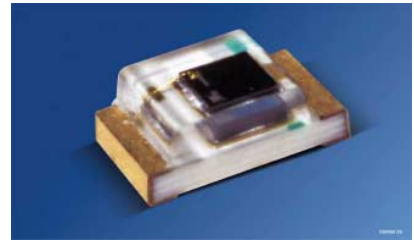


**NPN-Si-Fototransistor mit  $V_{\lambda}$  Charakteristik**  
**Silicon NPN Phototransistor with  $V_{\lambda}$  Characteristics**  
**Lead (Pb) Free Product - RoHS Compliant**

**SFH 3710**



**Wesentliche Merkmale**

- Sehr kleines SMT Gehäuse
- Angepaßt an die Augenempfindlichkeit ( $V_{\lambda}$ )

**Anwendungen**

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

**Features**

- Very small SMT package
- Adapted to human eye sensitivity ( $V_{\lambda}$ )

**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 , $E_e = 10 \mu\text{W}/\text{cm}^2$ , $\lambda = 560 \text{ nm}$ , $V_{\text{CE}} = 5 \text{ V}$ Photocurrent $I_{\text{pce}} (\mu\text{A})$
SFH 3710	Q65110A3107	2.5...12.5
SFH 3710-2/3	Q65110A3512	2.5...8.0
SFH 3710-3/4	Q65110A3511	4.0...12.5

Einzelgruppen auf Anfrage / single bins on request

**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 ... + 85	°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 ... 950	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	$\varphi$	±60	Grad. deg.
Kapazität, $V_{CE} = 0\text{ V}$ , $f = 1\text{ MHz}$ , $E = 0$ Capacitance	$C_{CE}$	4	pF
Dunkelstrom Dark current $V_R = 5\text{ V}$	$I_{CEO}$	3 (< 50)	nA
Temperaturkoeffizient Temperature Coefficient Normlicht A / Standard Light A $\lambda = 550\text{ nm}$	$TK$ $TK_{550\text{ nm}}$	0.9 0.78	%/K %/K

Kennwerte ( $T_A = 25\text{ °C}$ )

## Characteristics

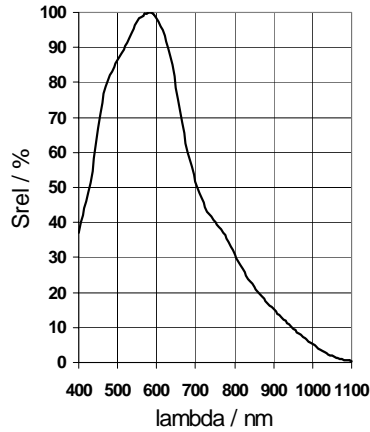
Bezeichnung Parameter	Symbol Symbol	Wert Value			Einheit Unit
		-2	-3	-4	
Fotostrom Photocurrent $E_e = 10\ \mu\text{W}/\text{cm}^2$ , $\lambda = 560\ \text{nm}$ , $V_{CE} = 5\ \text{V}$ $E_v = 1000\ \text{lx}$ , Normlicht/Standard light A	$I_{PCE}$	2.5...5 220	4...8 350	6.3...12.5 570	$\mu\text{A}$ $\mu\text{A}$
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage $I_C = I_{PCEmin}^{1)} \times 0.3$ , $E_e = 10\ \mu\text{W}/\text{cm}^2$ , $\lambda = 560\ \text{nm}$	$V_{CEsat}$	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

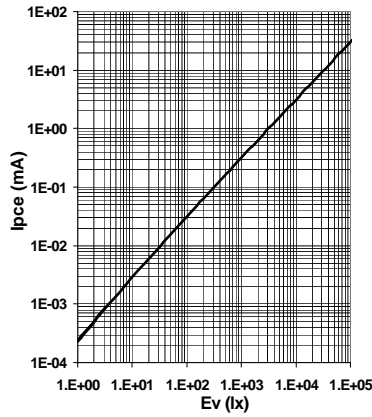
**Relative Spectral Sensitivity**

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



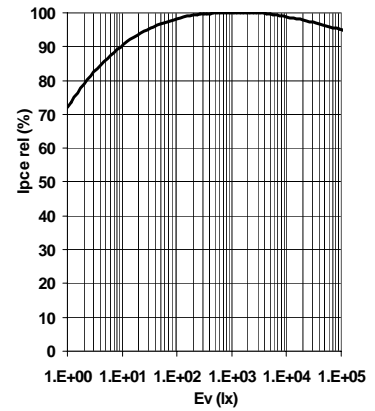
**Photocurrent**

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



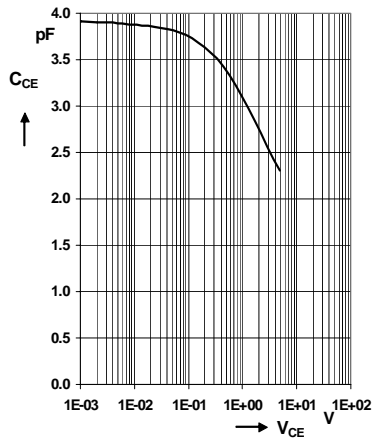
**Photocurrent**

$I_{PCE} = f(E_V), V_{CE} = 5 V$   
normalized to 1000lx



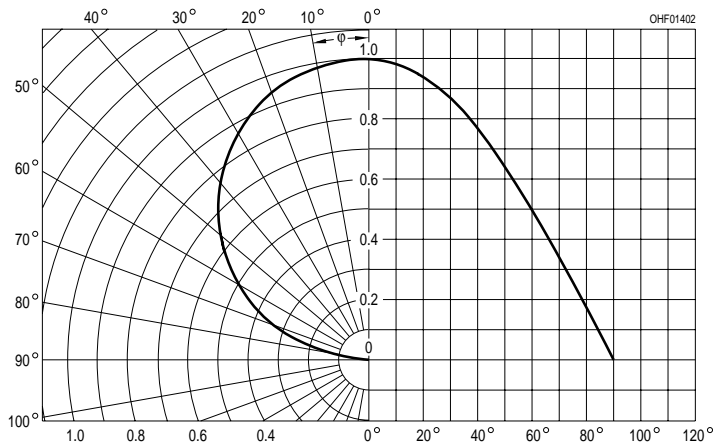
**Collector-Emitter Capacitance**

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

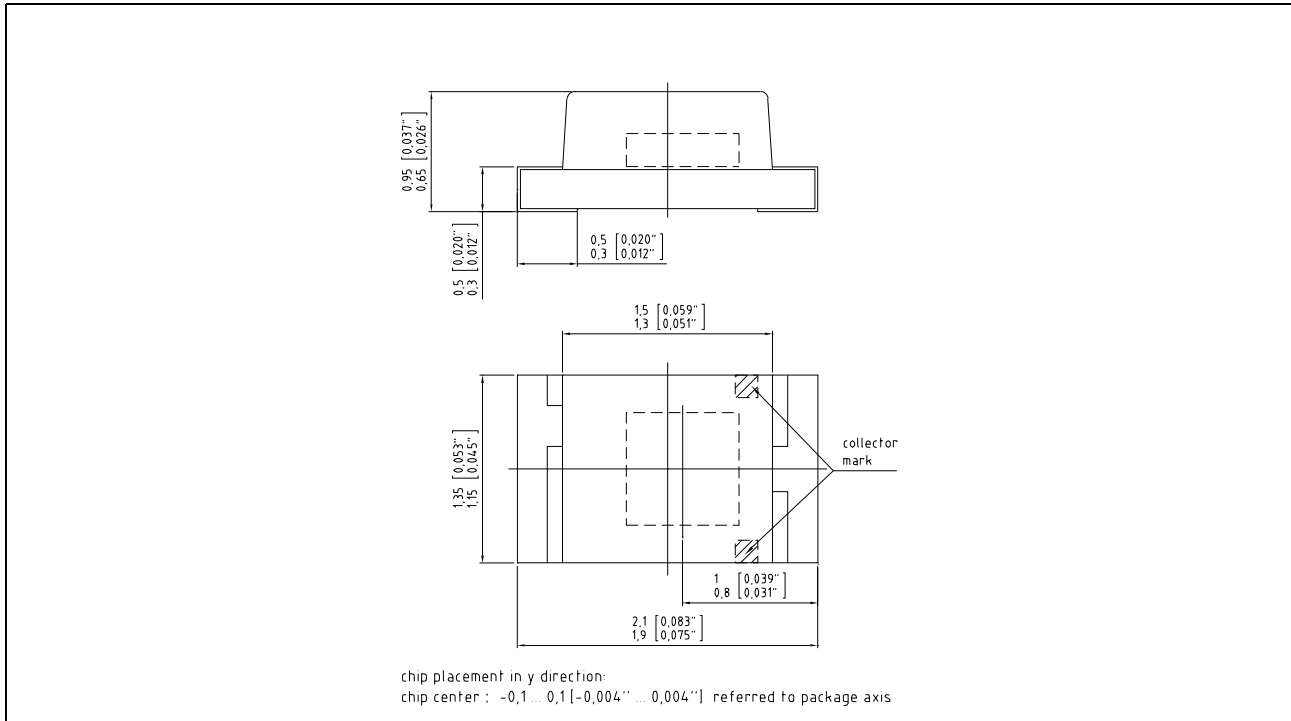


**Directional Characteristics**

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

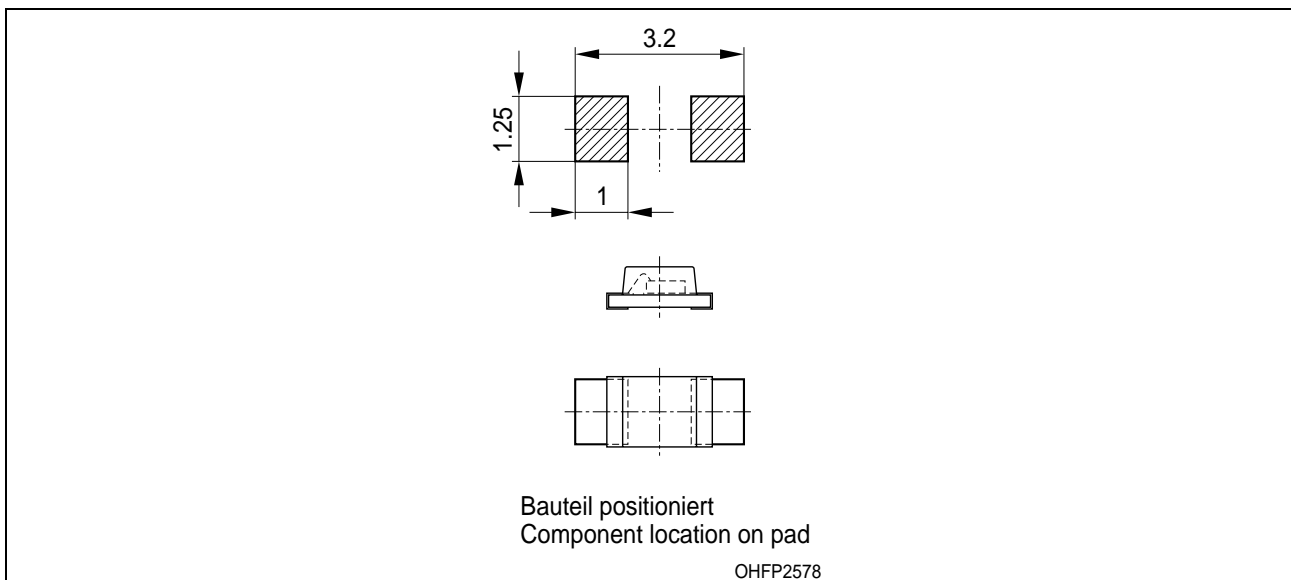


**Maßzeichnung  
Package Outlines**



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

**Empfohlenes Lötpaddesign  
Recommended Solderpad Design**



Maße in mm / Dimensions in mm

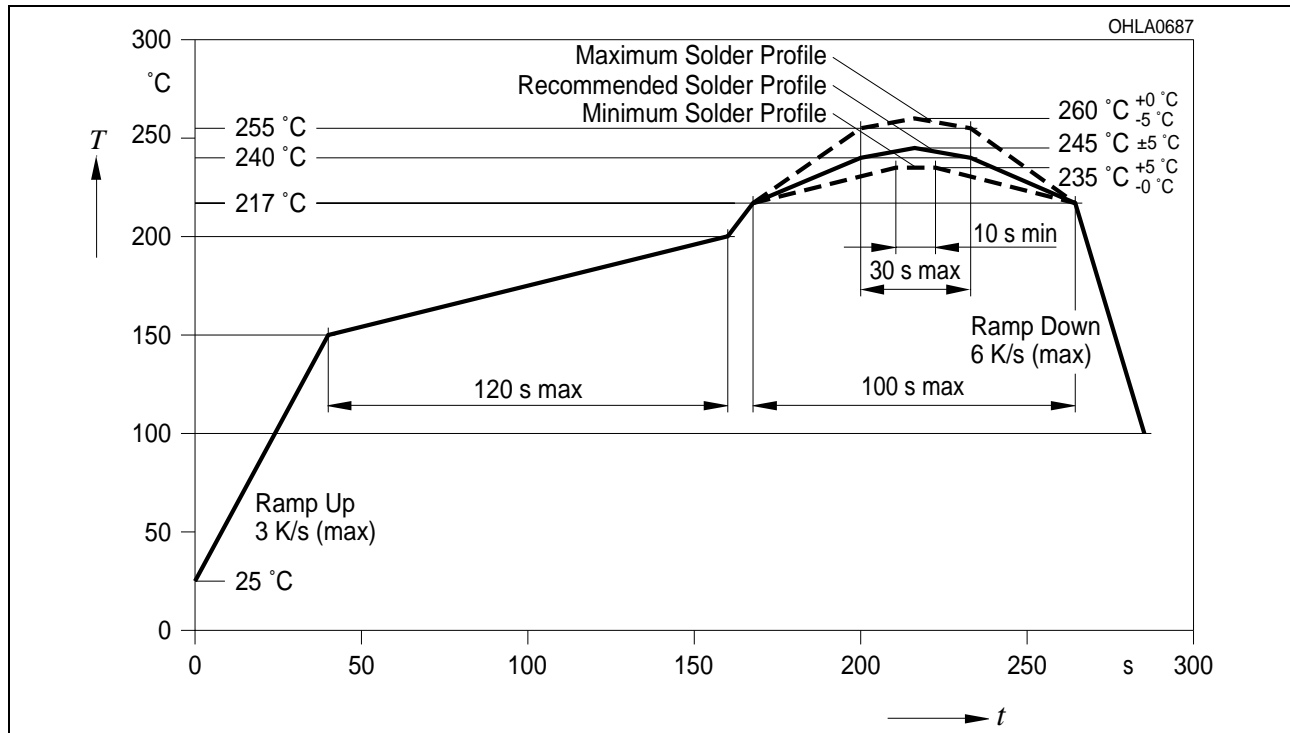
**Lötbedingungen****Soldering Conditions****Reflow Lötprofil für bleifreies Löt****Reflow Soldering Profile for lead free soldering**

Vorbehandlung nach JEDEC Level 2

Preconditioning acc. to JEDEC Level 2

(nach J-STD-020C)

(acc. to J-STD-020C)



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