

NPN-Si-Fototransistor mit V_{λ} Charakteristik

Silicon NPN Phototransistor with V_{λ} Characteristics

SFH 3410



www.DataSheet4U.com

Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 350 nm bis 970 nm
- Angepaßt an die Augenempfindlichkeit (V_{λ})
- 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_{λ})
- 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_{λ} Characteristics

| Typ Type | Bestellnummer Ordering Code | Fotostrom $E_v = 20$ lx, Standard light A, $V_{CE} = 5$ V Photocurrent I_{pce} (μ 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**

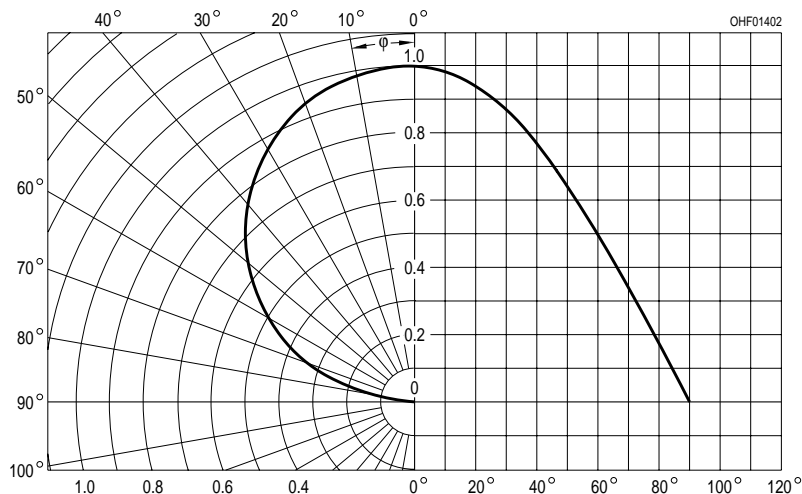
| Bezeichnung Parameter | Symbol Symbol | Wert Value | Einheit Unit |
|--|------------------------------|--------------------|-----------------|
| Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity | λ_{Smax} | 570 | nm |
| Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von S_{max} Spectral range of sensitivity $S = 10\%$ of S_{max} | λ | 350 ... 970 | nm |
| Bestrahlungsempfindliche Fläche Radiant sensitive area | A | 0.29 | mm ² |
| Abmessung der Chipfläche Dimensions of chip area | $L \times B$ $L \times W$ | 0.75×0.75 | mm × mm |
| Halbwinkel Half angle | φ | ± 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 | μA |
| 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

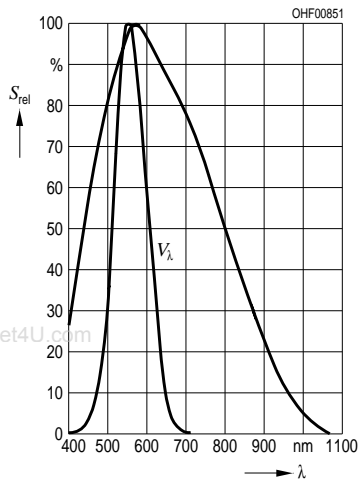
1) I_{PCEmin} is the min. photocurrent of the specified group

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



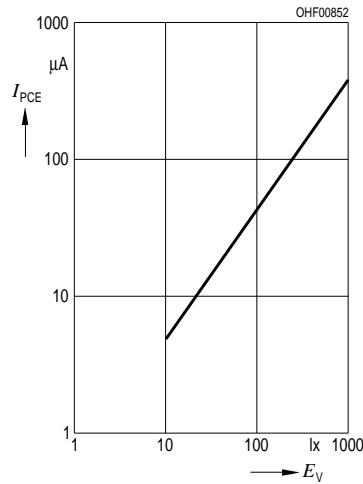
Relative Spectral Sensitivity

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



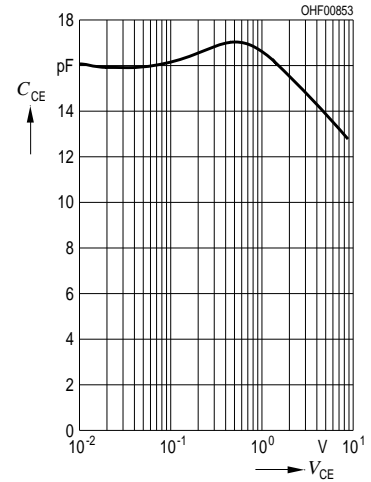
Photocurrent

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



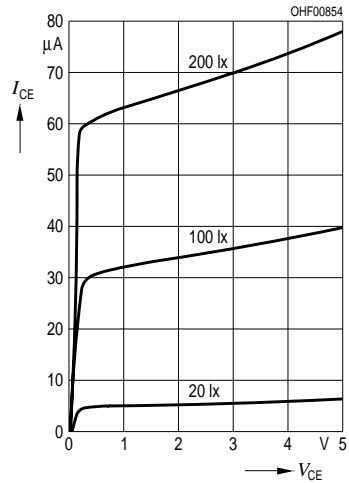
Collector-Emitter Capacitance

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



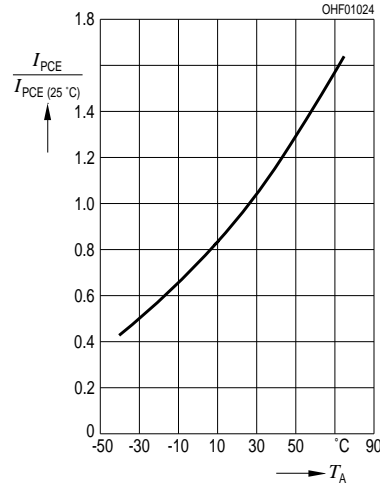
Collector-Emitter Current

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

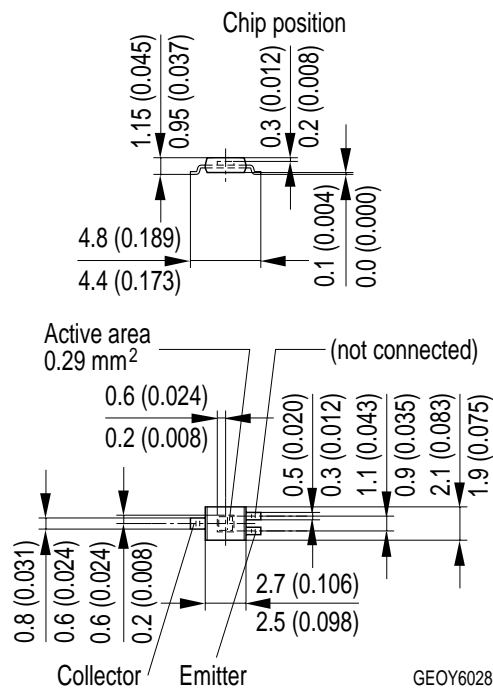


Photocurrent $I_{PCE}/I_{PCE(25^\circ C)} = f(T_A)$

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



Maßzeichnung Package Outlines



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

Published by OSRAM Opto Semiconductors GmbH & Co. OHG
Wernerwerkstrasse 2, D-93049 Regensburg

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