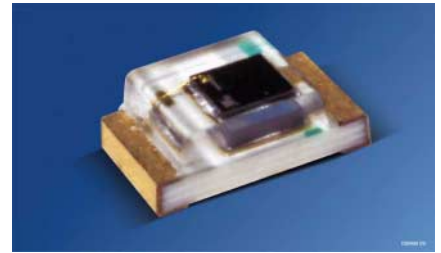


NPN-Si-Fototransistor mit V_{λ} Charakteristik
Silicon NPN Phototransistor with V_{λ} Characteristics
Lead (Pb) Free Product - RoHS Compliant

SFH 3710



Wesentliche Merkmale

- Sehr kleines SMT Gehäuse
- Angepaßt an die Augenempfindlichkeit (V_{λ})

Anwendungen

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

Features

- Very small SMT package
- Adapted to human eye sensitivity (V_{λ})

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	λ_{Smax}	570	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von S_{max} Spectral range of sensitivity $S = 10\%$ of S_{max}	λ	350 ... 950	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}	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

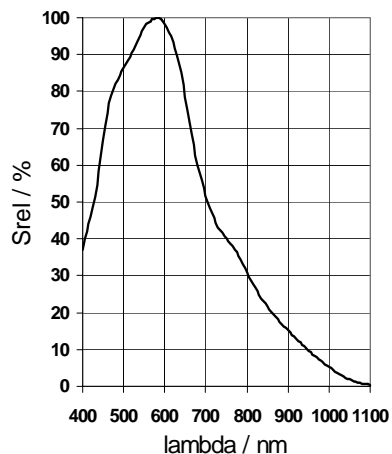
Bezeichnung Parameter	Symbol Symbol	Wert Value			Einheit Unit
		-2	-3	-4	
Fotostrom Photocurrent $E_e = 10\ \mu\text{W}/\text{cm}^2$, $\lambda = 560\ \text{nm}$, $V_{CE} = 5\ \text{V}$ $E_v = 1000\ \text{lx}$, Normlicht/Standard light A	I_{PCE}	2.5...5 220	4...8 350	6.3...12.5 570	μA μA
Kollektor-Emitter-Sättigungsspannung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

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

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

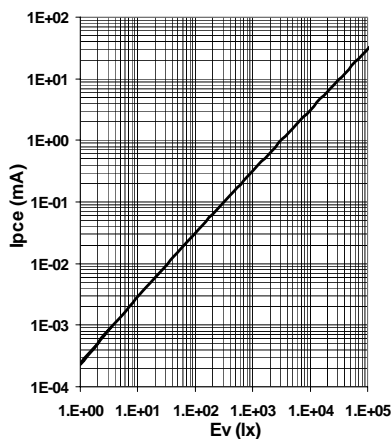
Relative Spectral Sensitivity

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



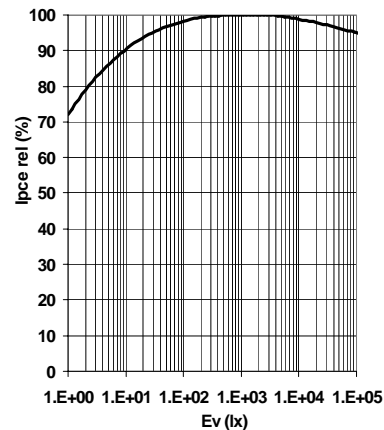
Photocurrent

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



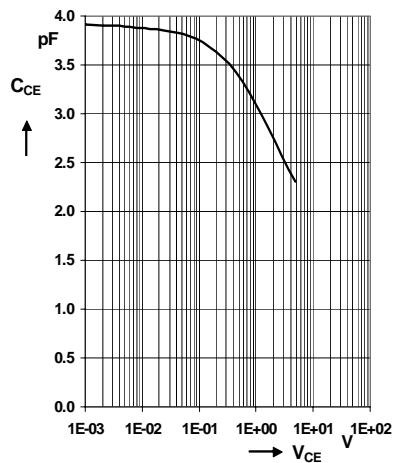
Photocurrent

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



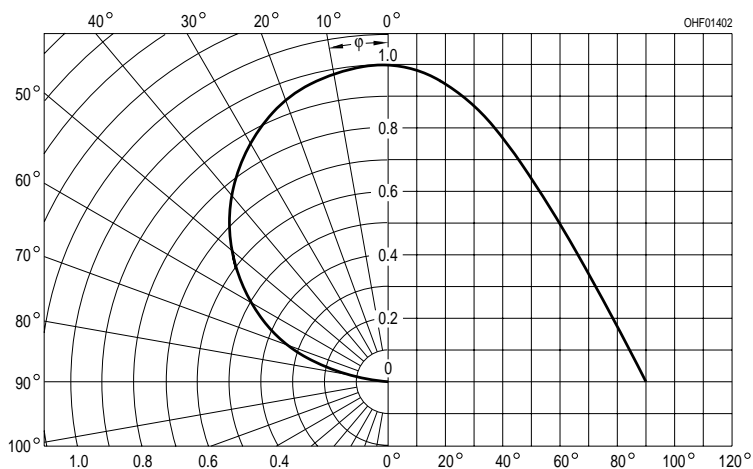
Collector-Emitter Capacitance

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

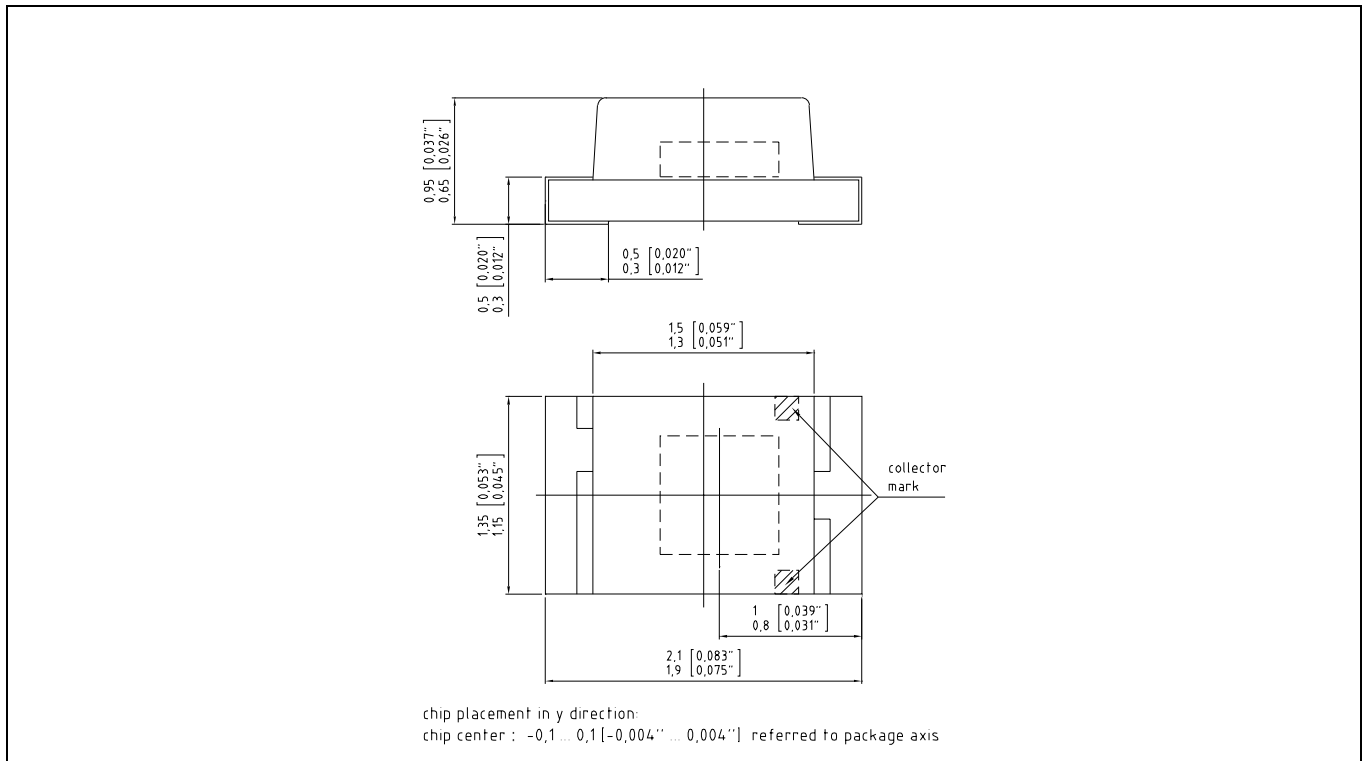


Directional Characteristics

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

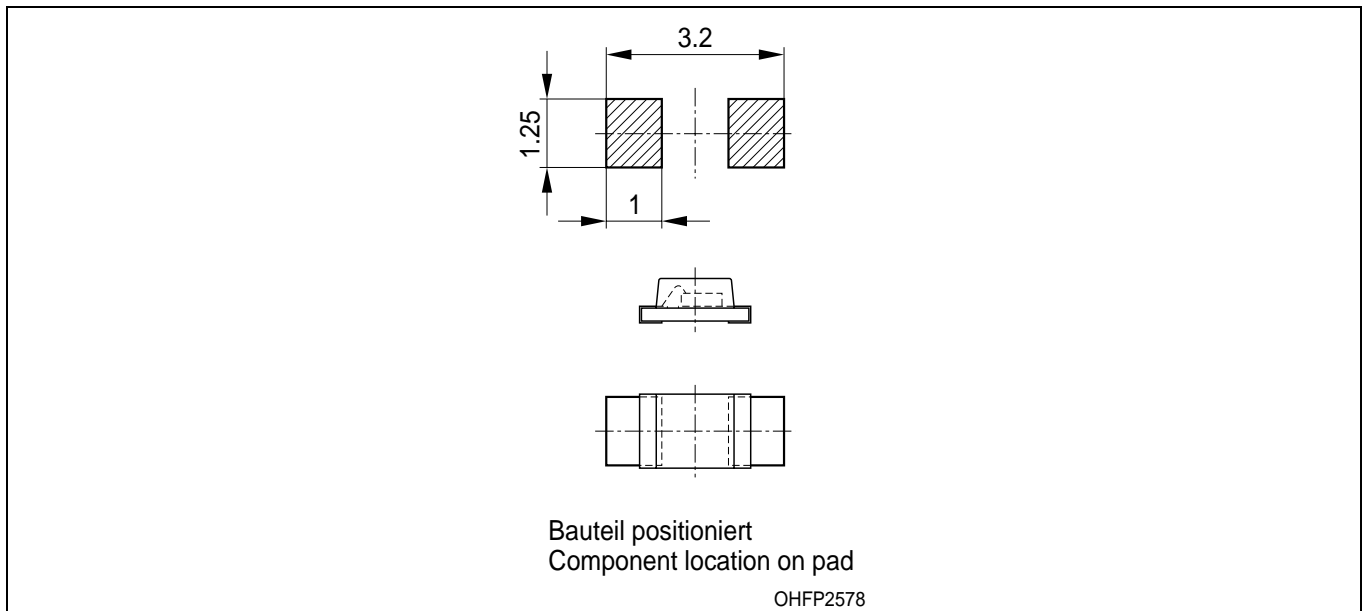


**Maßzeichnung
Package Outlines**



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

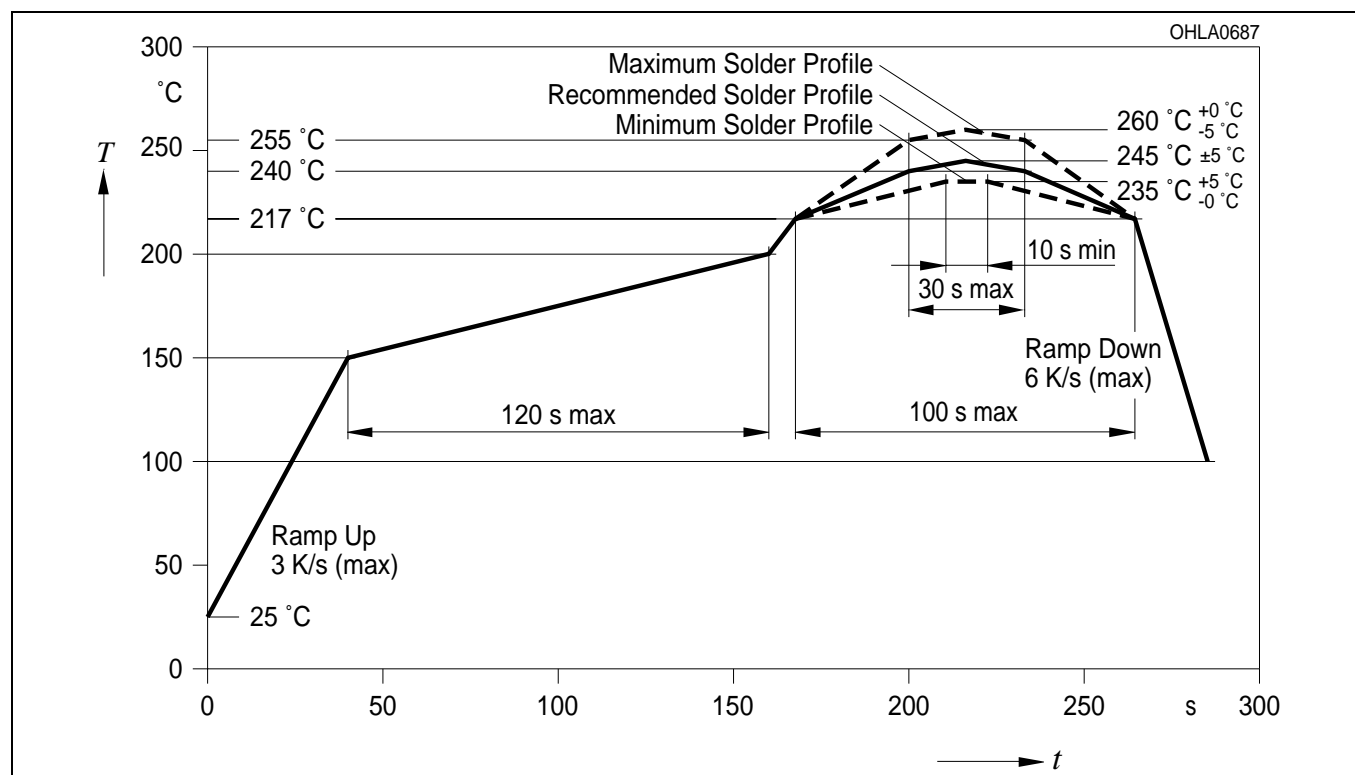
**Empfohlenes Lötpaddesign
Recommended Solderpad Design**



Maße in mm / Dimensions in mm

Lötbedingungen
Soldering Conditions
Reflow Lötprofil für bleifreies Löten
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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¹ 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.

² 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.

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