

NPN-Silizium-Fototransistor Silicon NPN Phototransistor

SFH 3010



Wesentliche Merkmale

- Sehr kleines SMT-Gehäuse (SCD 80):
(LxBxH) 1,7 mm x 0,8 mm x 0,65 mm
- Speziell geeignet für Anwendungen im Bereich
von 420 nm bis 1100 nm
- großer Empfangswinkel $\pm 80^\circ$
- geeignet für IR-Reflow-Löten (JEDEC level 4)
- Nur gegurtet lieferbar

Anwendungen

- Miniaturlichtschranken
- Sensorik (z.B. Handy)
- „Messen/Steuern/Regeln“

Features

- Very small SMT package (SCD 80):
(LxWxH) 1.7 mm x 0.8 mm x 0.65 mm
- Especially suitable for applications from
420 nm to 1100 nm
- large viewing angle $\pm 80^\circ$
- suitable for IR reflow soldering (JEDEC level 4)
- Available only on tape and reel

Applications

- Miniature photointerrupters
- Sensor technology (eg mobile phone)
- For control and drive circuits

Typ Type	Bestellnummer Ordering Code
SFH 3010	Q62702-P5555

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} $V_{CE} (t < 2 \text{ min})$	15 30	V
Kollektorstrom Collector current	I_C	15	mA
Kollektorspitzenstrom, $\tau < 10 \mu\text{s}$ Collector surge current	I_{CS}	75	mA
Emitter-Kollektorspannung Emitter-collector voltage	V_{EC}	7	V
Verlustleistung, $T_A = 25 \text{ °C}$ Total power dissipation	P_{tot}	130	mW
Wärmewiderstand Sperrschicht - Umgebung bei Montage auf FR4 Platine, Padgröße je 16 mm^2 Thermal resistance junction - ambient mounted on PC-board (FR4), padsize 16 mm^2 each	R_{thJA}	585	K/W

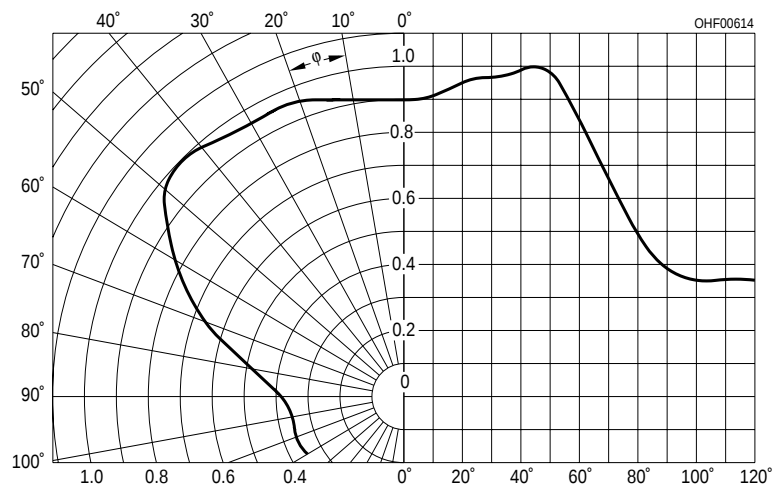
Kennwerte ($T_A = 25\text{ °C}$, $\lambda = 950\text{ nm}$)

Characteristics

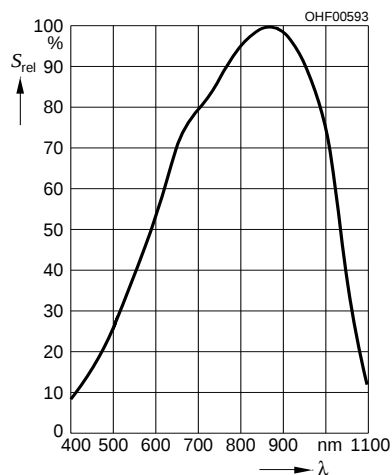
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\text{ max}}$	860	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von S_{max} Spectral range of sensitivity $S = 10\%$ of S_{max}	λ	420 ... 1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	0.02	mm ²
Abmessungen der Chipfläche Dimensions of chip area	$L \times B$ $L \times W$	0.38×0.38	mm × mm
Halbwinkel Half angle	φ	± 80	Grad deg.
Kapazität Capacitance $V_{\text{CE}} = 5\text{ V}$, $f = 1\text{ MHz}$, $E = 0$	C_{CE}	1.3	pF
Dunkelstrom Dark current $V_{\text{CE}} = 20\text{ V}$, $E = 0$	I_{CEO}	2 (≤ 50)	nA
Fotostrom Photocurrent $E_e = 0.5\text{ mW/cm}^2$, $V_{\text{CE}} = 5\text{ V}$	I_{PCE}	>25	μA
Anstiegszeit/Abfallzeit Rise and fall time $I_C = 1\text{ mA}$, $V_{\text{CC}} = 5\text{ V}$, $R_L = 1\text{ k}\Omega$	t_r, t_f	7	μs
Kollektrr-Emitter-Sättigungsspannung Collector-emitter saturation voltage $I_C = 10\mu\text{A}$ $E_e = 0.5\text{ mW/cm}^2$, $\lambda = 950\text{ nm}$	V_{CEsat}	140	mV

Directional Characteristics

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

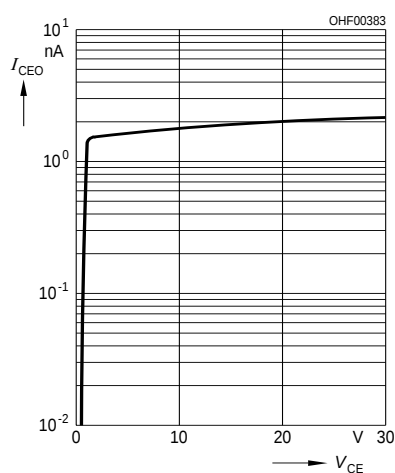


Rel. Spectral Sensitivity,
 $S_{\text{rel}} = f(\lambda)$, axial direction

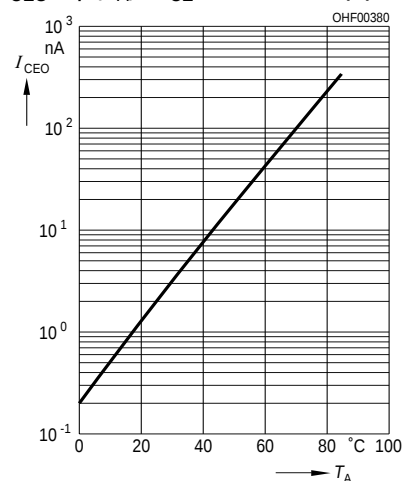


Dark Current

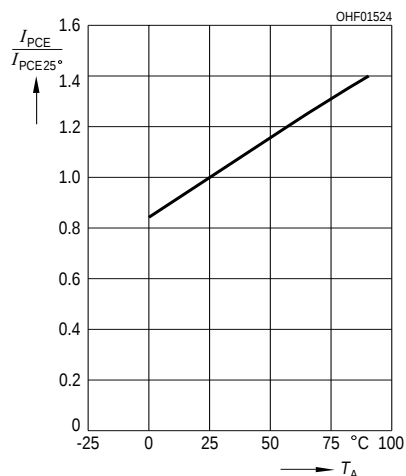
$$I_{\text{CEO}} = f(V_{\text{CE}}), E = (0)$$



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

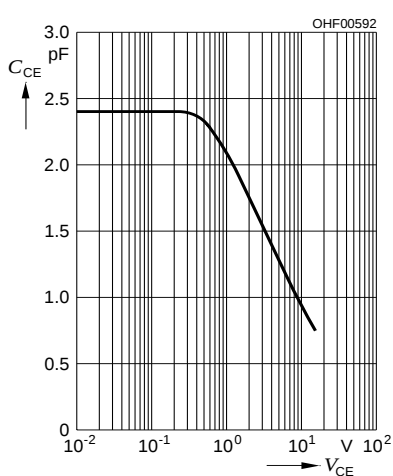


Photocurrent $I_{\text{PCE}} = f(T_A)$,
 $V_{\text{CE}} = 5 \text{ V}$, normalized to 25 °C



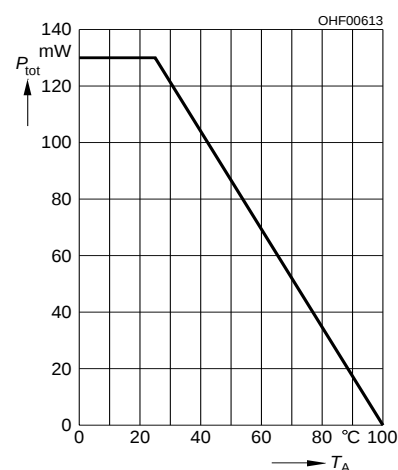
Collector-Emitter Capacitance

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



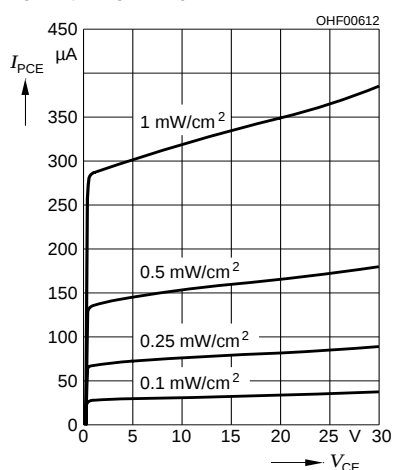
Total Power Dissipation

$$P_{\text{tot}} = f(T_A)$$



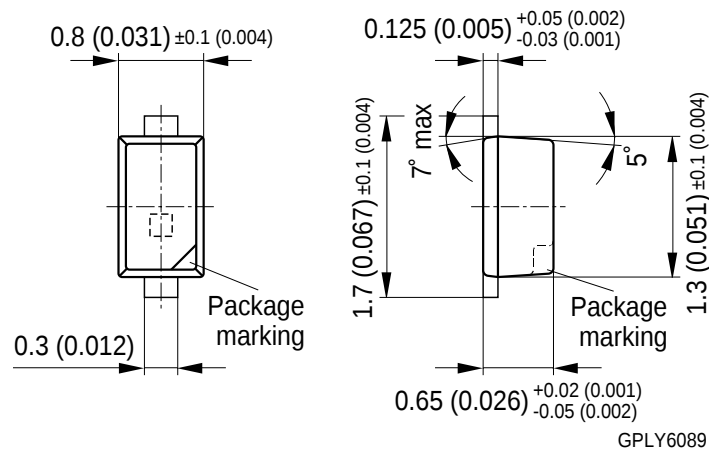
Photocurrent

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



Dark Current

Maßzeichnung Package Outlines



Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

Package	Epoxy, SmartLED (SCD 80)
Colour	colourless, light diffused
Package marking	Collector

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