

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

SFH 303 FA



SFH 303 FA

Wesentliche Merkmale

- **Spektraler Bereich der Fotoempfindlichkeit:**
730 nm ... 1100 nm
- **Gehäuse:** 5 mm Radial (T13/4), Harz
- **Besonderheit des Bauteils:**
 - mit Basisanschluss
 - hohe Fotoempfindlichkeit

Features

- **Spectral Range of Sensitivity:**
730 nm ... 1100 nm
- **Package:** 5 mm Radial (T13/4), Epoxy
- **Feature of the device:**
 - with base connection
 - high photosensitivity

Anwendungen

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

Applications

- Photointerrupters
- Industrial electronics
- For control and drive circuits

Typ Type	Bestellnummer Ordering Code	Fotostrom, $E_e = 0.5\text{mW/cm}^2$, $\lambda = 950\text{nm}$, $V_{CE} = 5\text{ V}$ Photocurrent I_{pce} (mA)
SFH 303 FA	Q62702P0958	≥ 1.0
SFH 303 FA-3/4	Q62702P3587	≥ 1.6

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, $\tau < 10 \mu s$ Collector surge current	I_{CS}	100	mA
Emitter-Basisspannung Emitter-base voltage	V_{EB}	7	V
Verlustleistung, $T_A = 25 \text{ }^\circ\text{C}$ Total power dissipation	P_{tot}	200	mW
Wärmewiderstand Thermal resistance	R_{thJA}	375	K/W

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

Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S \max}$	990	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von S_{\max} Spectral range of sensitivity $S = 10\%$ of S_{\max}	λ	750 ...1120	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	0.11	mm ²
Abmessung der Chipfläche Dimensions of chip area	$L \times B$ $L \times W$	0.5×0.5	mm \times mm
Halbwinkel Half angle	φ	± 20	Grad deg.
Fotostrom der Kollektor-Basis-Fotodiode Photocurrent of collector-base photodiode $E_e = 0.5 \text{ mW/cm}^2$, $V_{CB} = 5 \text{ V}$ $V_{CB} = 5 \text{ V}$	I_{PCB}	4.0	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}	7.5 14 19	pF pF pF
Dunkelstrom Dark current $V_{CEO} = 20 \text{ V}$, $E = 0$	I_{CEO}	1 (≤ 50)	nA
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage (threefold saturated)	V_{CEsat}	150	mV

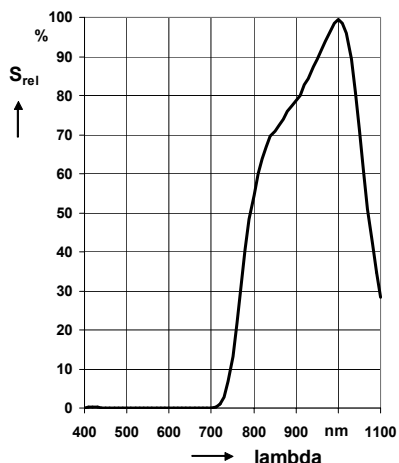
Die Fototransistoren werden nach ihrer Fotoempfindlichkeit gruppiert und mit arabischen Ziffern gekennzeichnet.

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 Photocurrent $E_e = 0.5 \text{ mW/cm}^2, \lambda = 950 \text{ nm}, V_{CE} = 5 \text{ V}$	I_{PCE}	1.0 .. 2.0	1.6 .. 3.2	≥ 2.5	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

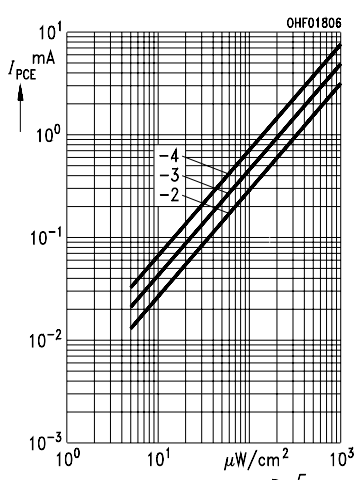
Relative Spectral Sensitivity,

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



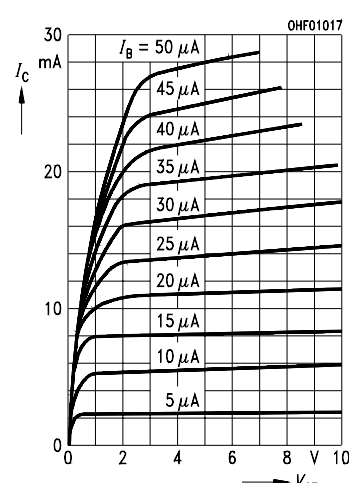
Photocurrent

$I_{PCE} = f(E_{\theta}), V_{CE} = 5 V$



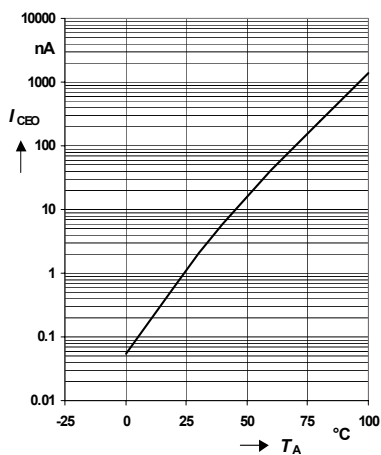
Output Characteristics

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



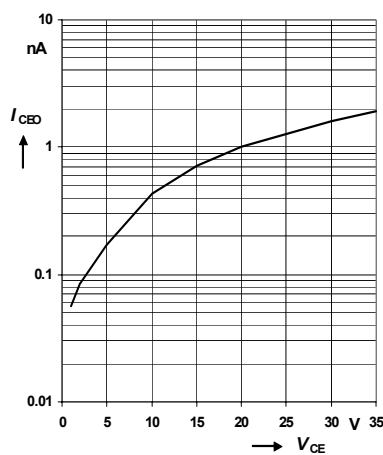
Dark Current

$I_{CEO} = f(T_A), V_{CE} = 20 V, E = 0$



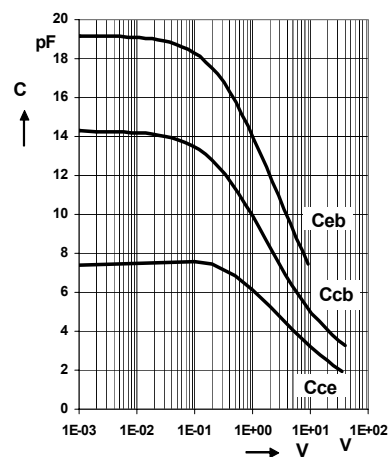
Dark Current

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



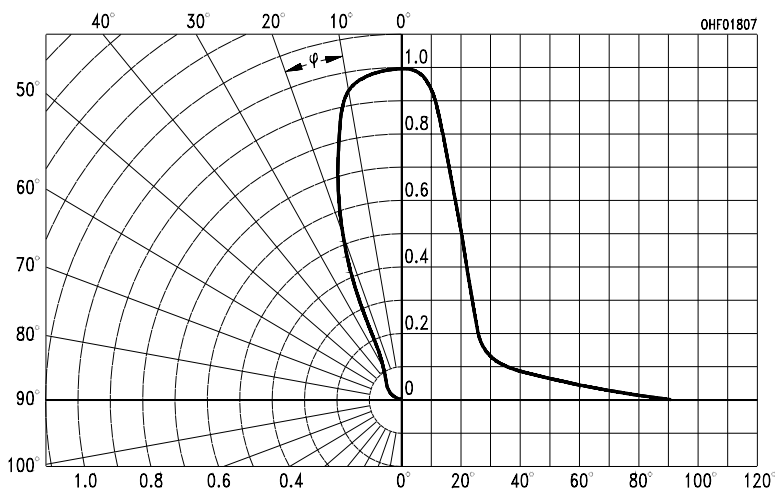
Capacitance

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

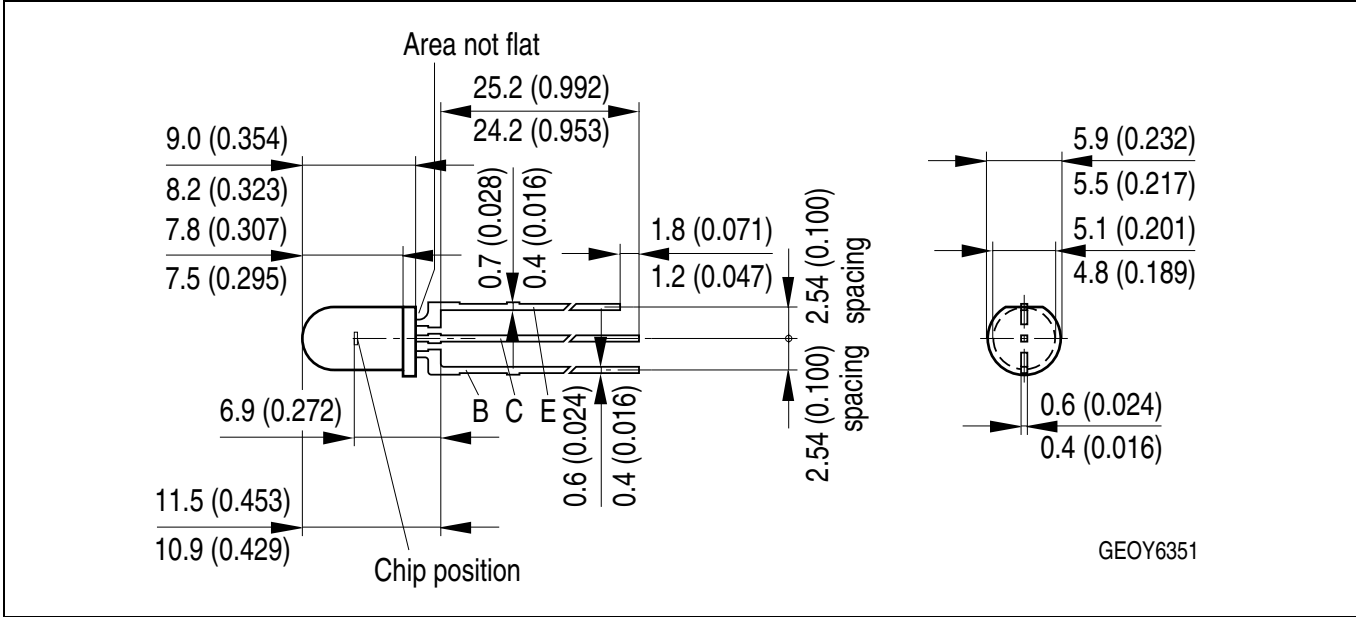


Directional Characteristics

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



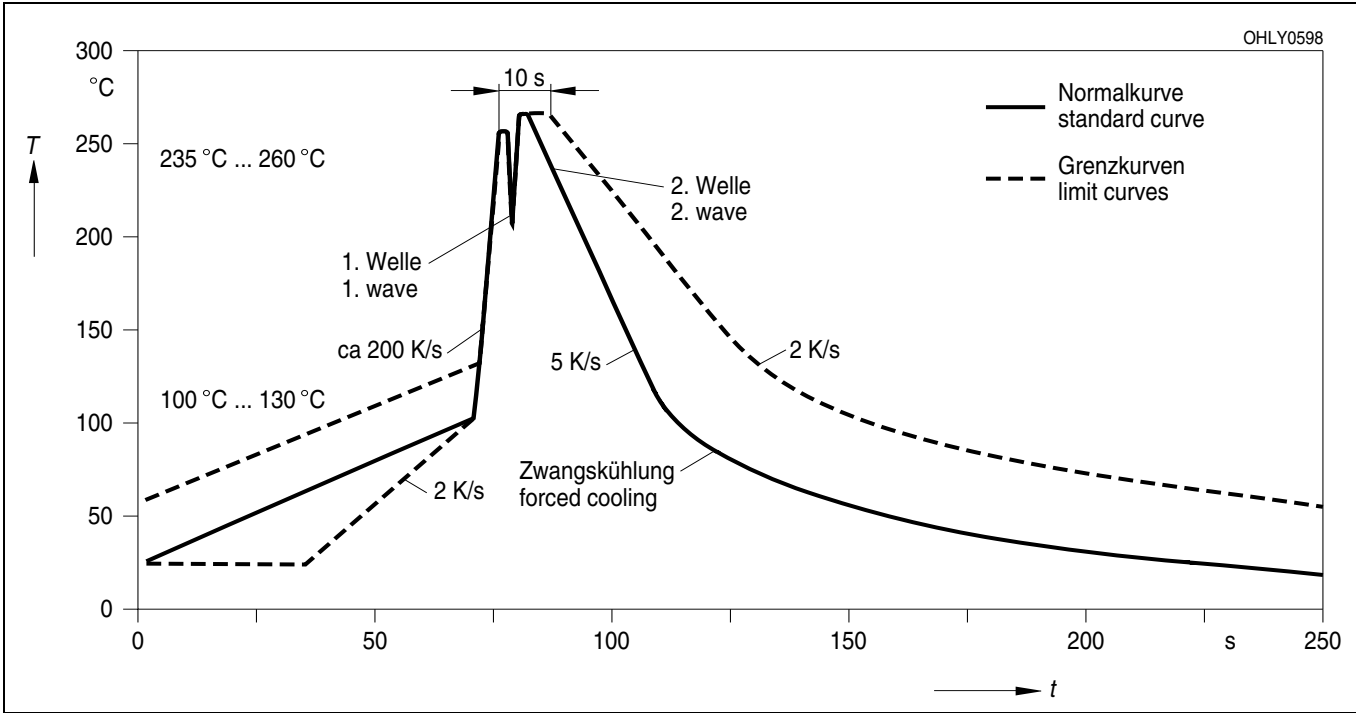
**Maßzeichnung
Package Outlines**



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

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

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



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

© All Rights Reserved.

Attention please!

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 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



此产品符合欧盟 RoHS 指令的要求；

按照中国的相关法规和标准，不含有毒有害物质或元素。