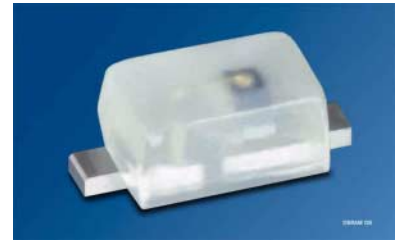


NPN-Silizium-Fototransistor
Silicon NPN Phototransistor
Lead (Pb) Free Product - RoHS Compliant

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
- 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
- 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	Q65110A2652

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

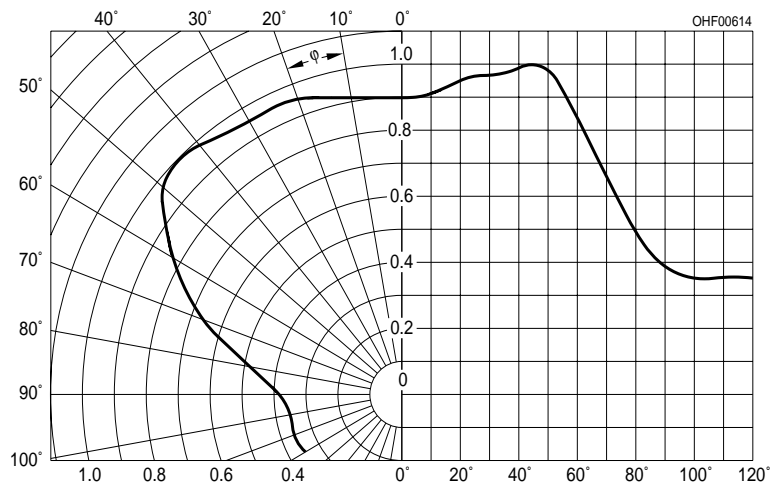
Kennwerte ($T_A = 25 \text{ °C}$, $\lambda = 950 \text{ nm}$)

Characteristics

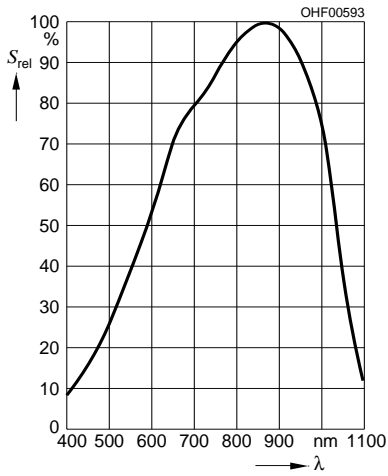
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S \max}$	860	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von S_{\max} Spectral range of sensitivity $S = 10\%$ of S_{\max}	λ	420 ...1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	0.04	mm ²
Abmessungen der Chipfläche Dimensions of chip area	$L \times B$ $L \times W$	0.35×0.35	mm \times mm
Halbwinkel Half angle	φ	± 80	Grad deg.
Kapazität Capacitance $V_{CE} = 5 \text{ V}$, $f = 1 \text{ MHz}$, $E = 0$	C_{CE}	1.3	pF
Dunkelstrom Dark current $V_{CE} = 20 \text{ V}$, $E = 0$	I_{CEO}	2 (≤ 0)	nA
Fotostrom Photocurrent $E_e = 0.5 \text{ mW/cm}^2$, $V_{CE} = 5 \text{ V}$	I_{PCE}	>25	μA
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	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

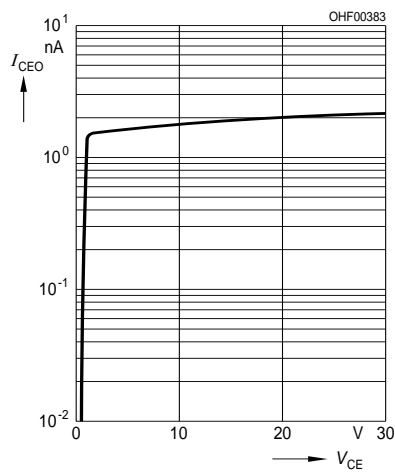
$$S_{\text{rel}} = f(\varphi)$$



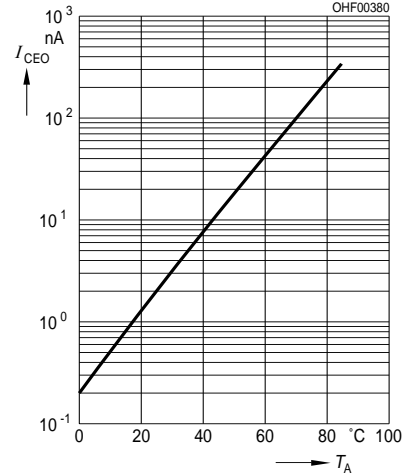
Rel. Spectral Sensitivity,
 $S_{rel} = f(\lambda)$, axial direction



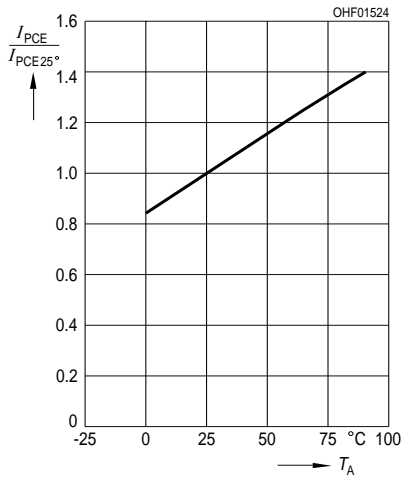
Dark Current
 $I_{CEO} = f(V_{CE}), E = 0$



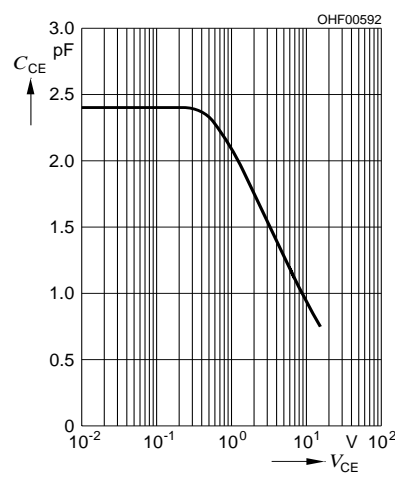
Dark Current
 $I_{CEO} = f(T_A), V_{CE} = 20 \text{ V}, E = 0$



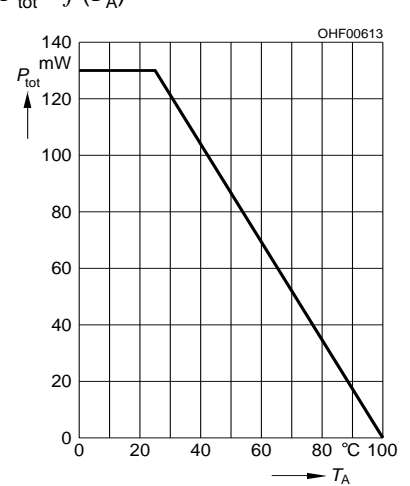
Photocurrent $I_{PCE} = f(T_A)$,
 $V_{CE} = 5 \text{ V}$, normalized to 25 °C



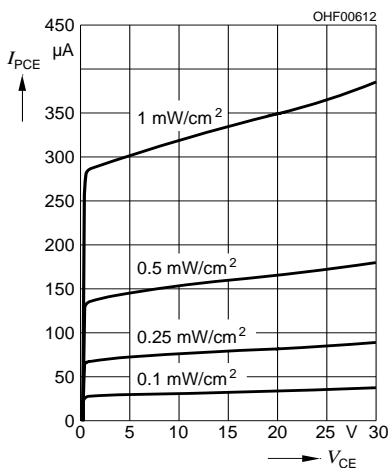
Collector-Emitter Capacitance
 $C_{CE} = f(V_{CE}), f = 1 \text{ MHz}$



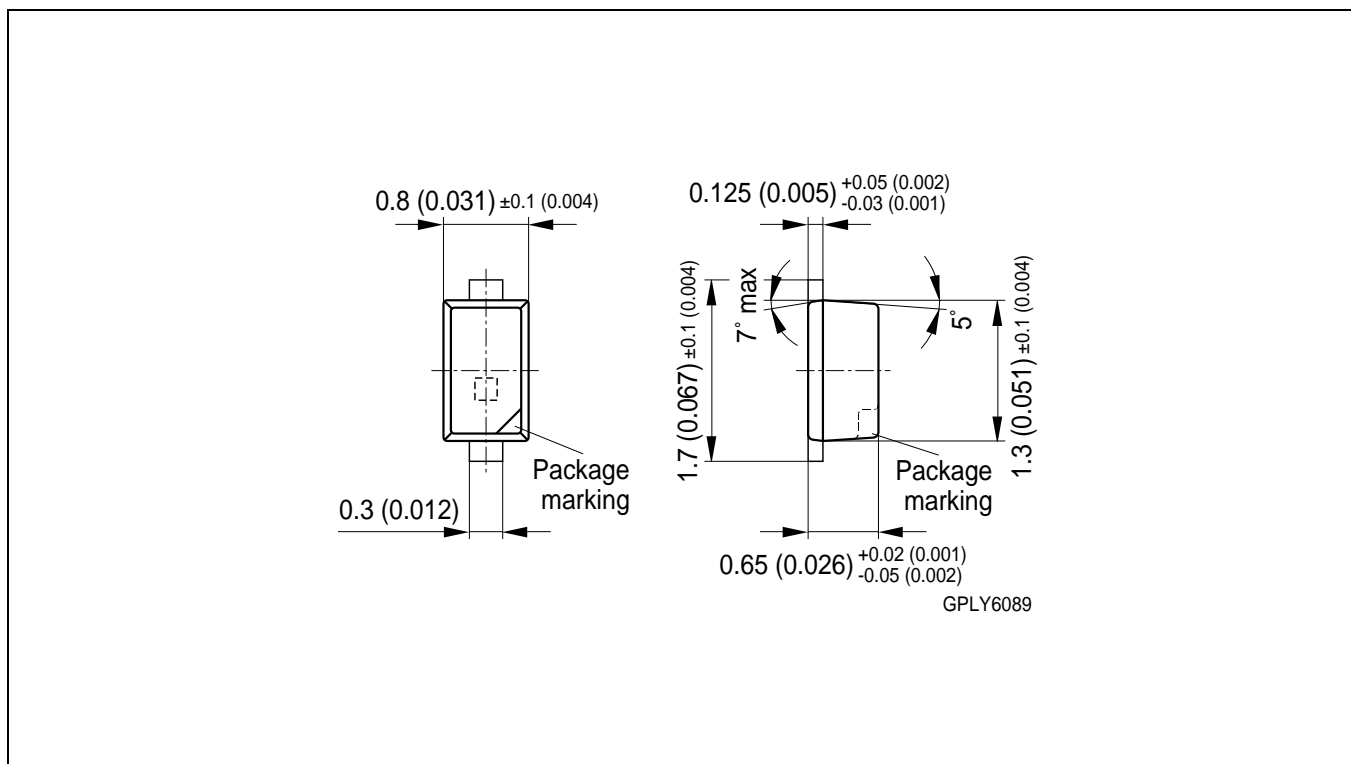
Total Power Dissipation
 $P_{tot} = f(T_A)$



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



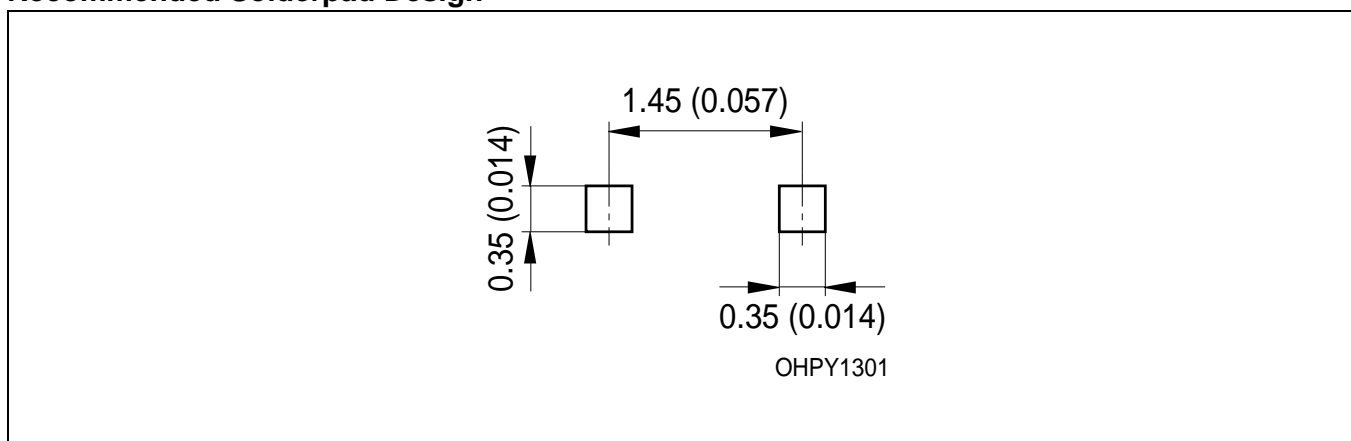
Maßzeichnung Package Outlines



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

Empfohlenes Lötpaddesign Recommended Solderpad Design



Lötbedingungen
Soldering Conditions

IR-Reflow Lötprofil für bleifreies Löten

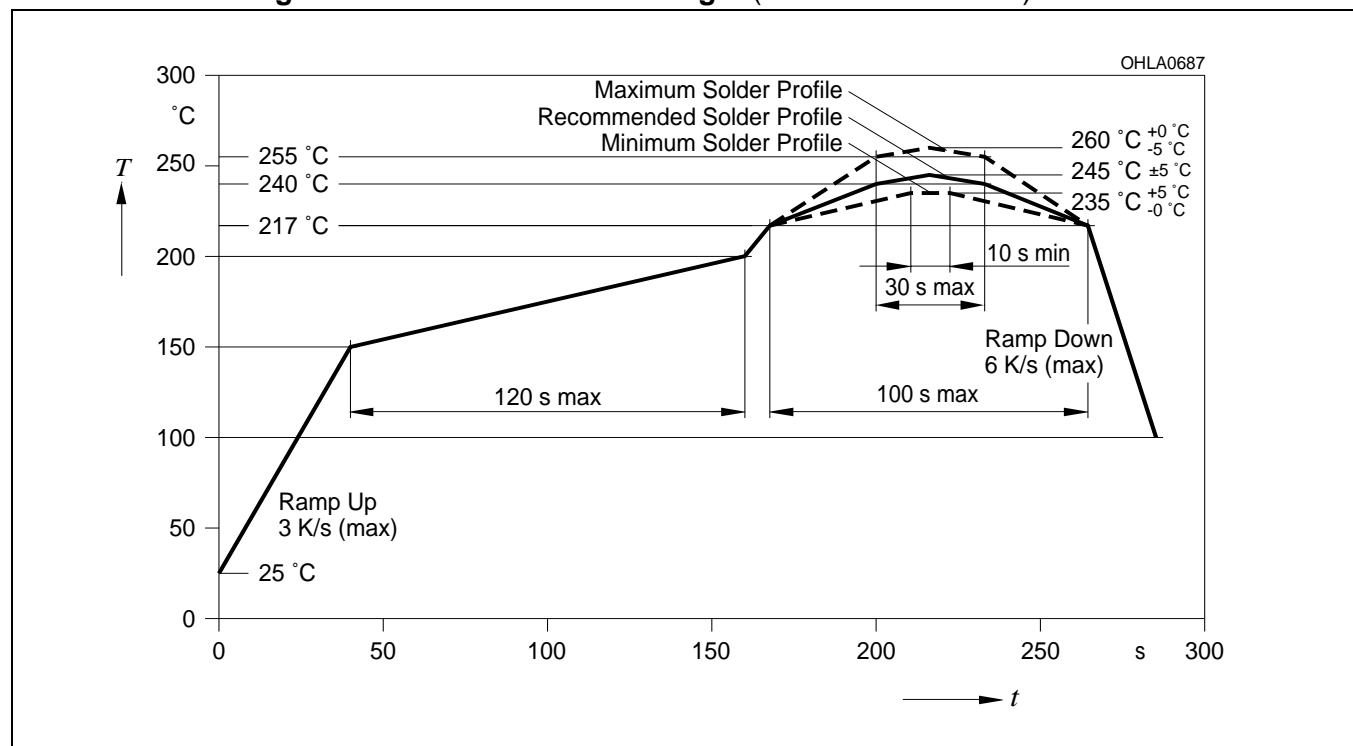
IR Reflow Soldering Profile for lead free soldering

Vorbehandlung nach JEDEC Level 4

Preconditioning acc. to JEDEC Level 4

(nach J-STD-020B)

(acc. to J-STD-020B)



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