

**NPN-Si-Fototransistor mit  $V_{\lambda}$  Charakteristik**  
**Silicon NPN Phototransistor with  $V_{\lambda}$  Characteristics**  
**Lead (Pb) Free Product - RoHS Compliant**

**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 IR-Reflow-Löten
- 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 IR reflow soldering
- 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

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	Q65110A1211	>3.2
SFH 3410-1/2	Q65110A2653	3.2...10
SFH 3410-2/3	Q65110A2654	5...16
SFH 3410-3/4	Q65110A2655	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**

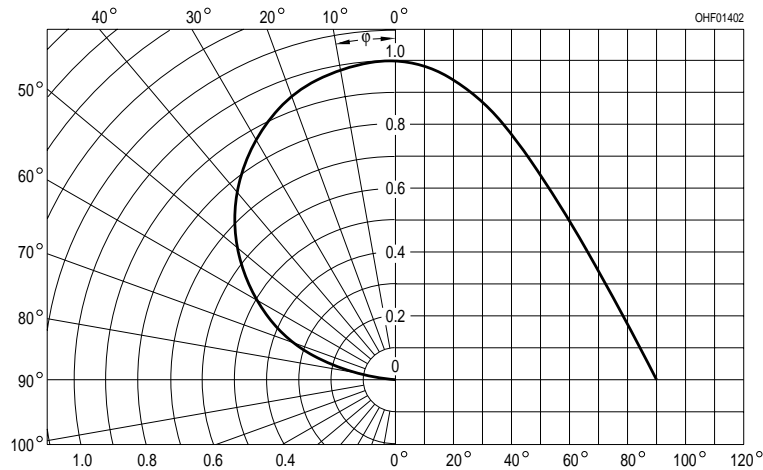
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{Smax}$	570	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von $S_{max}$ Spectral range of sensitivity $S = 10\%$ of $S_{max}$	$\lambda$	350 ... 970	nm
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 × 0.75	mm × mm
Halbwinkel Half angle	$\varphi$	± 60	Grad. deg.
Kapazität, $V_{CE} = 0\text{ V}$ , $f = 1\text{ MHz}$ , $E = 0$ Capacitance	$C_{CE}$	3.9	pF
Dunkelstrom Dark current $V_{CE} = 5\text{ V}$	$I_{CEO}$	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

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

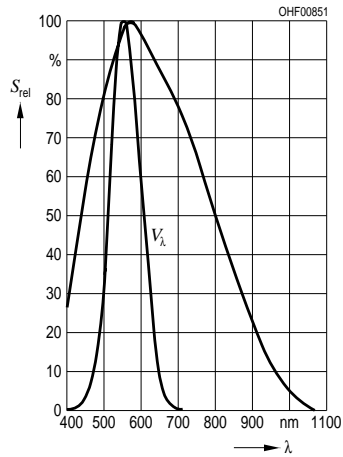
<sup>1)</sup>  $I_{PCEmin}$  is the min. photocurrent of the specified group

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



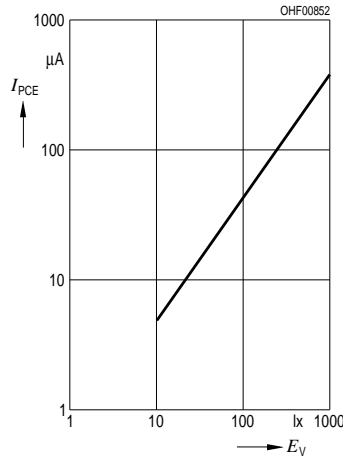
**Relative Spectral Sensitivity**

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



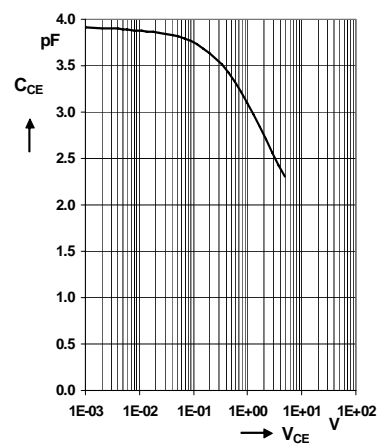
**Photocurrent**

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



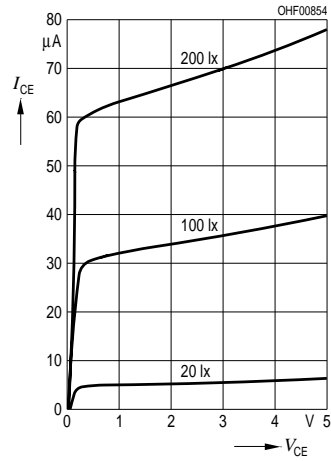
**Collector-Emitter Capacitance**

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



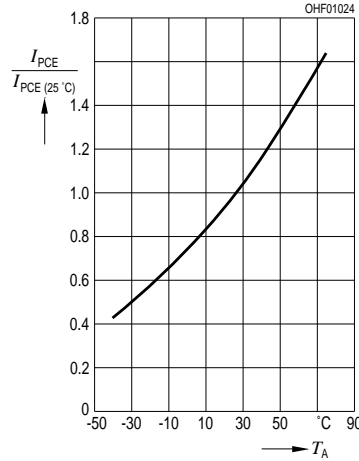
**Collector-Emitter Current**

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

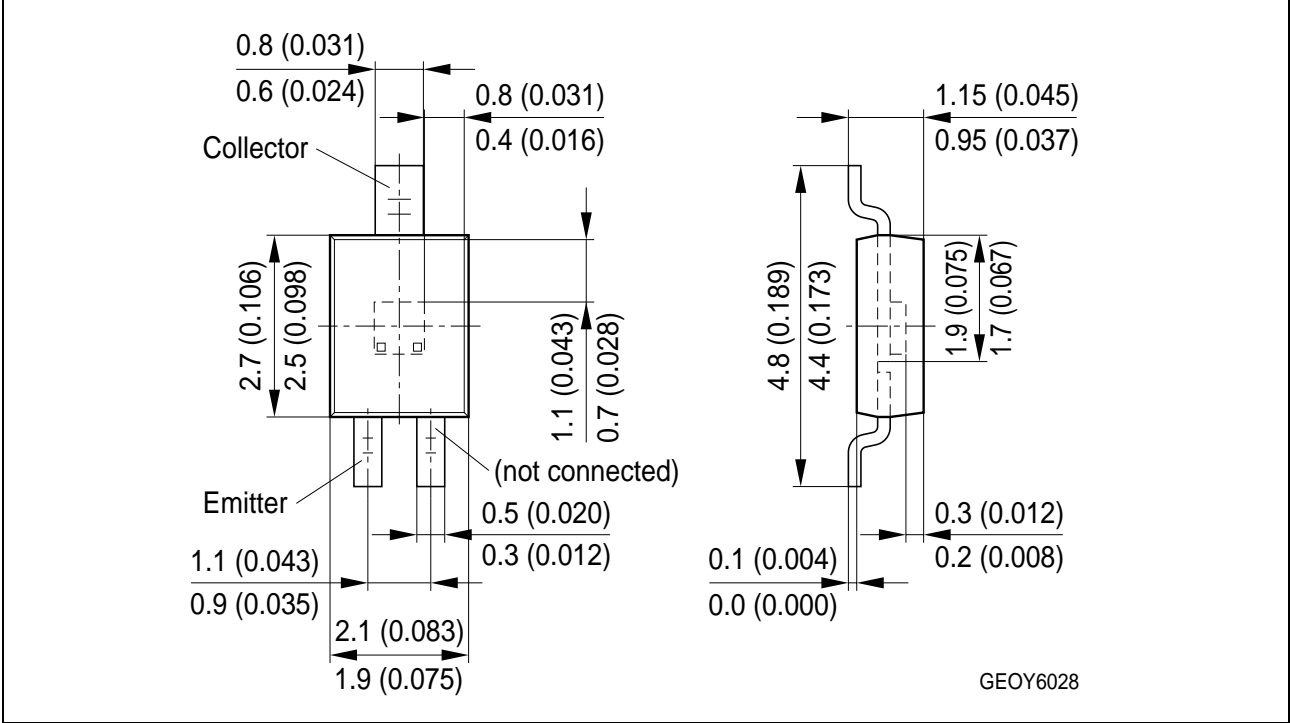


**Photocurrent**

$I_{PCE} / I_{PCE(25^\circ C)} = f(T_A)$   
 $E_V = 20 \text{ lx}, V_{CE} = 1 V \dots 5 V$



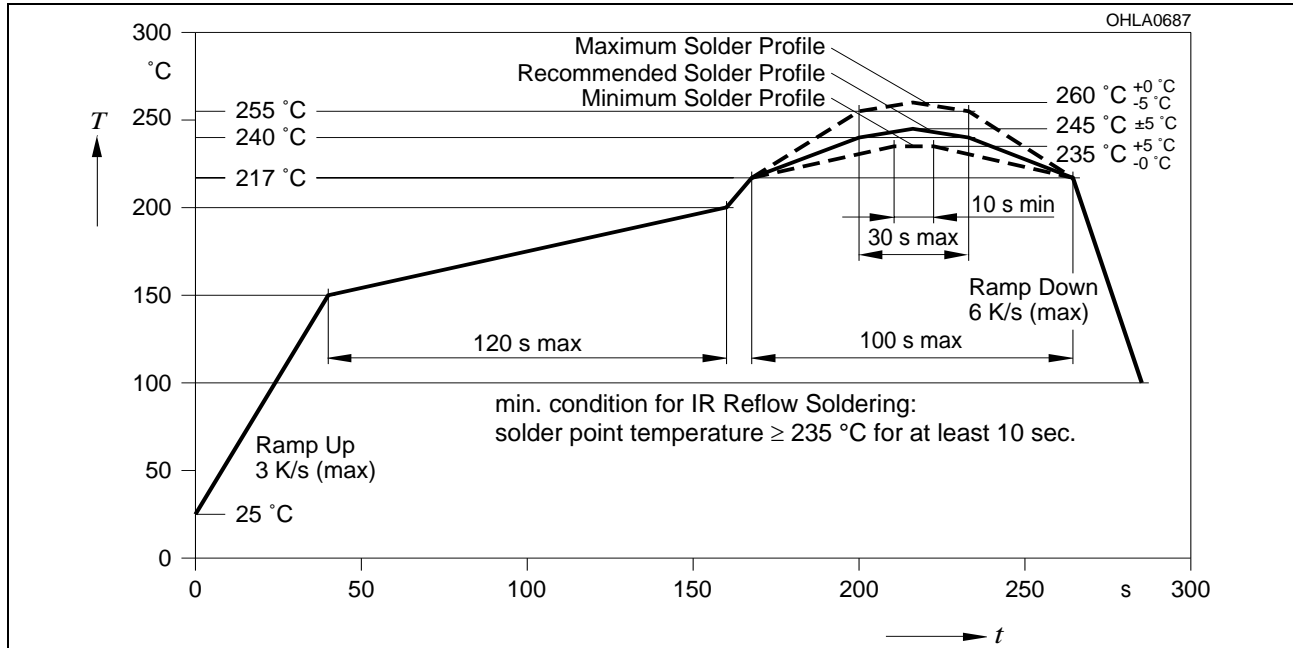
**Maßzeichnung**  
**Package Outlines**



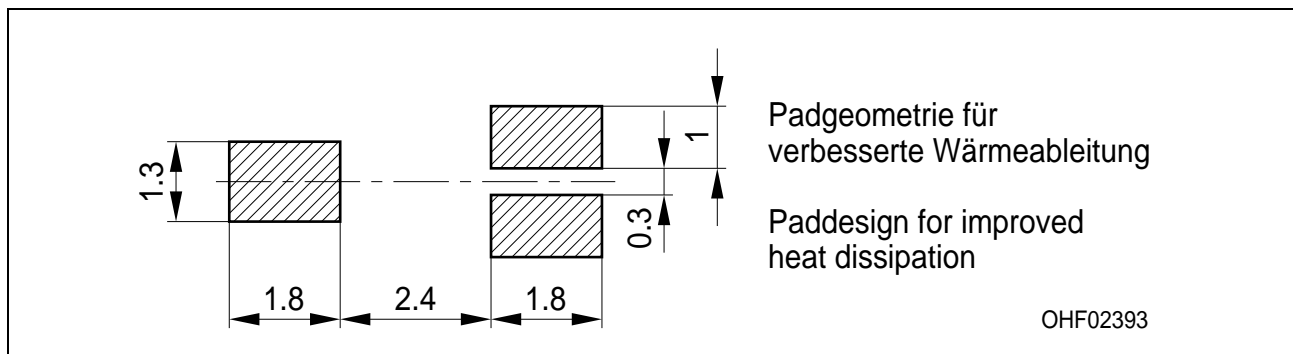
Maße in mm (inch) / Dimensions in mm (inch).

**Lötbedingungen**  
**Soldering Conditions**  
**Reflow Lötprofil für bleifreies Löt**  
**Reflow Soldering Profile for lead free soldering**

Vorbehandlung nach JEDEC Level 4  
 Preconditioning acc. to JEDEC Level 4  
 (nach J-STD-020C)  
 (acc. to J-STD-020C)



**Empfohlenes Lötpad design**  
**Recommended Solderpad Design**



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

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