

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

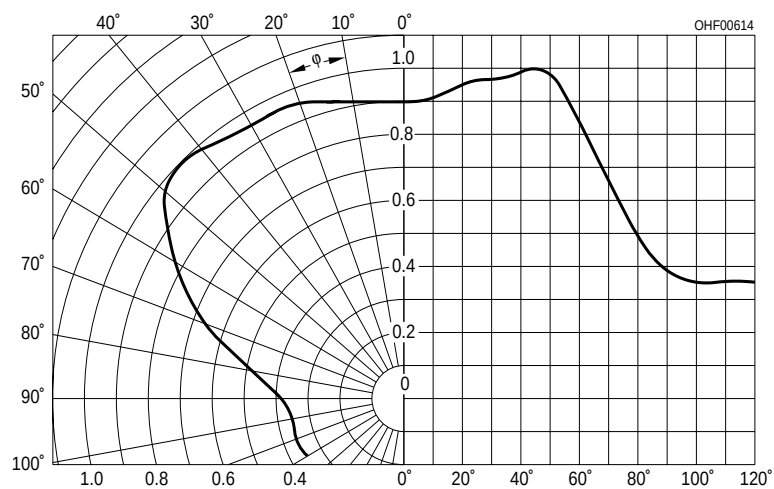
Kennwerte ($T_A = 25\text{ °C}$, $\lambda = 950\text{ nm}$)

Characteristics

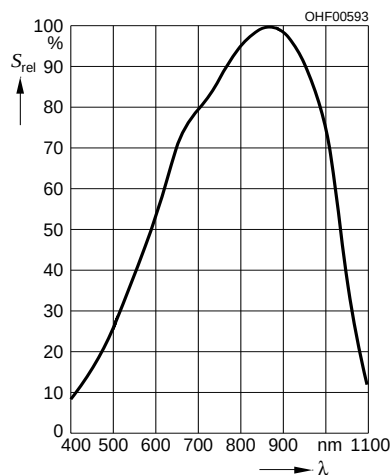
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\text{ max}}$	860	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von S_{max} Spectral range of sensitivity $S = 10\%$ of S_{max}	λ	420 ... 1100	nm
Bestrahlungsempfindliche 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

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

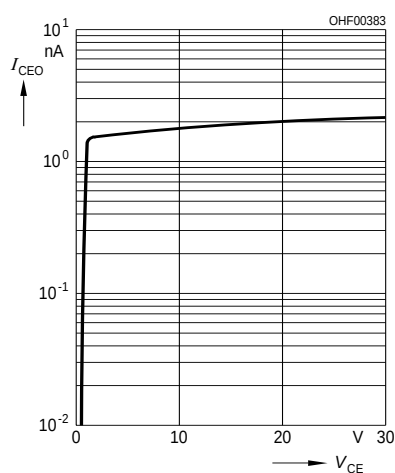


Rel. Spectral Sensitivity,
 $S_{\text{rel}} = f(\lambda)$, axial direction

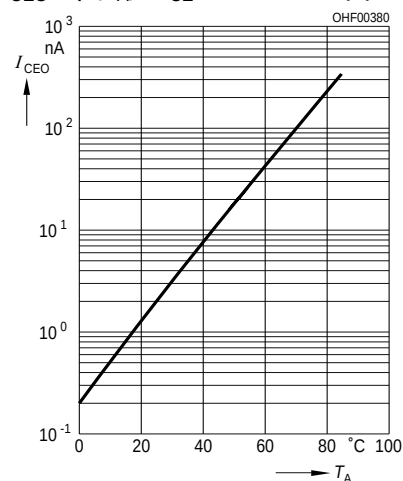


Dark Current

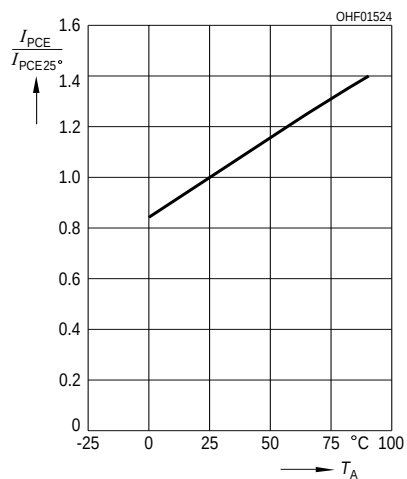
$$I_{\text{CEO}} = f(V_{\text{CE}}), E = (0)$$



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

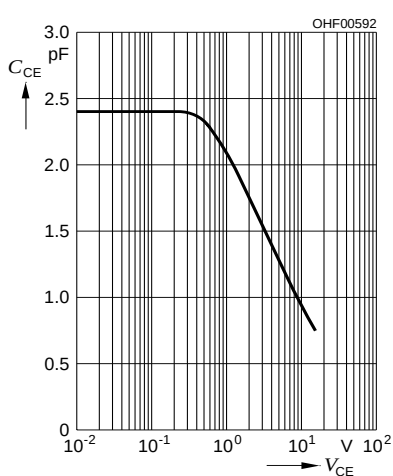


Photocurrent $I_{\text{PCE}} = f(T_A)$,
 $V_{\text{CE}} = 5 \text{ V}$, normalized to 25 °C



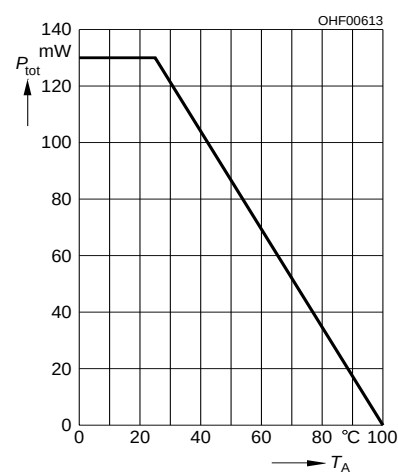
Collector-Emitter Capacitance

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



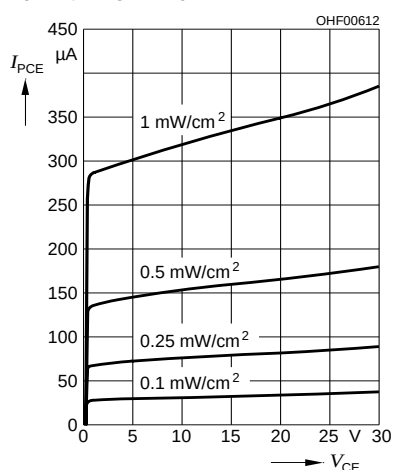
Total Power Dissipation

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



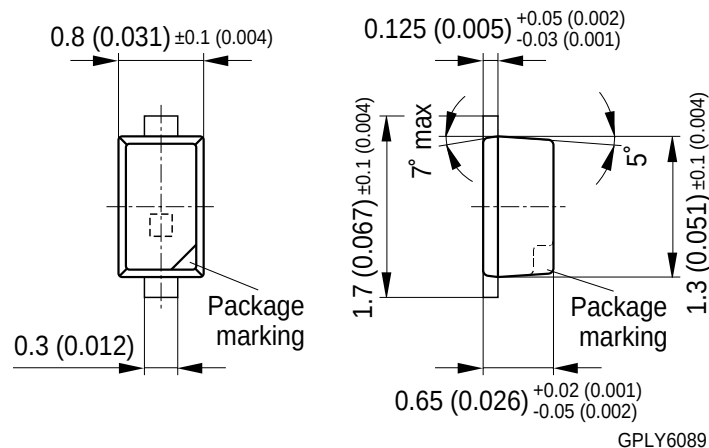
Photocurrent

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



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

Published by OSRAM Opto Semiconductors GmbH & Co. OHG
Wernerwerkstrasse 2, D-93049 Regensburg

© 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 components¹, may only be used in life-support devices or systems² 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.