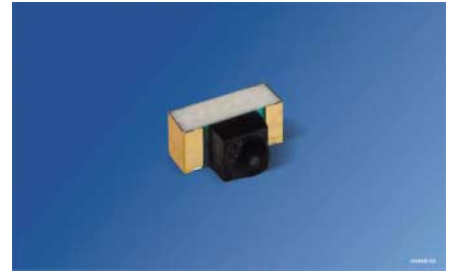


Phototransistor
Phototransistor
Lead (Pb) Free Product - RoHS Compliant

SFH 3015 FA



SFH 3015 FA

Vorläufige Daten / Preliminary Data

Wesentliche Merkmale

- Enger Empfangswinkel ($\pm 13^\circ$)
- Sidelooker mit geringer Bauhöhe (1,6 mm)
- Emitter im gleichen Gehäuse verfügbar:
SFH 4015 und SFH 4045

Anwendungen

- Lichtschranken, Lichtvorhänge
- Sensorik
- Näherungssensor
- berührungsempfindliche Bildschirme

Features

- Narrow angle ($\pm 13^\circ$)
- Low profile sidelooker (1,6 mm)
- Emitter in same package available:
SFH 4015 and SFH 4045

Applications

- Interrupters, Lightcurtains
- Sensors
- Proximity sensor
- Touchscreen

Typ Type	Bestellnummer Ordering Code	Fotostrom , $E_e=0.1 \text{ mW/cm}^2, \lambda=950 \text{ nm}$ $V_{CE} = 5 \text{ V}$ Photocurrent $I_{pce} (\mu\text{A})$
SFH 3015 FA	Q65110A9730	100...800

Grenzwerte
Maximum Ratings

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Betriebstemperatur Operating temperature range	T_{op}	- 25 ... + 85	°C
Lagertemperatur Storage temperature range	T_{stg}	- 40 ... + 85	°C
Kollektor-Emitterspannung Collector-emitter voltage	V_{CE} $V_{CE} (t < 2 \text{ min})$	15 30	V
Kollektorstrom Collector current	I_C	15	mA
Kollektorspitzenstrom, $\tau < 10 \mu\text{s}$ Collector surge current	I_{CS}	75	mA
Emitter-Kollektorspannung Emitter-collector voltage	V_{EC}	7	V

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

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S \text{ max}}$	870	nm
Spektraler Bereich der Fotoempfindlichkeit Spectral range of sensitivity, $S = 10\%$ of S_{max}	λ	770 ... 1090	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	0.04	mm ²
Abmessungen des Chips Dimensions of chip	$L \times B$ $L \times W$	0.35×0.35	mm × mm
Halbwinkel Half angle	φ	± 13	Grad deg.
Kapazität, $V_{CE} = 5 \text{ V}$, $f = 1 \text{ MHz}$, $E = 0$ Capacitance	C_{CE}	1.3	pF
Dunkelstrom, $V_{CE} = 10 \text{ V}$, $E = 0$ Dark current	I_{CEO}	2 (≤ 50)	nA
Anstiegszeit/Abfallzeit, $\lambda = 950 \text{ nm}$, $I_C = 1 \text{ mA}$, $V_{CC} = 5 \text{ V}$, $R_L = 1 \text{ k}\Omega$ Rise and fall time	t_r , t_f	7	μs

Die Fototransistoren werden nach ihrer Fotoempfindlichkeit gruppiert und mit arabischen Ziffern gekennzeichnet.

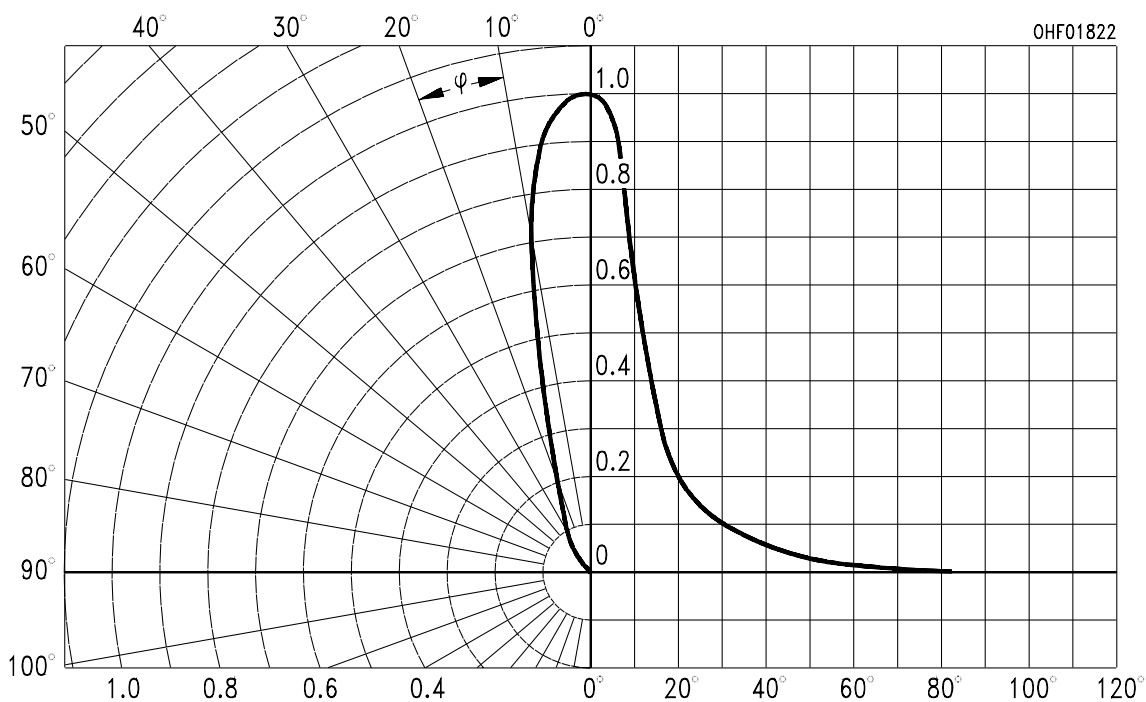
The phototransistors are grouped according to their spectral sensitivity and distinguished by arabian figures.

Bezeichnung Parameter	Symbol Symbol	Wert Value				Einheit Unit
		-1	-2	-3	-4	
Fotostrom, $V_{CE} = 5\text{ V}$, $\lambda = 950\text{ nm}$, $E_e = 0.1\text{ mW/cm}^2$ Photocurrent	I_{PCE}	100 ... 200	160 ... 320	250 ... 500	400 ... 800	μA
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage $I_C = I_{PCEmin}^{1)} \times 0.3$, $E_e = 0.1\text{ mW/cm}^2$	V_{CEsat}	170	170	170	170	mV

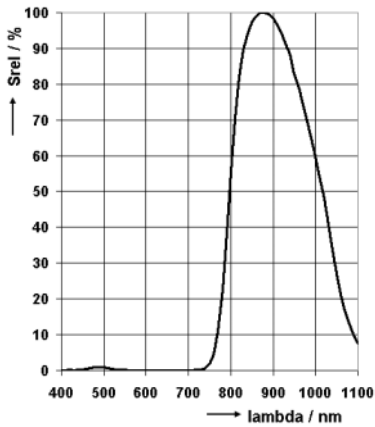
¹⁾ I_{PCEmin} ist der minimale Fotostrom der jeweiligen Gruppe.

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

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

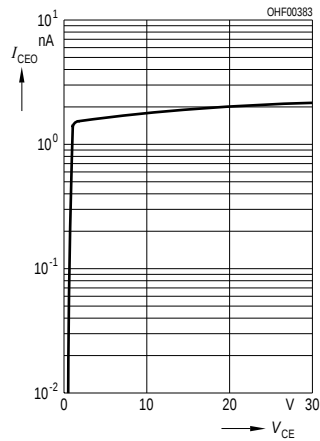


Rel. Spectral Sensitivity,
 $S_{\text{rel}} = f(\lambda)$



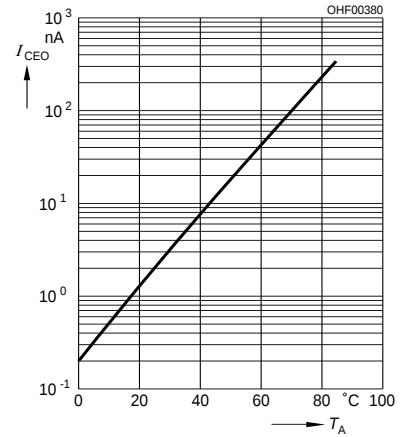
Dark Current

$$I_{\text{CEO}} = f(V_{\text{CE}}), E = 0$$

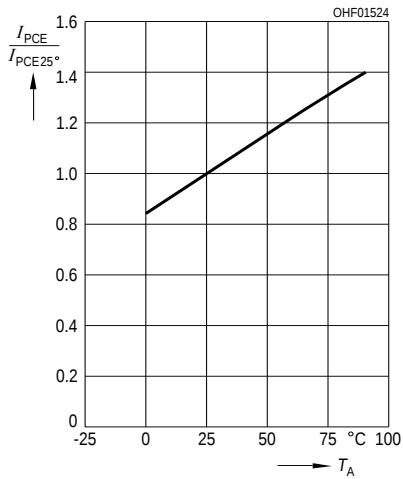


Dark Current

$$I_{\text{CEO}} = f(T_{\text{A}}), V_{\text{CE}} = 10 \text{ V}, E = 0$$

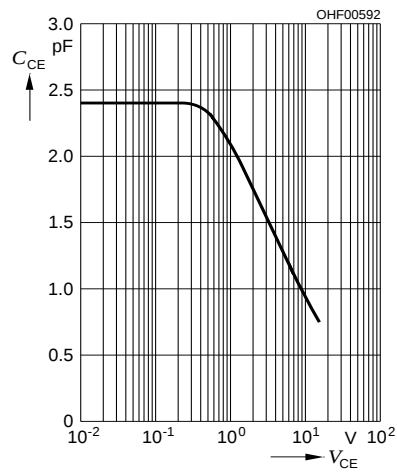


Photocurrent $I_{\text{PCE}} = f(T_{\text{A}})$,
 $V_{\text{CE}} = 5 \text{ V}$, normalized to 25°C

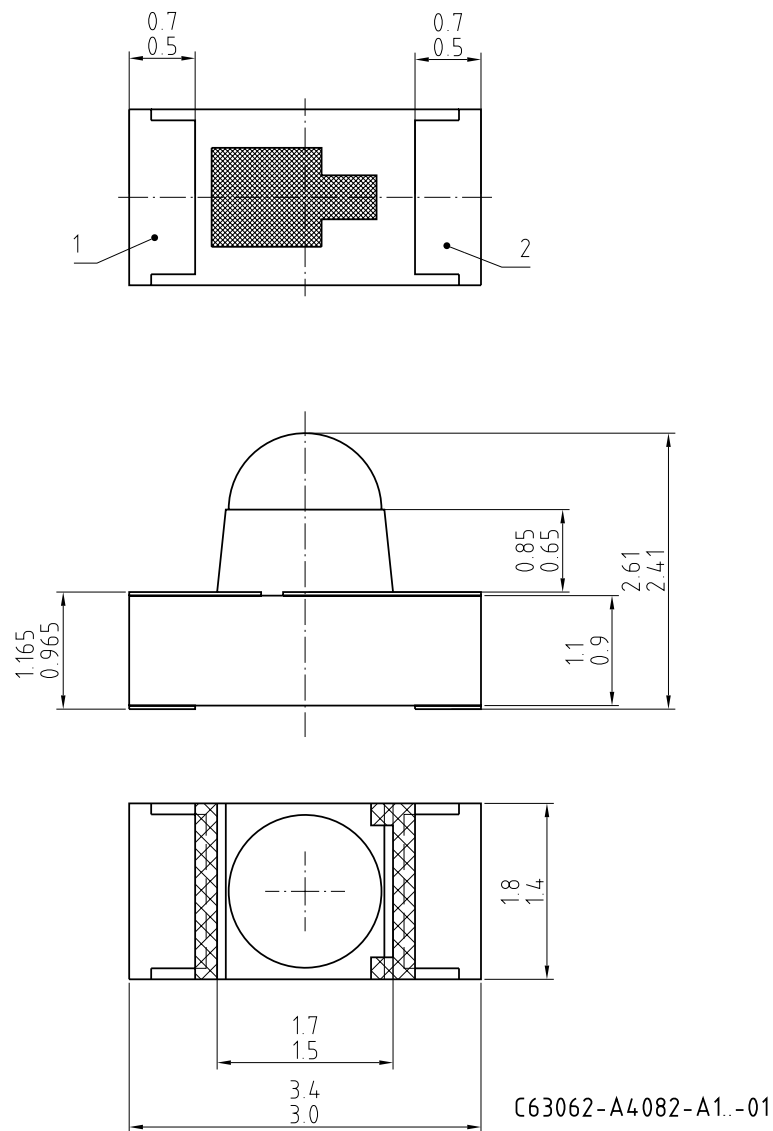


Collector-Emitter Capacitance

$$C_{\text{CE}} = f(V_{\text{CE}}), f = 1 \text{ MHz}$$

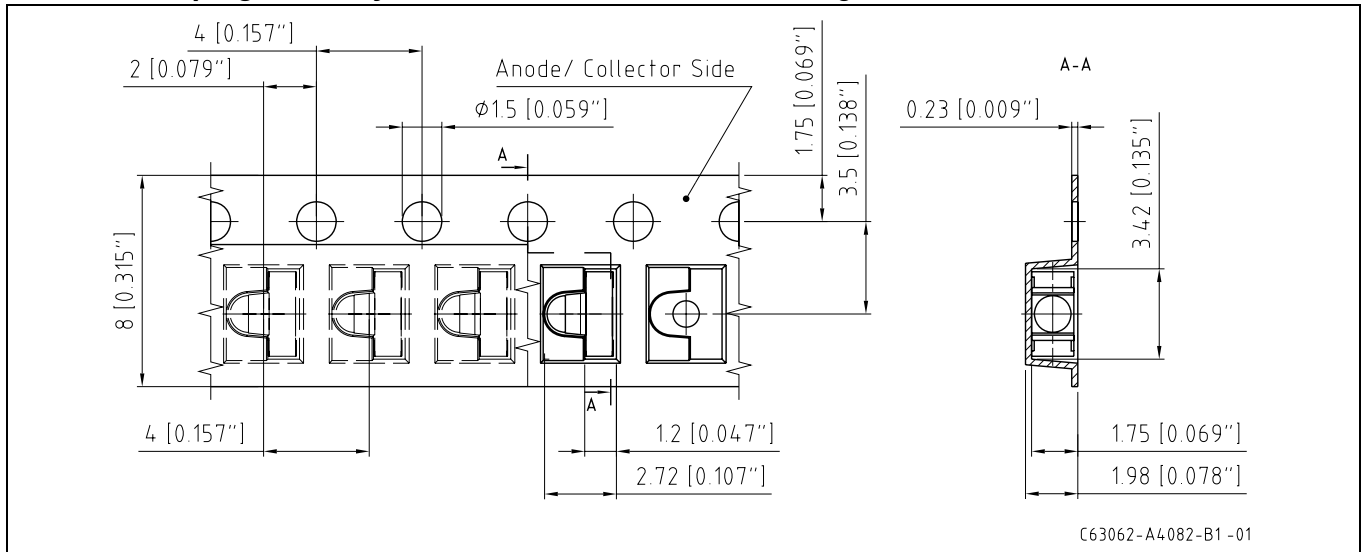


Maßzeichnung **Package Outlines**



Maße in mm / Dimensions in mm.

Gehäuse / Package	Sidelooker mit Linse / Sidelooker with lens
Anschlussbelegung pin configuration	1 = Emitter / emitter 2 = Kollektor / collector
Farbe Color	schwarz black

Gurtung / Polarität und LageVerpackungseinheit 1500/Rolle, $\varnothing 180$ mm**Method of Taping / Polarity and Orientation**Packing unit 1500/reel, $\varnothing 180$ mm

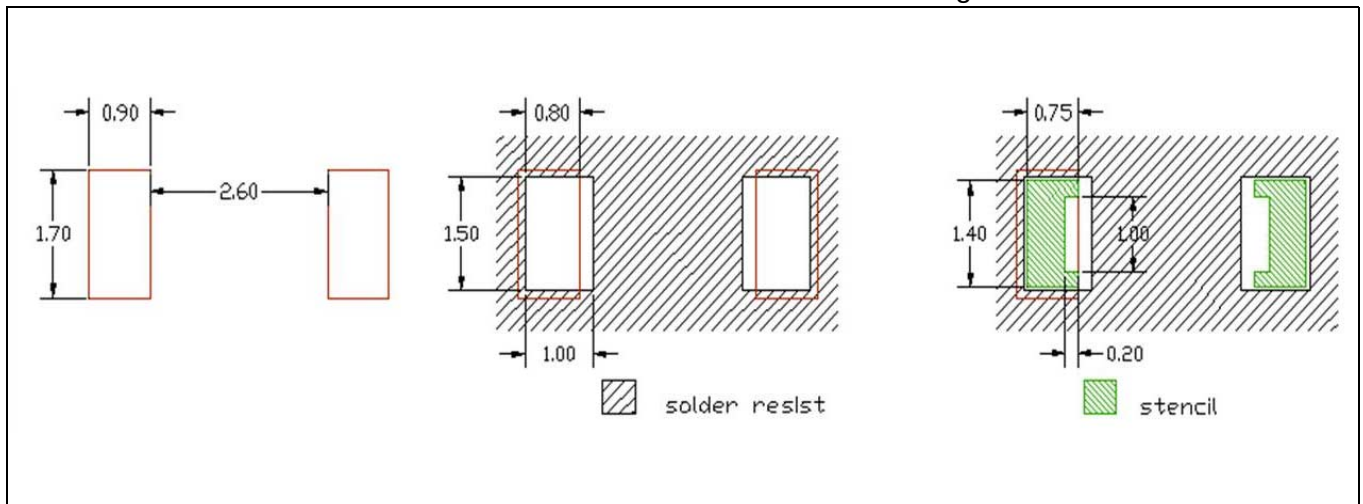
Maße in mm (inch) / Dimensions in mm (inch).

Empfohlenes Lötpaddesign

Reflow Lötén

Recommended Solder Pad

Reflow Soldering



Maße in mm / Dimensions in mm.

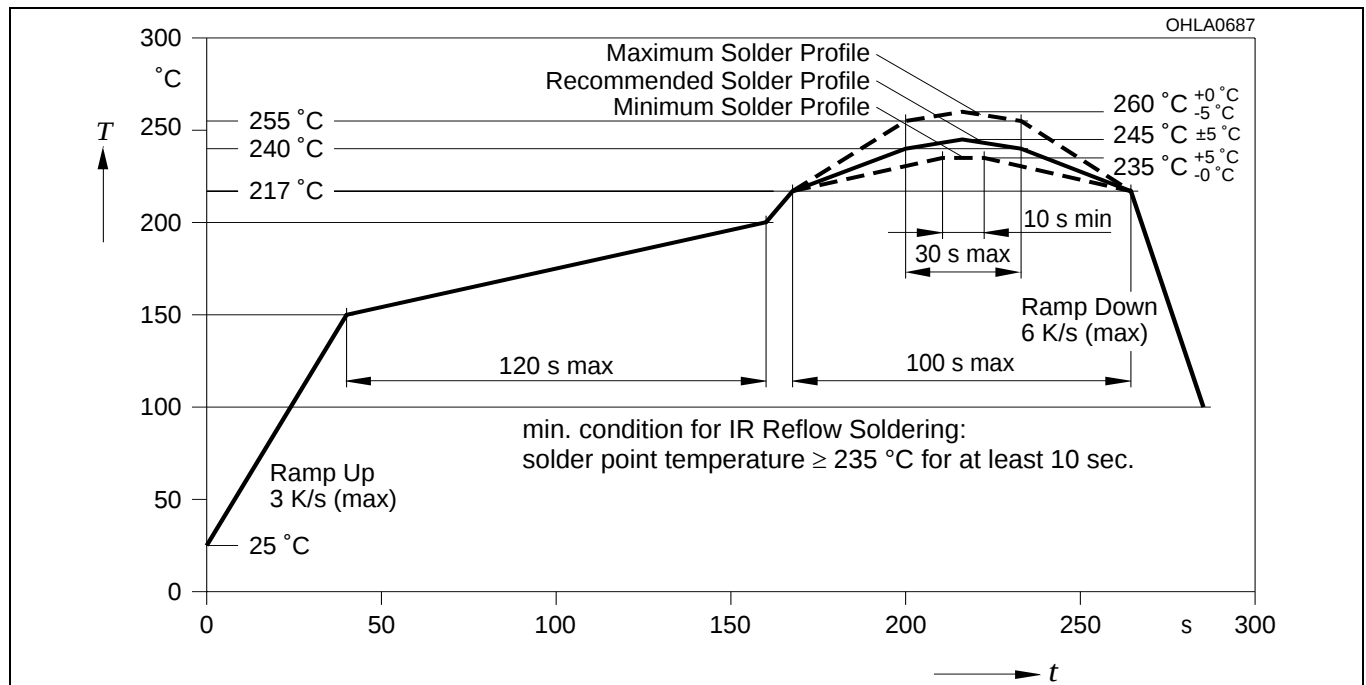
Lötbedingungen**Soldering Conditions****Reflow Lötprofil für bleifreies Lötten****Reflow Soldering Profile for lead free soldering**

Vorbehandlung nach JEDEC Level 3

Preconditioning acc. to JEDEC Level 3

(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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