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

SFH 310
SFH 310 FA

SFH 310

SFH 310 FA

Wesentliche Merkmale

- **Spektraler Bereich der Fotoempfindlichkeit:** 450 nm ...1100 nm (SFH 310)
- 740 nm ...1100 nm (SFH 310FA)
- **Gehäuse:** 3mm Radial (T1), Harz
- **Besonderheit des Bauteils:** hohe Fotoempfindlichkeit

Features

- **Spectral Range of Sensitivity:** 450 nm ... 1100 nm (SFH 310)
- 740 nm ... 1100 nm (SFH 310FA
- **Package:** 3 mm Radial (T1), Epoxy
- **Feature of the device:** high photosensitivity

Anwendungen

- Lichtschranken
- Industrieelektronik
- „Messen/Steuern/Regeln“

Applications

- Photointerrupters
- Industrial electronics
- For control and drive circuits

Typ **Type**	**Bestellnummer** **Ordering Code**	**Fotostrom**, E_e= 0.5mW/cm^2, λ = 950nm, V_{CE} = 5 V **Photocurrent** Ipce (mA)
SFH 310 SFH 310-2/3	Q62702P0874 Q62702P3595	≥ 0.63 0.63...2.0
SFH 310 FA SFH 310 FA-2/3	Q62702P1673 Q62702P3596	≥ 0.63 0.63...2.0

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}	35	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	$\lambda_{S\ max}$	880	890	nm
Spektraler Bereich der Fotoempfindlichkeit S = 10% von S_{max} Spectral range of sensitivity S = 10% of S_{max}	λ	450 … 1100	740 … 1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	0.11	0.11	mm^2
Abmessung der Chipfläche Dimensions of chip area	$L \times B$ $L \times W$	0.5 × 0.5	0.5 × 0.5	mm × mm
Halbwinkel Half angle	φ	± 25	± 25	Grad deg.
Kapazität, V_{CE} = 0 V, f = 1 MHz, E = 0 Capacitance	C_{CE}	7.5	7.5	pF
Dunkelstrom Dark current V_{CE} = 10 V, E = 0	I_{CEO}	1 (≤ 50)	1 (≤ 50)	nA

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.

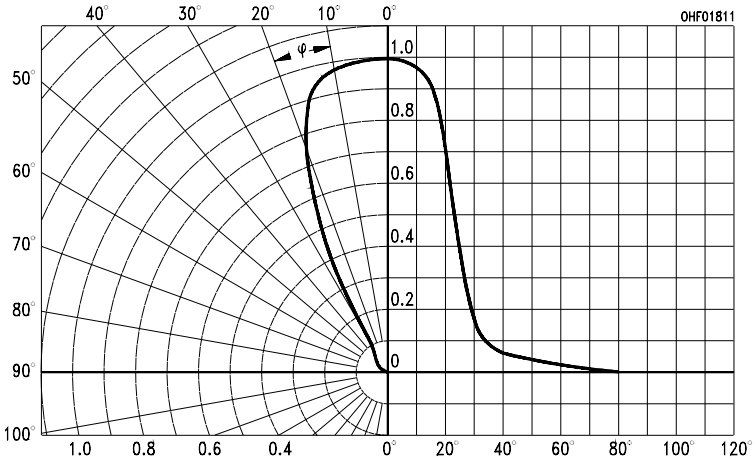
Bezeichnung Parameter	Symbol Symbol	Wert Value			Einheit Unit
		-2	-3	-4	
Fotostrom, $\lambda = 950$ nm Photocurrent E_e = 0.5 mW/cm^2, V_{CE} = 5 V	I_{PCE}	0.63 … 1.25	1.0 … 2.0	1.6 … 3.2	mA
SFH 310: E_v = 1000 lx, Normlicht/ standard light A, V_{CE} = 5 V	I_{PCE}	3.0	4.8	7.7	mA
Anstiegszeit/Abfallzeit Rise and fall time I_C = 1 mA, V_{CC} = 5 V, R_L = 1 kΩ	t_r, t_f	5	8	12	µs
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage $I_C = I_{PCEmin}$[1] × 0.3, E_e = 0.5 mW/cm^2	V_{CEsat}	150	150	150	mV

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

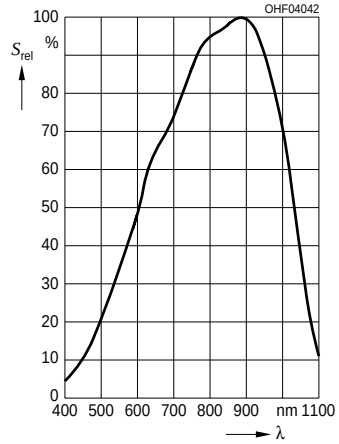
[1] I_{PCEmin} is the min. photocurrent of the specified group.

Directional Characteristics

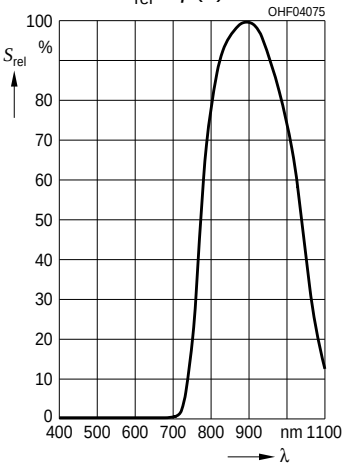
$S_{rel} = f(\varphi)$



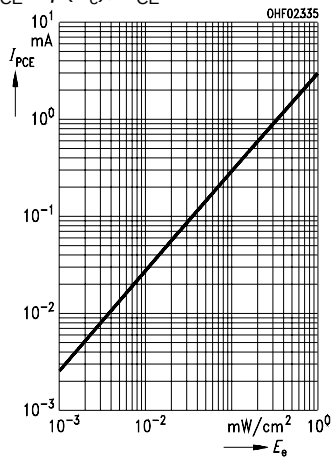
Relative Spectral Sensitivity, SFH 310 $S_{rel} = f(\lambda)$



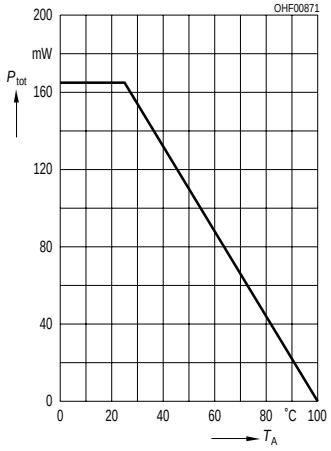
Relative Spectral Sensitivity, SFH 310 FA $S_{rel} = f(\lambda)$



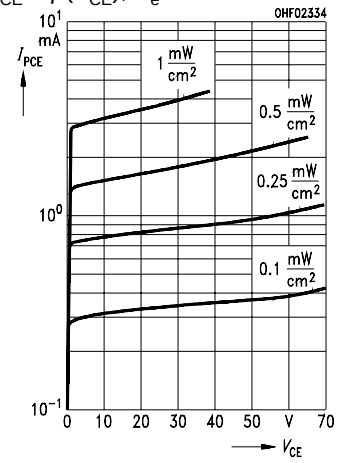
Photocurrent
$I_{PCE} = f(E_e)$, V_{CE} = 5 V



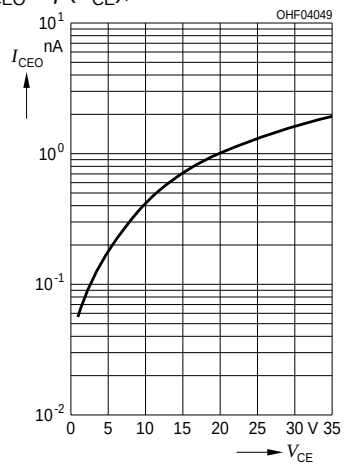
Total Power Dissipation
$P_{tot} = f(T_A)$



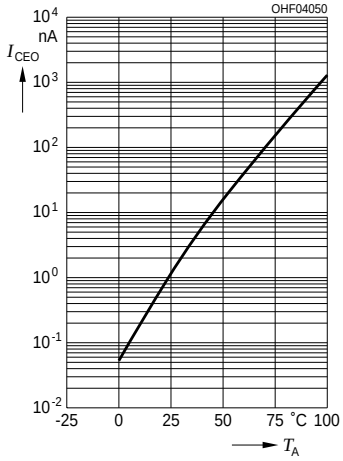
Photocurrent
$I_{PCE} = f(V_{CE})$, E_e = Parameter



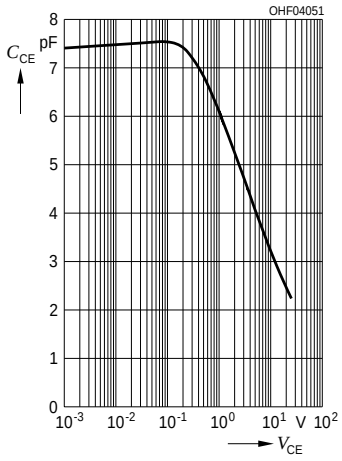
Dark Current
$I_{CEO} = f(V_{CE})$, E = 0



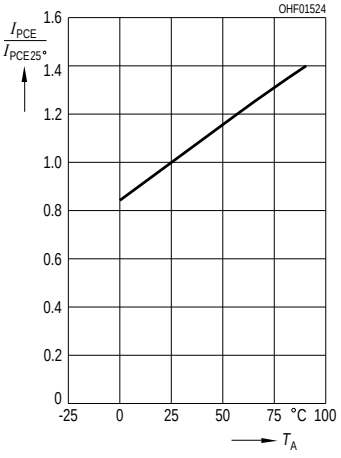
Dark Current
$I_{CEO} = f(T_A)$, V_{CE} = 10 V, E = 0



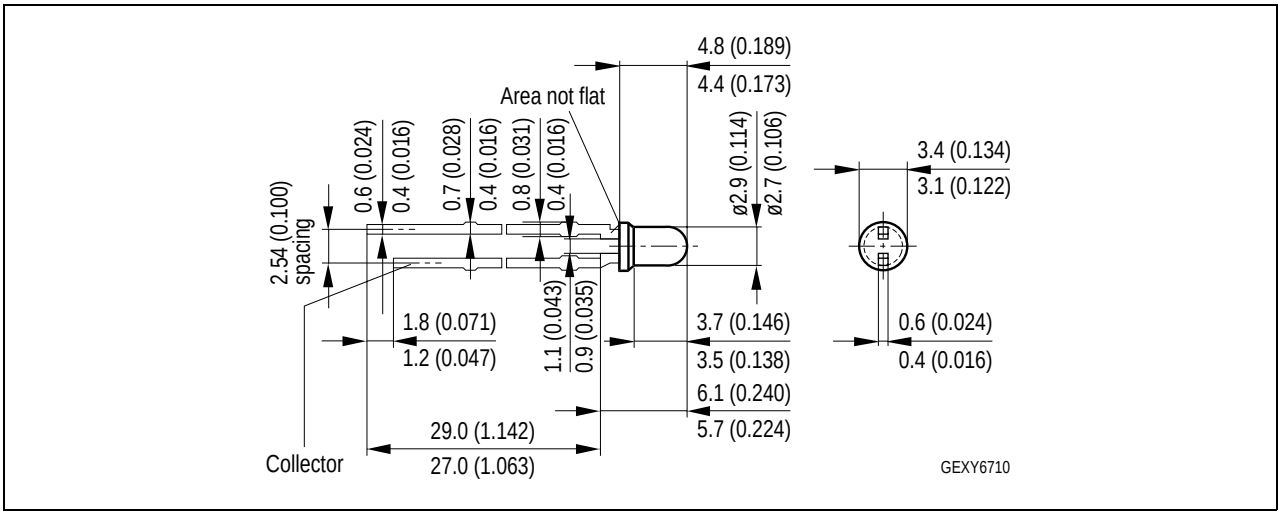
Capacitance
$C_{CE} = f(V_{CE})$, f = 1 MHz



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

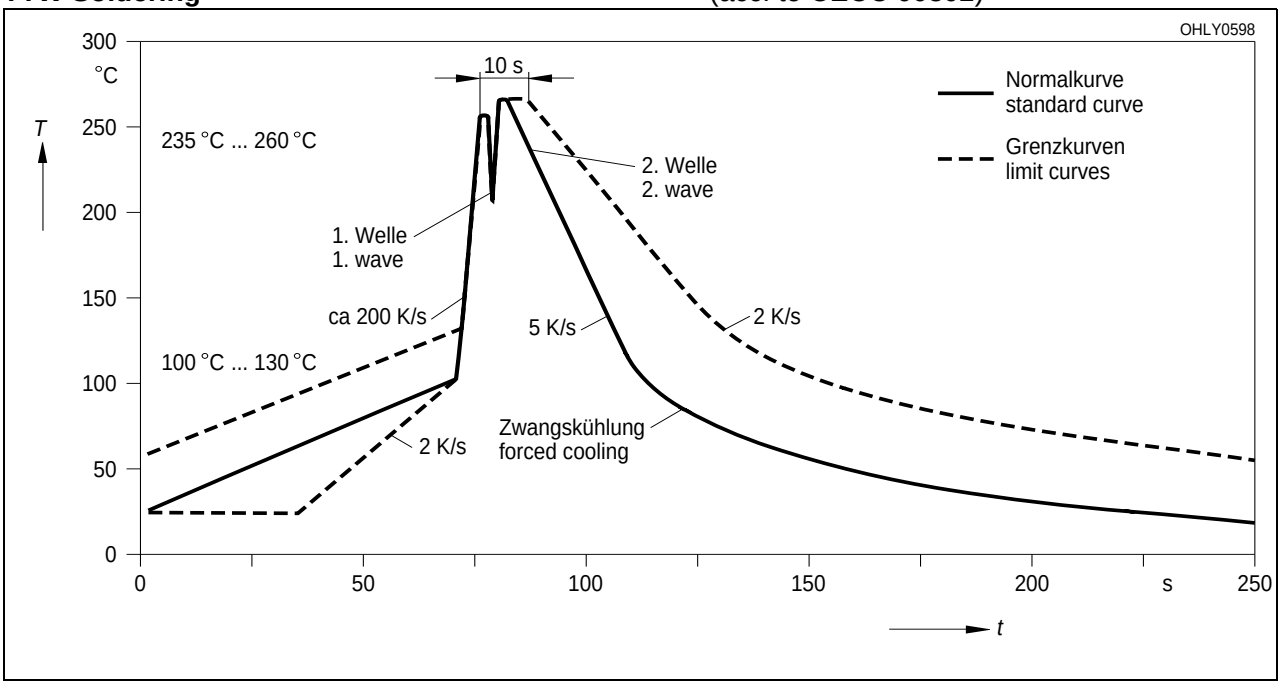


Maßzeichnung
Package Outlines



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

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



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