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

SFH 3100 F

Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 850 nm bis 1100 nm
- Enge Empfangscharakteristik
- Geringe Außenabmessungen
- Gleiche Bauform wie IRED SFH 4110
- Hoher Koppelfaktor in Lichtschranken mit SFH 4110
- IR-Filter
- Leichte Unterscheidbarkeit zwischen SFH 3100 F (schwarzes Gehäuse) und SFH 4110 (klares Gehäuse)

Features

- Especially suitable for applications from 850 nm to 1100 nm
- Narrow half angle
- Small outline dimensions
- Same package as IRED SFH 4110
- High coupling factor in light barriers with SFH 4110
- IR filter
- Easy identification of SFH 3100 F (black package) and SFH 4110 (clear package)

Anwendungen

- Empfänger in Lichtschranken
- Bandende-Erkennung (z.B. Videorecorder)
- Datenübertragung
- Positionsüberwachung
- Barcode-Leser
- „Messen/Steuern/Regeln“
- Münzzähler

Applications

- Detector in photointerrupters
- Tape end detection
- Data transmission
- Position sensing
- Barcode reader
- For control and drive circuits
- Coin counters

Typ **Type**	**Bestellnummer** **Ordering Code**	**Fotostrom** , E_e= 0.5mW/cm^2, λ = 950nm, V_{CE} = 5 V **Photocurrent** Ipce (mA)
SFH 3100 F SFH 3100 F-2/3/4	Q62702-P5073 Q62702-P5475	> 0,4 0.63…3.2

Grenzwerte
Maximum Ratings

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Betriebs- und Lagertemperatur Operating and storage temperature range	T_{op}; T_{stg}	– 40 … + 85	°C
Kollektor-Emitterspannung Collector-emitter voltage	V_{CE}	35	V
Kollektorstrom Collector current	I_C	50	mA
Kollektorspitzenstrom, t < 10 µs Collector surge current	I_{CS}	100	mA
Emitter-Kollektorspannung Emitter-collector voltage	V_{EC}	7	V
Verlustleistung, T_A = 25 °C Total power dissipation	P_{tot}	150	mW
Wärmewiderstand Sperrschicht - Umgebung Thermal resistance junction - ambient	R_{thJA}	280	K/W

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

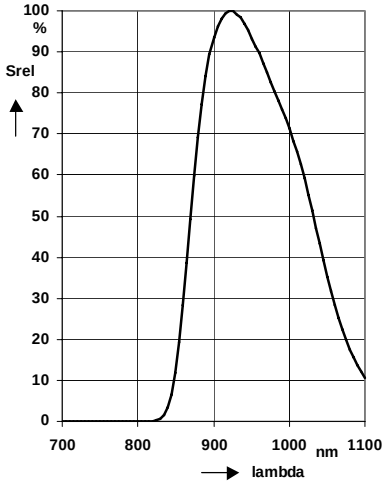
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\ max}$	920	nm
Spektraler Bereich der Fotoempfindlichkeit S = 10% von S_{max} Spectral range of sensitivity S = 10% of S_{max}	λ	850 … 1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	0.11	mm^2
Abmessungen der Chip-Fläche Dimension of chip area	$L \times B$ $L \times W$	0.5 × 0.5	mm × mm
Halbwinkel Half angle	φ	± 14	Grad deg.
Kapazität Capacitance V_{CE} = 0 V, f = 1 MHz, E = 0 V_{CE} = 5 V, f = 1 MHz, E = 0	C_{CE}	7.5 4.0	pF
Dunkelstrom, V_{CE} = 20 V Dark current	I_{CEO}	1 (≤ 50)	nA
Fotostrom Photocurrent E_e = 0.5 mW/cm², V_{CE} = 5 V	I_{PCE}	>0.4	mA

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}	0.63…1.25	1.0…2.0	1.6…3.2	mA
Anstiegszeit/Abfallzeit Rise and fall time I_C = 1 mA, V_{CC} = 5 V, R_L = 1 kΩ	t_r, t_f	7 9			µs
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage $I_C = I_{PCEmin}$[1] × 0.3, E_e = 0.5 mW/cm^2, λ = 950 nm	V_{CEsat}	140 (≤ 400)			mV

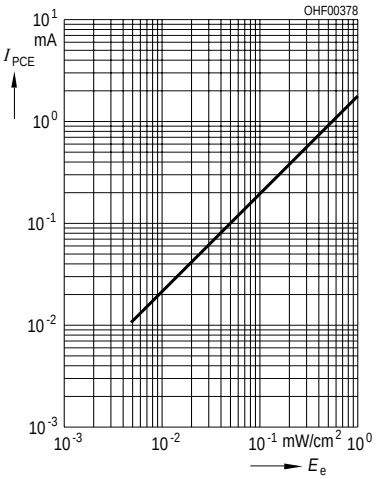
[1] I_{PCEmin} ist der minimale Fotostrom der jeweiligen Gruppe.

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

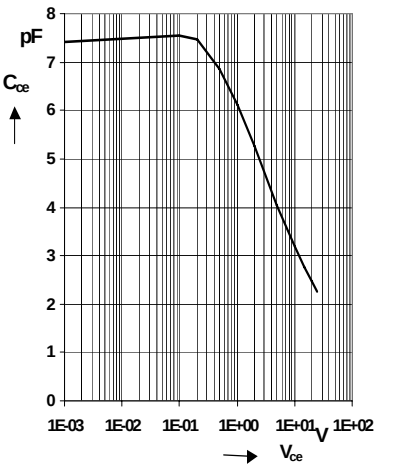
Relative Spectral Sensitivity
$S_{rel} = f(\lambda)$



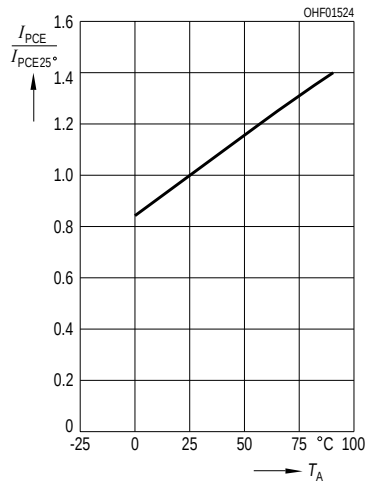
Photocurrent
$I_{PCE} = f(E_e)$, V_{CE} = 5 V



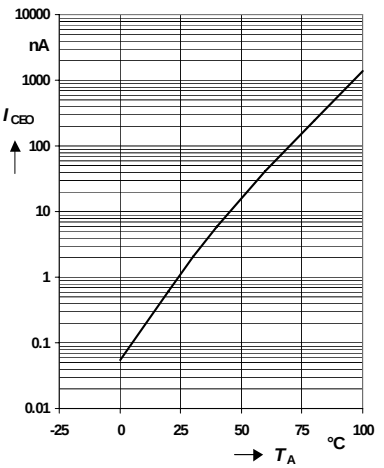
Collector-Emitter Capacitance
$C_{CE} = f(V_{CE})$, f = 1 MHz, E = 0



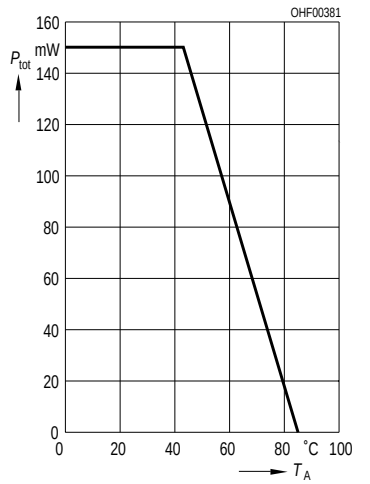
Photocurrent $I_{PCE} = f(T_A)$,
V_{CE} = 5 V, normalized to 25 °C



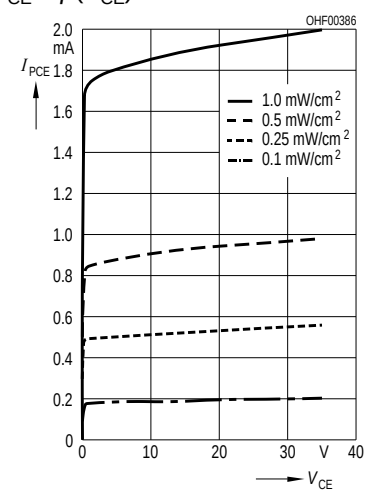
Dark Current
$I_{CEO} = f(T_A)$, V_{CE} = 20 V, E = 0



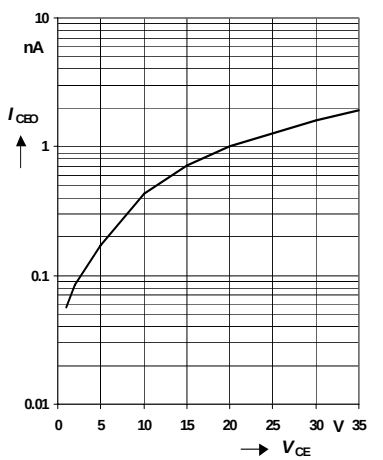
Total Power Dissipation
$P_{tot} = f(T_A)$



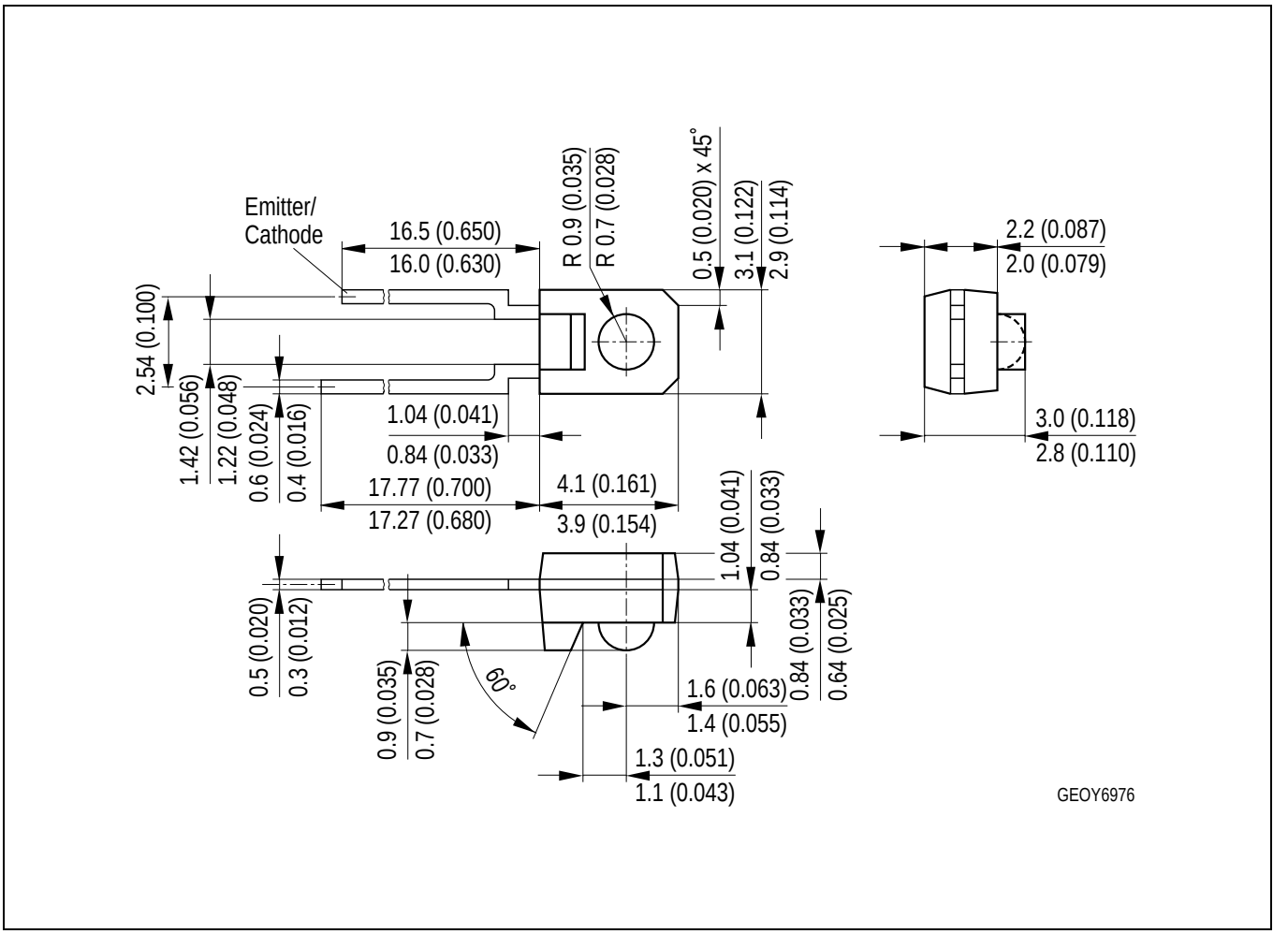
Photocurrent SFH 3100 F
$I_{PCE} = f(V_{CE})$



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



Maßzeichnung
Package Outlines



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

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。

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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.

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[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.