NPN-Silizium-Fototransistor
Silicon NPN Phototransistor
Lead (Pb) Free Product - RoHS Compliant

SFH 310
SFH 310 FA

SFH 310

SFH 310 FA

Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 400 nm bis 1100 nm (SFH 310) und bei 880 nm (SFH 310 FA)
- Hohe Linearität
- 3 mm-Plastikbauform

Features

- Especially suitable for applications from 400 nm to 1100 nm (SFH 310) and of 880 nm (SFH 310 FA)
- High linearity
- 3 mm plastic package

Anwendungen

- Lichtschranken für Gleich- und Wechsellichtbetrieb
- Industrieelektronik
- „Messen/Steuern/Regeln“

Applications

- Photointerrupters
- Industrial electronics
- For control and drive circuits

Typ Type	Bestellnummer Ordering Code
SFH 310 SFH 310-2/3	Q62702P0874 Q62702P3595
SFH 310 FA SFH 310 FA-2/3	Q62702P1673 Q62702P3596

Grenzwerte
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}	70	V
Kollektorstrom Collector current	I_C	50	mA
Kollektorspitzenstrom, $\tau < 10$ µs Collector surge current	I_{CS}	100	mA
Verlustleistung, $T_A = 25$ °C Total power dissipation	P_{tot}	165	mW
Wärmewiderstand Thermal resistance	R_{thJA}	450	K/W

Kennwerte (T_A = 25 °C, λ = 950 nm)
Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value		Einheit Unit
		SFH 310	SFH 310 FA	
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\ max}$	780	880	nm
Spektraler Bereich der Fotoempfindlichkeit S = 10% von S_{max} Spectral range of sensitivity S = 10% of S_{max}	λ	470 …1070	740 …1070	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	0.19	0.19	mm^2
Abmessung der Chipfläche Dimensions of chip area	$L \times B$ $L \times W$	0.65 × 0.65	0.65 × 0.65	mm × mm
Halbwinkel Half angle	φ	± 25	± 25	Grad deg.
Kapazität, V_{CE} = 0 V, f = 1 MHz, E = 0 Capacitance	C_{CE}	10	10	pF
Dunkelstrom Dark current V_{CE} = 10 V, E = 0	I_{CEO}	5 (≤50)	5 (≤50)	nA
Fotostrom Photocurrent E_e = 0.5 mW/cm², V_{CE} = 5 V E_v = 1000 lx, Normlicht/standard light A, V_{CE} = 5 V	I_{PCE} I_{PCE}	≥ 0.4 4	≥ 0.4 –	mA mA

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.

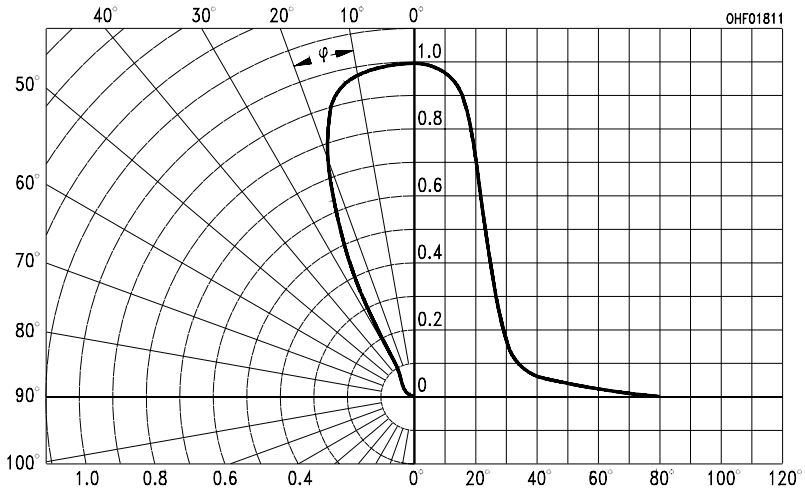
Bezeichnung Parameter	Symbol Symbol	Wert Value				Einheit Unit
		-1	-2	-3	-4	
Fotostrom, λ = 950 nm Photocurrent E_e = 0.5 mW/cm², V_{CE} = 5 V	I_{PCE}	0.4 …0.8	0.63 …1.25	1.0 …2.0	1.6 …3.2	mA
SFH 310: E_v = 1000 lx, Normlicht/ standard light A, V_{CE} = 5 V	I_{PCE}	2.1	3.4	5.4	8.6	mA
Anstiegszeit/Abfallzeit Rise and fall time I_C = 1 mA, V_{CC} = 5 V, R_L = 1 kΩ	t_r, t_f	5	7	8	12	µs
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage $I_C = I_{PCEmin}$ [1] × 0.3, E_e = 0.5 mW/cm²	V_{CEsat}	150	150	150	150	mV

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

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

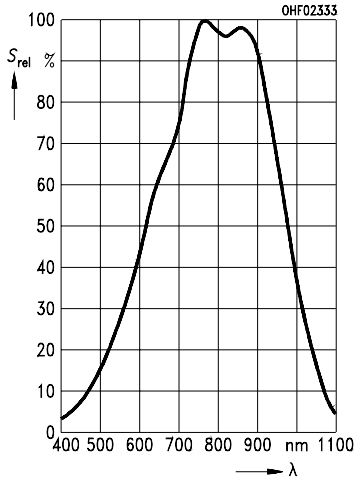
Directional Characteristics

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

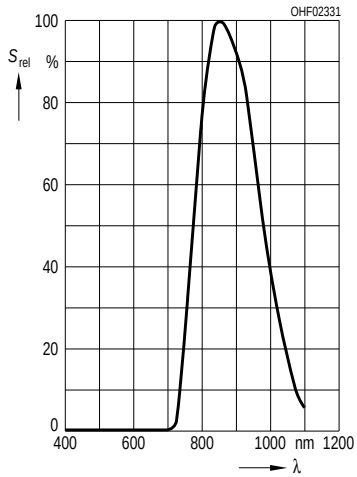


T_A = 25 °C, λ = 950 nm

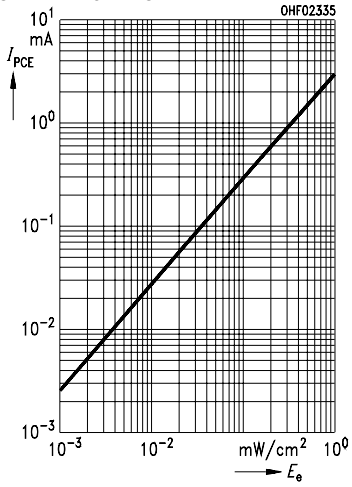
Relative Spectral Sensitivity, SFH 310 $S_{rel} = f(\lambda)$



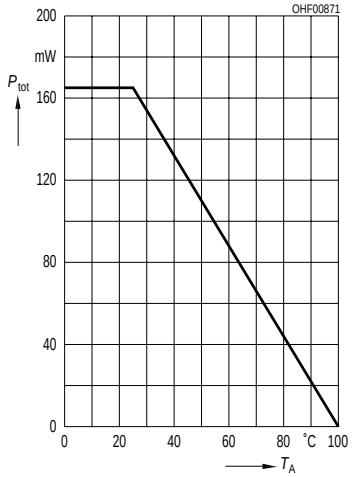
Relative Spectral Sensitivity, SFH 310 FA $S_{rel} = f(\lambda)$



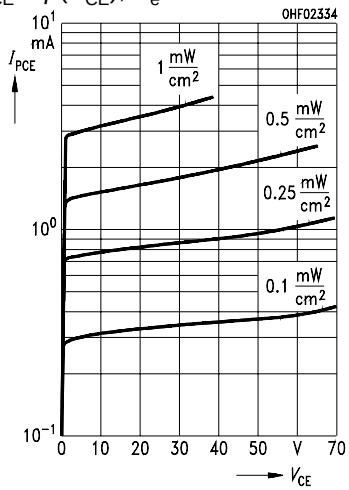
Photocurrent
$I_{PCE} = f(E_e)$, V_{CE} = 5 V



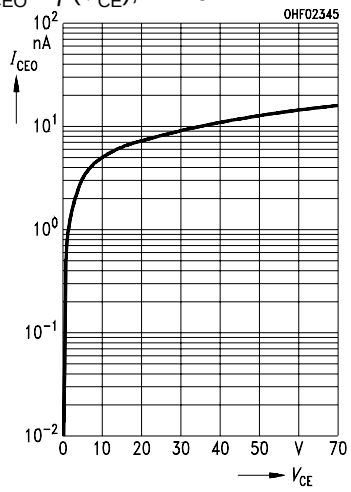
Total Power Dissipation
$P_{tot} = f(T_A)$



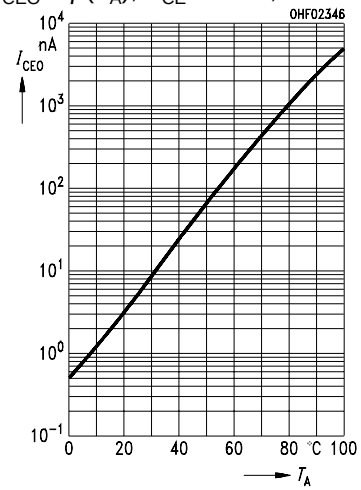
Photocurrent
$I_{PCE} = f(V_{CE})$, E_e = Parameter



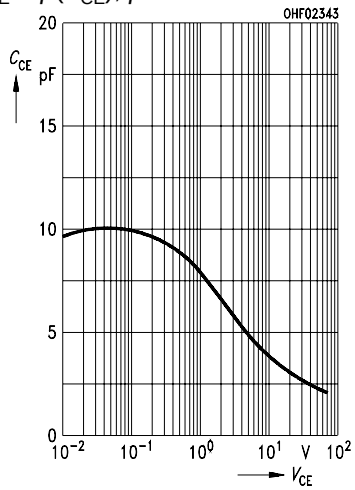
Dark Current
$I_{CEO} = f(V_{CE})$, E = 0



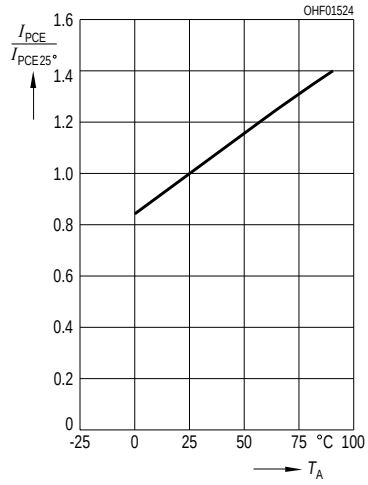
Dark Current
$I_{CEO} = f(T_A)$, V_{CE} = 10 V, E = 0



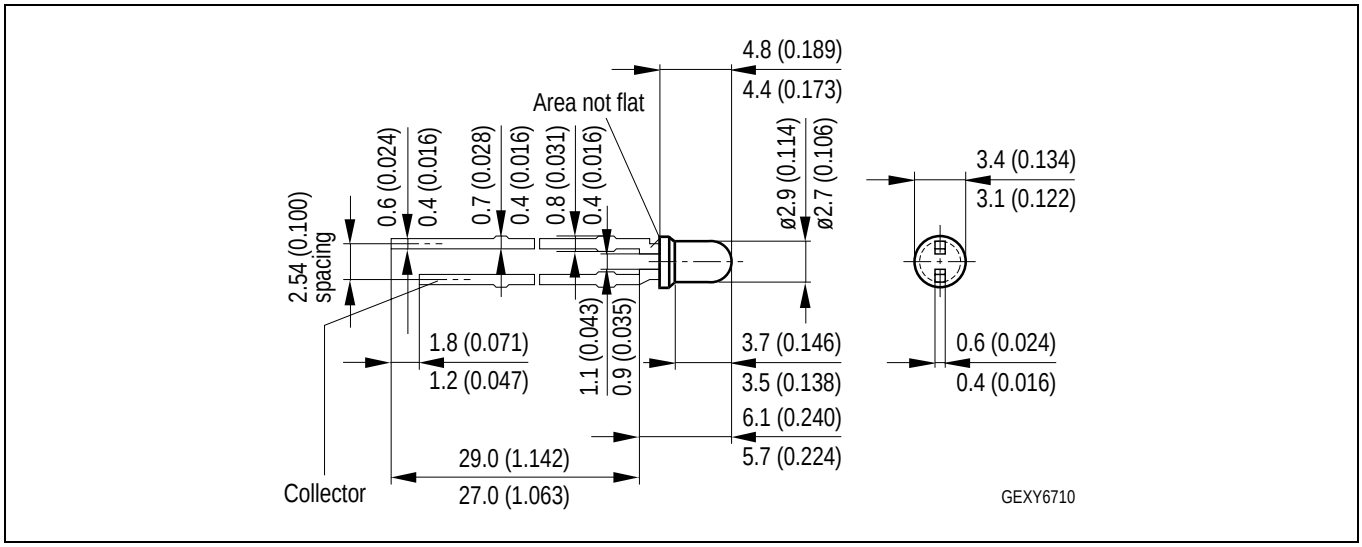
Capacitance
$C_{CE} = f(V_{CE})$, f = 1 MHz



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

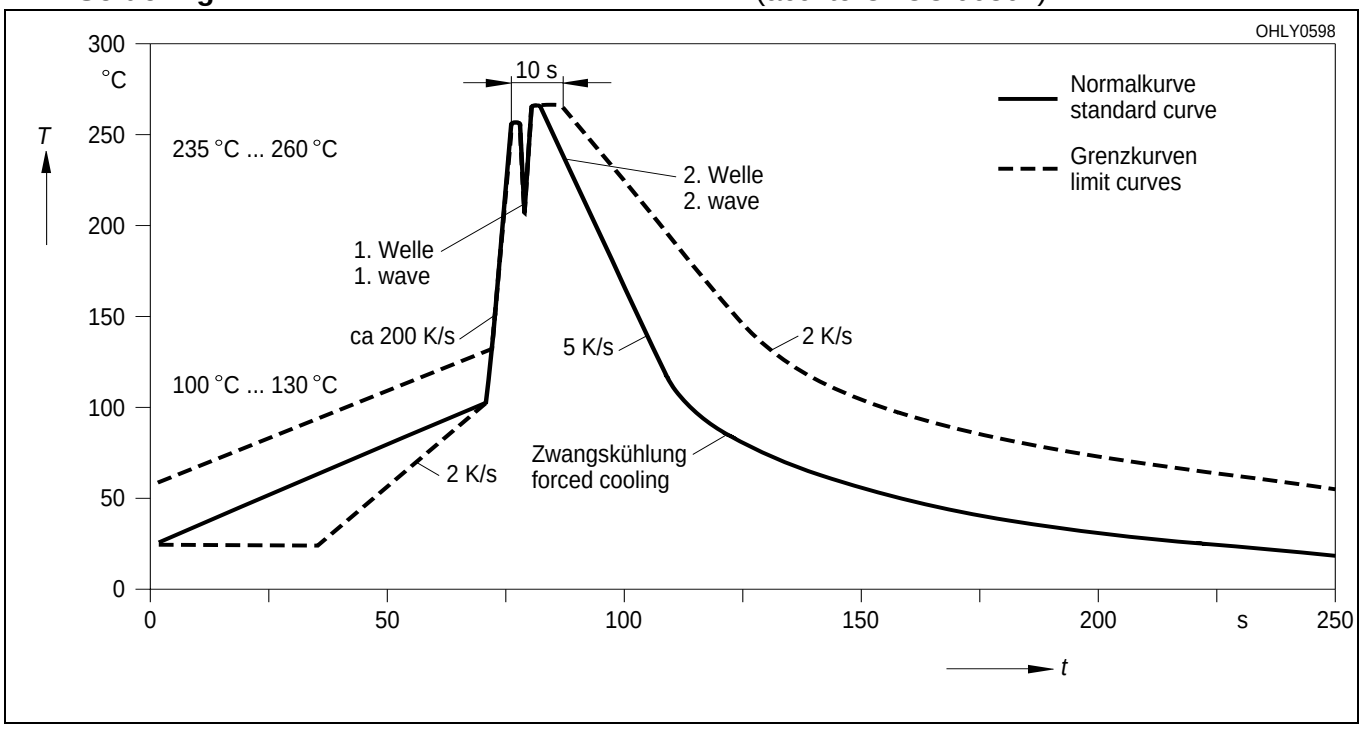


Maßzeichnung
Package Outlines



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

Lötbedingungen
Soldering Conditions
Wellenlöten (TTW) (nach CECC 00802)
TTW Soldering (acc. to CECC 00802)



Published by
OSRAM Opto Semiconductors GmbH
Wernerwerkstrasse 2, D-93049 Regensburg
www.osram-os.com

The information describes the type of component and shall not be considered as assured characteristics.
Terms of delivery and rights to change design reserved. Due to technical requirements components may contain dangerous substances. For information on the types in question please contact our Sales Organization.

Packing

Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

Components used in life-support devices or systems must be expressly authorized for such purpose! Critical components [1] , may only be used in life-support devices or systems [2] with the express written approval of OSRAM OS.

[1] A critical component is a component usedin 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.