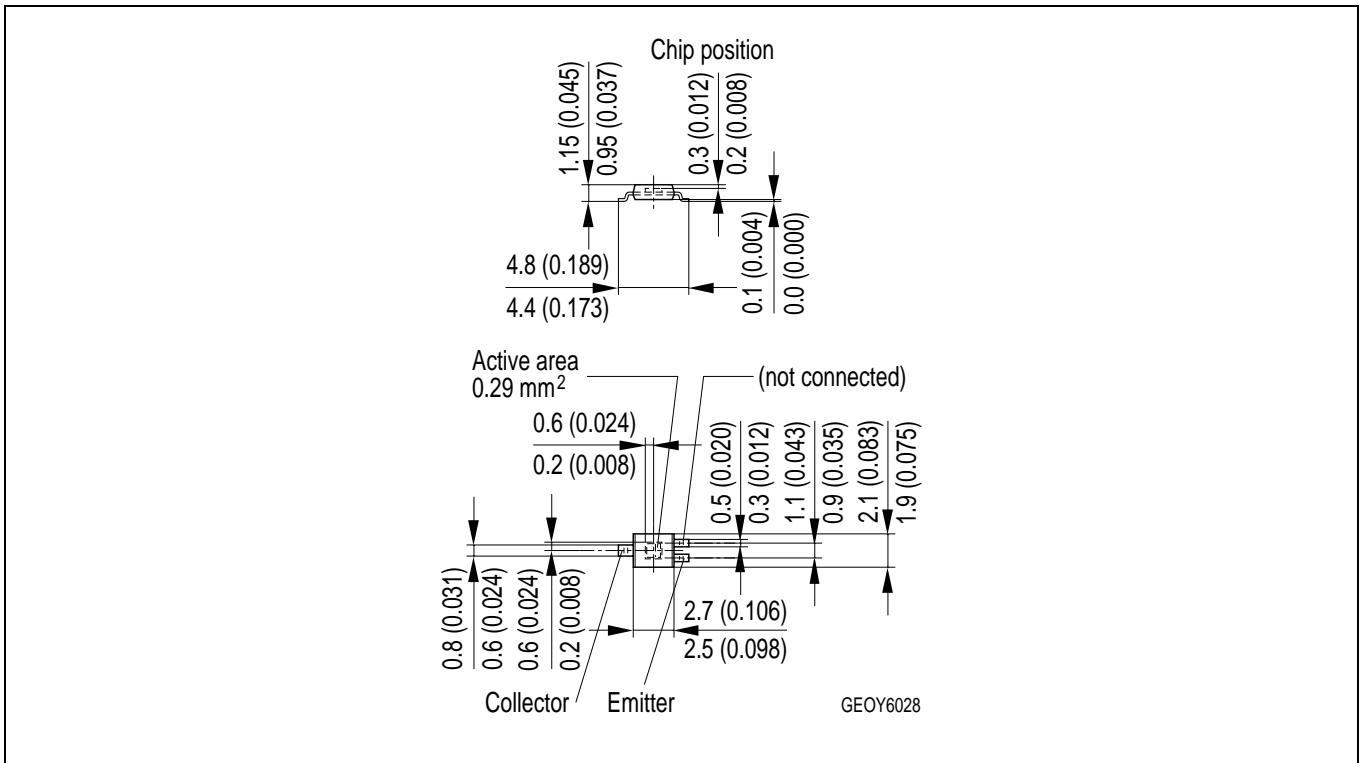


**Photocurrent  $I_{PCE}/I_{PCE(25^\circ C)} = f(T_A)$**

$E_V = 20 \text{ lx}, V_{CE} = 1 V \dots 5 V$



## Maßzeichnung Package Outlines



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

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### Attention please!

The information describes the type of component and shall not be considered as assured characteristics. Terms of delivery and rights to change design reserved. Due to technical requirements components may contain dangerous substances. For information on the types in question please contact our Sales Organization.

### Packing

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.

**Components used in life-support devices or systems must be expressly authorized for such purpose!** Critical components<sup>1</sup>, may only be used in life-support devices or systems<sup>2</sup> with the express written approval of OSRAM OS.

<sup>1</sup> 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.

<sup>2</sup> 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.