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 (T1 3/4), Harz
- **Besonderheit des Bauteils:**
  - mit Basisanschluss
  - hohe Fotoempfindlichkeit

Features

- **Spectral Range of Sensitivity:** 730 nm ... 1100 nm
- **Package:** 5 mm Radial (T1 3/4), 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= 0.5mW/cm^2, λ = 950nm, V_{CE} = 5 V **Photocurrent** Ipce (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, $\tau < 10$ µs Collector surge current	I_{CS}	100	mA
Emitter-Basisspannung Emitter-base voltage	V_{EB}	7	V
Verlustleistung, $T_A = 25$ °C Total power dissipation	P_{tot}	200	mW
Wärmewiderstand Thermal resistance	R_{thJA}	375	K/W

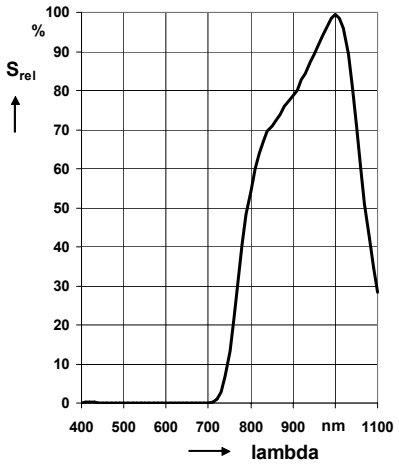
Kennwerte (T_A = 25 °C, λ = 950 nm)
Characteristics

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 × mm
Halbwinkel Half angle	φ	±20	Grad deg.
Fotostrom der Kollektor-Basis-Fotodiode Photocurrent of collector-base photodiode E_e = 0.5 mW/cm², V_{CB} = 5 V V_{CB} = 5 V	I_{PCB}	4.0	µA
Kapazität Capacitance V_{CE} = 0 V, f = 1 MHz, E = 0 V_{CB} = 0 V, f = 1 MHz, E = 0 V_{EB} = 0 V, f = 1 MHz, E = 0	 C_{CE} C_{CB} C_{EB}	 7.5 14 19	 pF pF pF
Dunkelstrom Dark current V_{CEO} = 20 V, E = 0	I_{CEO}	1 (≤50)	nA
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage (threefold saturated)	V_{CEsat}	150	mV

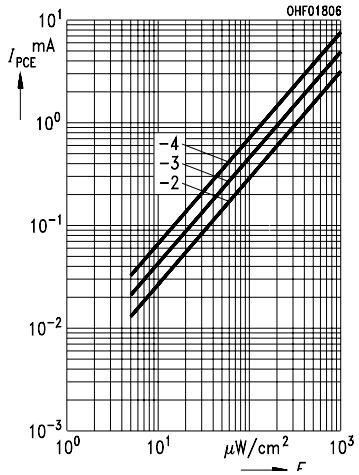
Die Fototransistoren werden nach ihrer Fotoempfindlichkeit gruppiert und mit arabischen Ziffern gekennzeichnet.
The phototransistors are grouped according to their spectral sensitivity and distinguished by arabian figures.

Bezeichnung Parameter	Symbol Symbol	Wert Value			Einheit Unit
		-2	-3	-4	
Fotostrom Photocurrent E_e= 0.5mW/cm^2, λ = 950nm, V_{CE} = 5 V	I_{PCE}	1.0 …2.0	1.6 …3.2	≥ 2.5	mA
Anstiegszeit/Abfallzeit Rise and fall time I_C = 1 mA, V_{CC} = 5 V, R_L = 1 kΩ	t_r, t_f	11	13	15	µs

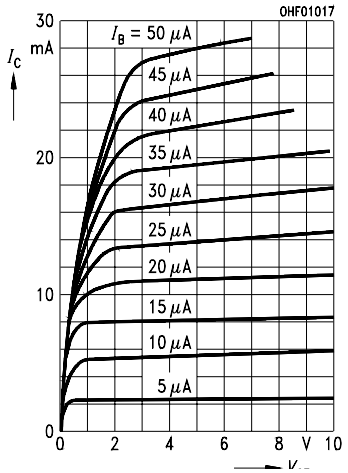
Relative Spectral Sensitivity,
$S_{rel} = f(\lambda)$



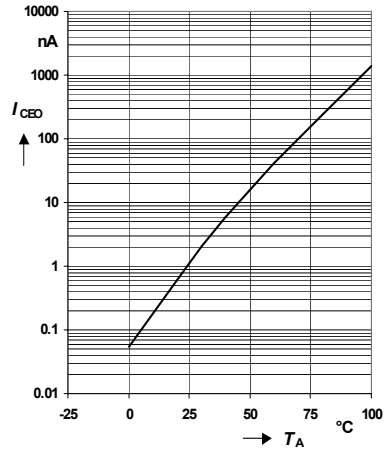
Photocurrent
$I_{PCE} = f(E_e)$, $V_{CE} = 5$ V



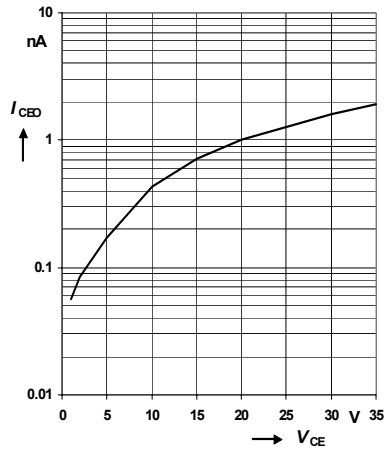
Output Characteristics
$I_C = f(V_{CE})$, I_B = Parameter



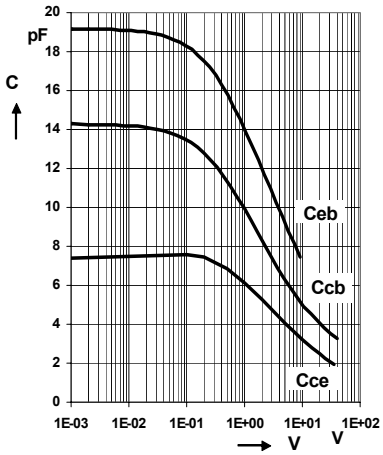
Dark Current
$I_{CEO} = f(T_A)$, $V_{CE} = 20$ V, $E = 0$



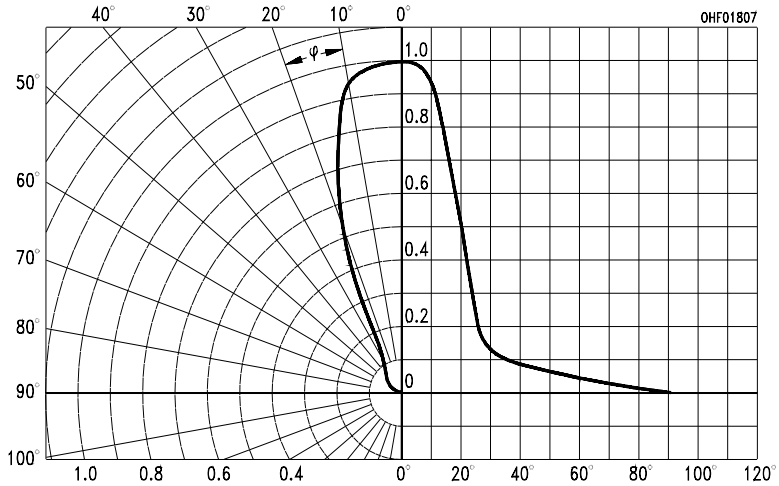
Dark Current
$I_{CEO} = f(V_{CE})$, $E = 0$



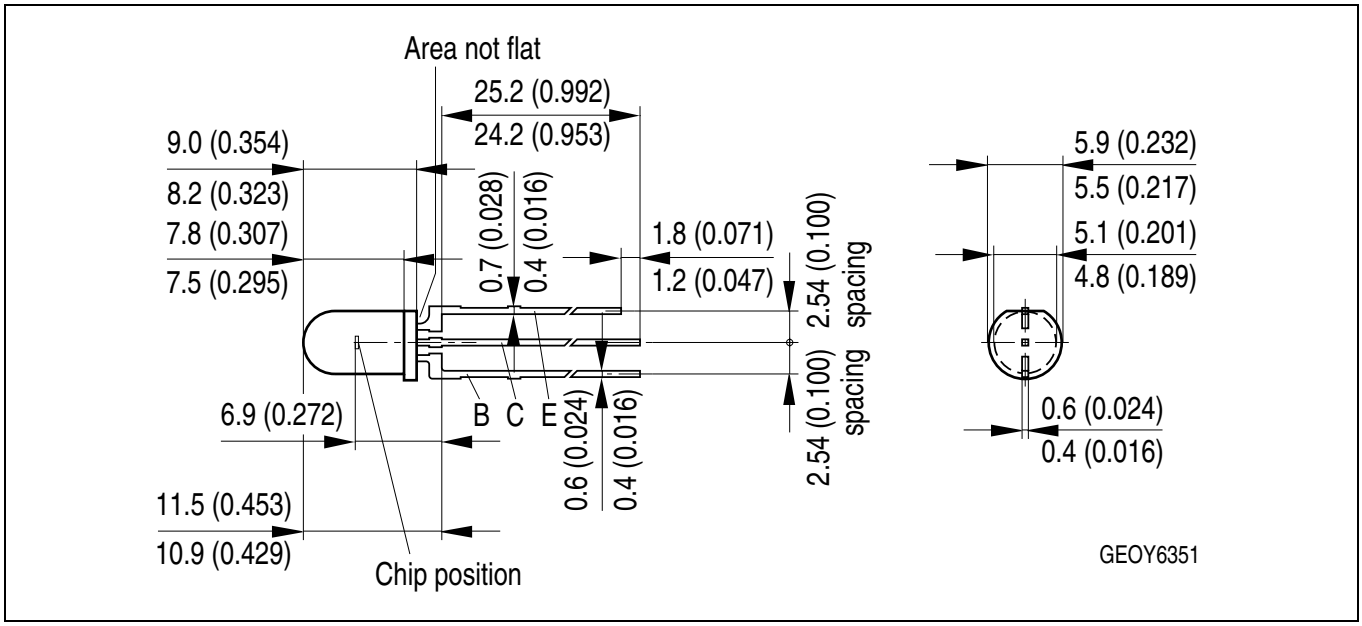
Capacitance
$C = f(V_R)$, $f = 1$ MHz, $E = 0$



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

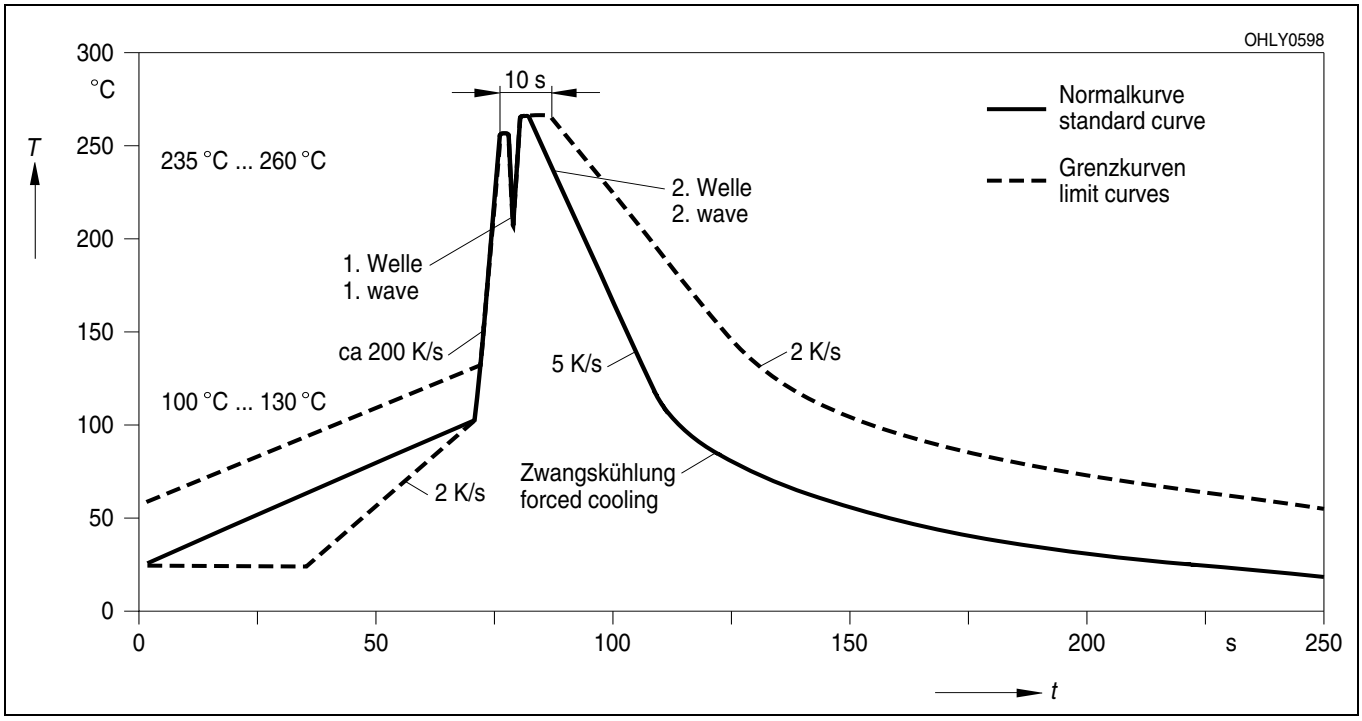


Maßzeichnung
Package Outlines



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

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



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