

NPN-Silizium-Fototransistor; mit Tageslichtsperrfilter
Silicon NPN Phototransistor; with Daylight Filter
Lead (Pb) Free Product - RoHS Compliant

SFH 303
SFH 303 FA



SFH 303



SFH 303 FA

Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 450 nm bis 1100 nm (SFH 303) und von 730 nm bis 1100 nm (SFH 303 FA)
- Hohe Linearität
- 5 mm-Plastikbauform im LED-Gehäuse mit Basisanschluss
- Auch gegurtet und gruppiert lieferbar

Anwendungen

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

Features

- Especially suitable for applications from 450 nm to 1100 nm (SFH 303) and from 730 nm to 1100 nm (SFH 303 FA)
- High linearity
- 5 mm LED plastic package with base connection
- Also available on tape and reel and in groups

Applications

- Light-reflecting switches for steady and varying intensity
- Industrial electronics
- For control and drive circuits

Typ Type	Bestellnummer Ordering Code
SFH 303	Q62702P0957
SFH 303-3/4	Q62702P3588
SFH 303 FA	Q62702P0958
SFH 303 FA-3/4	Q62702P3587

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} $V_{CE} (t < 2 \text{ min})$	35 70	V
Kollektorstrom Collector current	I_C	50	mA
Kollektorspitzenstrom, $\tau < 10 \mu\text{s}$ Collector surge current	I_{CS}	100	mA
Emitter-Basisspannung Emitter-base voltage	V_{EB}	7	V
Verlustleistung, $T_A = 25 \text{ °C}$ Total power dissipation	P_{tot}	200	mW
Wärmewiderstand Thermal resistance	R_{thJA}	375	K/W

Kennwerte ($T_A = 25\text{ °C}$, $\lambda = 950\text{ nm}$)

Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value		Einheit Unit
		SFH 303	SFH 303 FA	
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\text{ max}}$	850	870	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von S_{max} Spectral range of sensitivity $S = 10\%$ of S_{max}	λ	440 ... 1100	730 ... 1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	0.20	0.20	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	± 20	± 20	Grad deg.
Fotostrom der Kollektor-Basis-Fotodiode Photocurrent of collector-base photodiode $E_e = 0.5\text{ mW/cm}^2$, $V_{CB} = 5\text{ V}$ $E_v = 1000\text{ lx}$, Normlicht/standard light A, $V_{CB} = 5\text{ V}$	I_{PCB} I_{PCB}	– 15.8	4.5 –	μA μA
Kapazität Capacitance $V_{CE} = 0\text{ V}$, $f = 1\text{ MHz}$, $E = 0$ $V_{CB} = 0\text{ V}$, $f = 1\text{ MHz}$, $E = 0$ $V_{EB} = 0\text{ V}$, $f = 1\text{ MHz}$, $E = 0$	C_{CE} C_{CB} C_{EB}	10 15 21	10 15 21	pF pF pF
Dunkelstrom Dark current $V_{CEO} = 10\text{ V}$, $E = 0$	I_{CEO}	$5 (\leq 50)$	$5 (\leq 50)$	nA

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

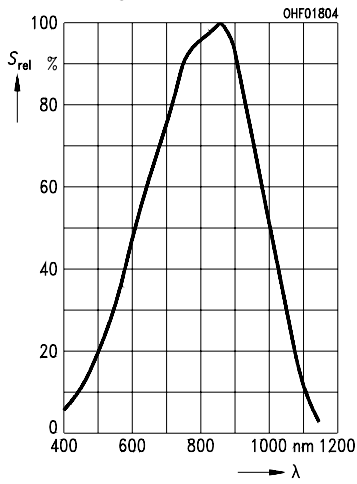
The phototransistors are grouped according to their spectral sensitivity and distinguished by arabian figures.

Bezeichnung Parameter	Symbol Symbol	Wert Value			Einheit Unit
		-2	-3	-4	
Fotostrom, $\lambda = 950 \text{ nm}$ Photocurrent $E_e = 0.5 \text{ mW/cm}^2$, $V_{CE} = 5 \text{ V}$ SFH 303: $E_v = 1000 \text{ lx}$, Normlicht/standard light A, $V_{CE} = 5 \text{ V}$	I_{PCE}	1.0 ... 2.0	1.6 ... 3.2	≥ 2.5	mA
	I_{PCE}	5.2	8.4	13.1	mA
Anstiegszeit/Abfallzeit Rise and fall time $I_C = 1 \text{ mA}$, $V_{CC} = 5 \text{ V}$, $R_L = 1 \text{ k}\Omega$	t_r , t_f	11	13	15	μs
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage $I_C = I_{PCEmin}^{1)} \times 0.3$, $E_e = 0.5 \text{ mW/cm}^2$	V_{CEsat}	150	150	150	mV
Stromverstärkung Current gain $E_e = 0.5 \text{ mW/cm}^2$, $V_{CE} = 5 \text{ V}$	$\frac{I_{PCE}}{I_{PCB}}$	330	530	830	–

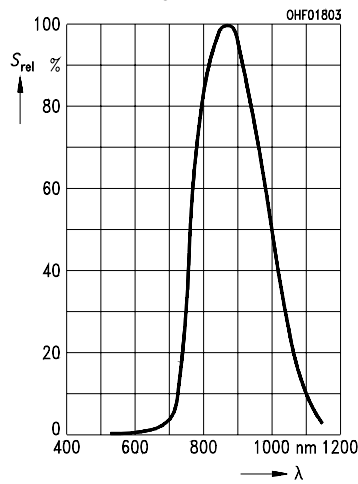
¹⁾ I_{PCEmin} ist der minimale Fotostrom der jeweiligen Gruppe.

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

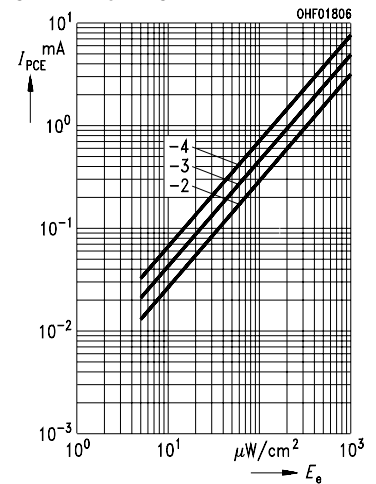
Relative Spectral Sensitivity, SFH 303 $S_{rel} = f(\lambda)$



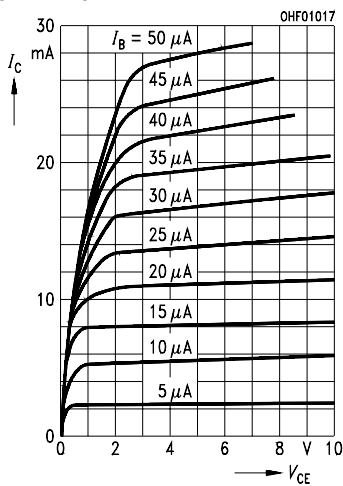
Relative Spectral Sensitivity, SFH 303 FA $S_{rel} = f(\lambda)$



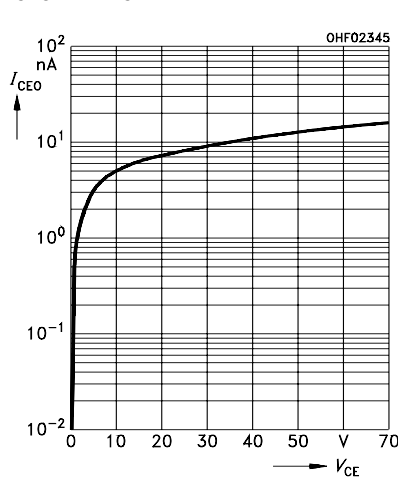
Photocurrent $I_{PCE} = f(E_e), V_{CE} = 5 V$



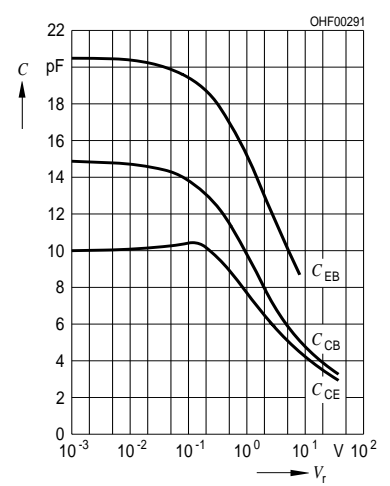
Output Characteristics $I_C = f(V_{CE}), I_B = \text{Parameter}$



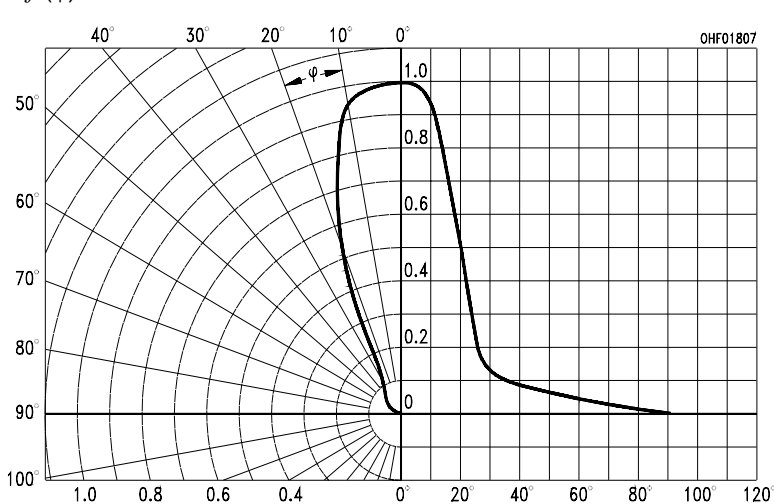
Dark Current $I_{CEO} = f(V_{CE}), E = 0$



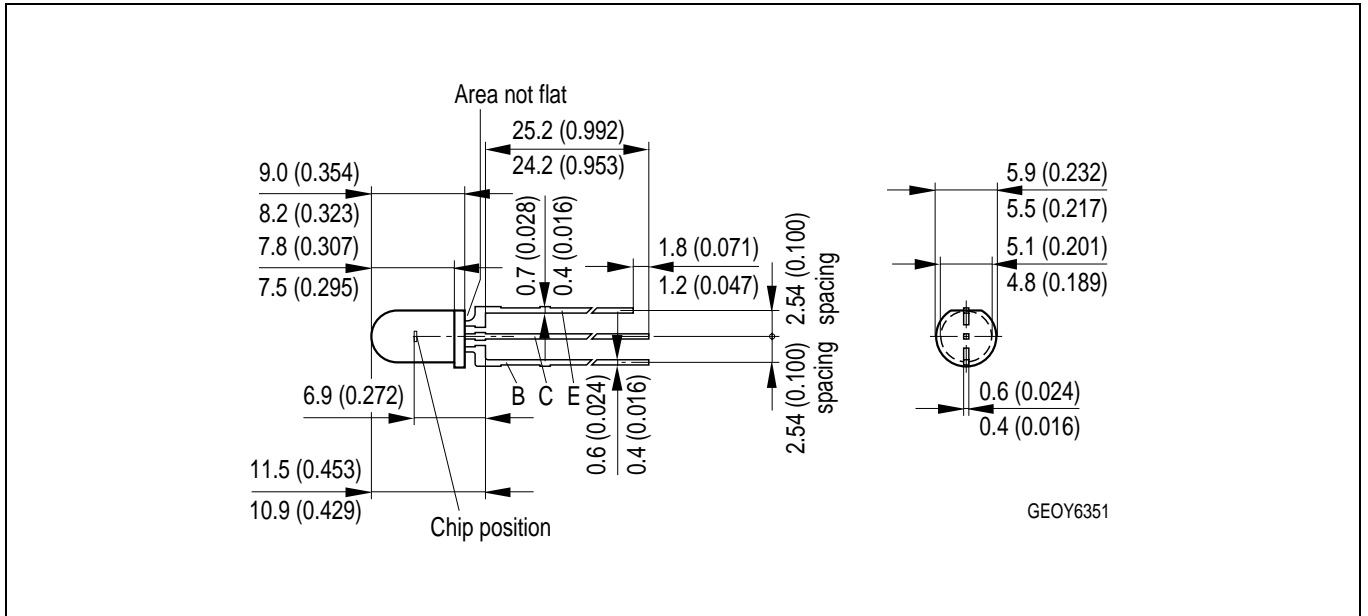
Capacitance $C = f(V_R), f = 1 \text{ MHz}, E = 0$



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



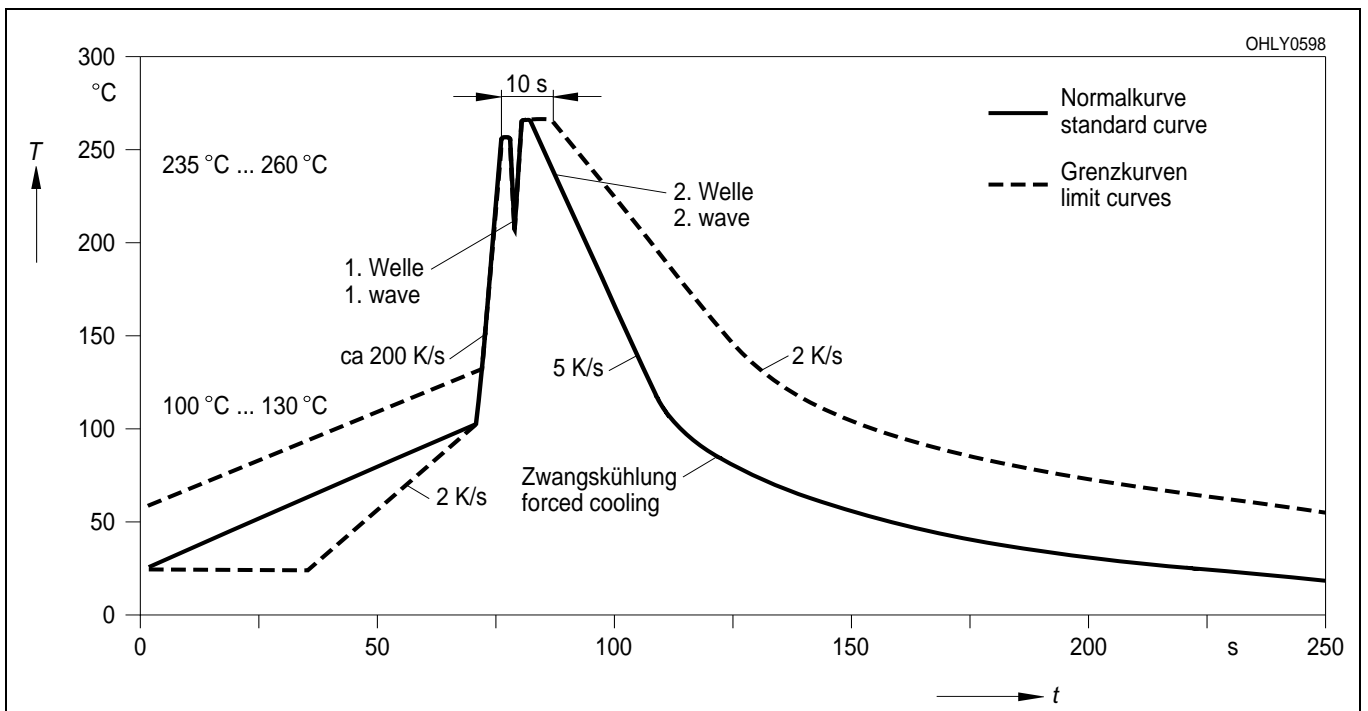
**Maßzeichnung
Package Outlines**



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

**Lötbedingungen
Soldering Conditions
Wellenlöten (TTW)
TTW Soldering**

(nach CECC 00802)
(acc. to CECC 00802)



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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.

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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.

EU RoHS and China RoHS compliant product



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