

NPN-Silizium-Fototransistor in SMT-Gehäuse mit Linse
Silicon NPN Phototransistor in SMT-Package with lens
Lead (Pb) Free Product - RoHS Compliant

SFH 3219



This data sheet is under PCN-revision (see separate data sheet with respect to OS-PCN-2010-033-A). Do not use this version for design-in

Wesentliche Merkmale

- TOPLED mit Linse
- Speziell geeignet für Anwendungen im Bereich von 430 nm bis 1150 nm
- Hohe Linearität
- Für alle Lötverfahren geeignet
- Gehäusegleich mit SFH 4209, SFH 4219, SFH 4289

Features

- TOPLED with lens
- Especially suitable for applications from 430 nm to 1150 nm
- High linearity
- Suitable for all soldering methods
- Same package as SFH 4209, SFH 4219, SFH 4289

Anwendungen

- Miniaturlichtschranken
- Industrieelektronik
- „Messen/Steuern/Regeln“
- Sensorik

Applications

- Miniature photointerrupters
- Industrial electronics
- For control and drive circuits
- Sensor technology

Typ Type	Bestellnummer Ordering Code	Fotostrom , ($E_g=0,1\text{mW/cm}^2, \lambda=950\text{nm}$ $V_{CE} = 5\text{ V}$) Photocurrent I_{pce} (μA)
SFH 3219	Q65110A2651	> 63

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	15	mA
Kollektorspitzenstrom, $\tau < 10 \mu s$ Collector surge current	I_{CS}	75	mA
Verlustleistung, $T_A = 25 \text{ °C}$ Total power dissipation	P_{tot}	165	mW
Wärmewiderstand für Montage auf PC-Board Thermal resistance for mounting on pcb	R_{thJA}	450	K/W

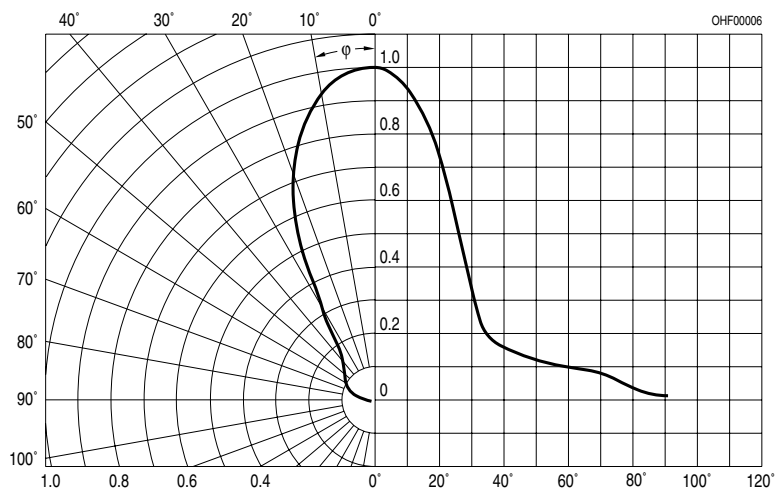
Kennwerte ($T_A = 25\text{ °C}$, $\lambda = 950\text{ nm}$)

Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\text{ max}}$	990	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von S_{max} Spectral range of sensitivity $S = 10\%$ of S_{max}	λ	430 ... 1150	nm
Bestrahlungsempfindliche Fläche ($\varnothing 220\text{ }\mu\text{m}$) Radiant sensitive area	A	0.038	mm^2
Abmessung der Chipfläche Dimensions of chip area	$L \times B$ $L \times W$	0.45×0.45	$\text{mm} \times \text{mm}$
Halbwinkel Half angle	φ	± 25	Grad deg.
Kapazität, $V_{\text{CE}} = 0\text{ V}$, $f = 1\text{ MHz}$, $E = 0$ Capacitance	C_{CE}	5.0	pF
Dunkelstrom Dark current $V_{\text{CE}} = 20\text{ V}$, $E = 0$	I_{CEO}	1 (≤ 50)	nA
Fotostrom Photo current $E_e = 0.1\text{ mW/cm}^2$, $V_{\text{CE}} = 5\text{ V}$	I_{PCE}	≥ 63	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
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage $I_C = 20\text{ }\mu\text{A}$ $E_e = 0.1\text{ mW/cm}^2$	V_{CEsat}	150	mV

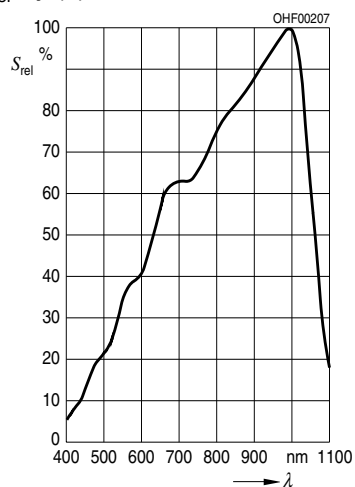
Directional Characteristics

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

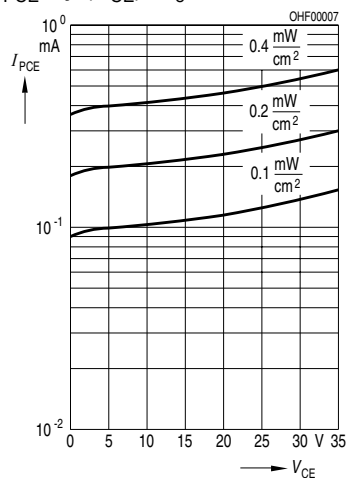


Relative Spectral Sensitivity

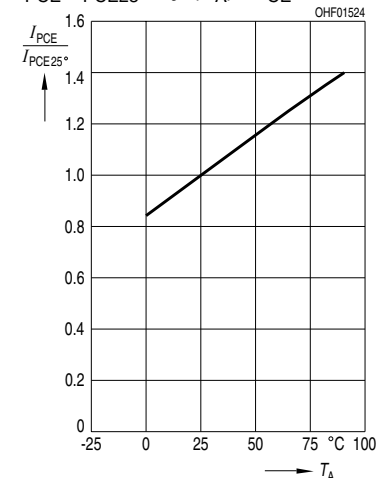
$$S_{\text{rel}} = f(\lambda)$$

**Photocurrent**

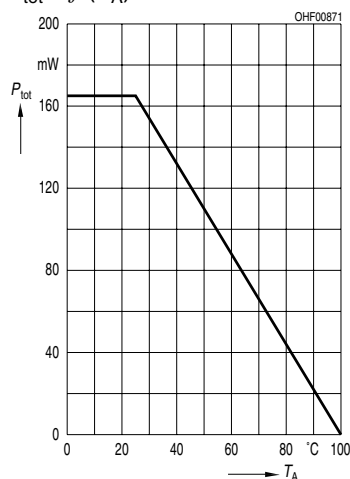
$$I_{\text{PCE}} = f(V_{\text{CE}}), E_{\text{e}} = \text{Parameter}$$

**Photocurrent**

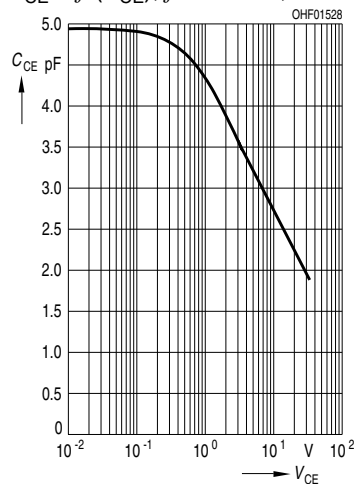
$$I_{\text{PCE}} / I_{\text{PCE}25^\circ} = f(T_{\text{A}}), V_{\text{CE}} = 5 \text{ V}$$

**Total Power Dissipation**

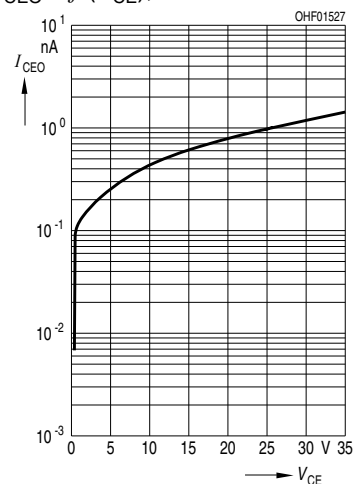
$$P_{\text{tot}} = f(T_{\text{A}})$$

**Capacitance**

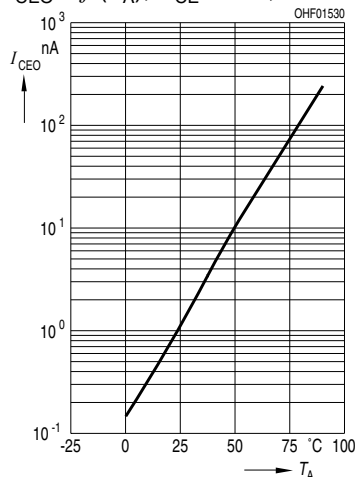
$$C_{\text{CE}} = f(V_{\text{CE}}), f = 1 \text{ MHz}, E = 0$$

**Dark Current**

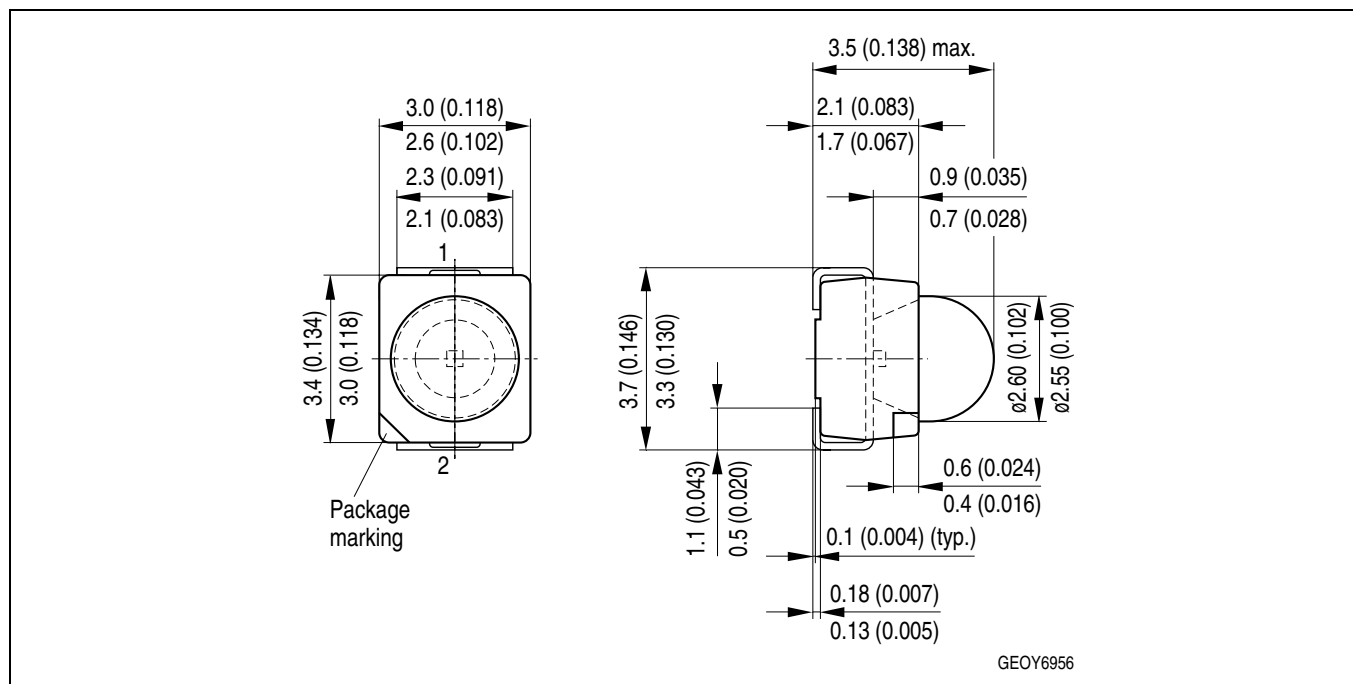
$$I_{\text{CEO}} = f(V_{\text{CE}}), E = 0$$

**Dark Current**

$$I_{\text{CEO}} = f(T_{\text{A}}), V_{\text{CE}} = 5 \text{ V}, E = 0$$



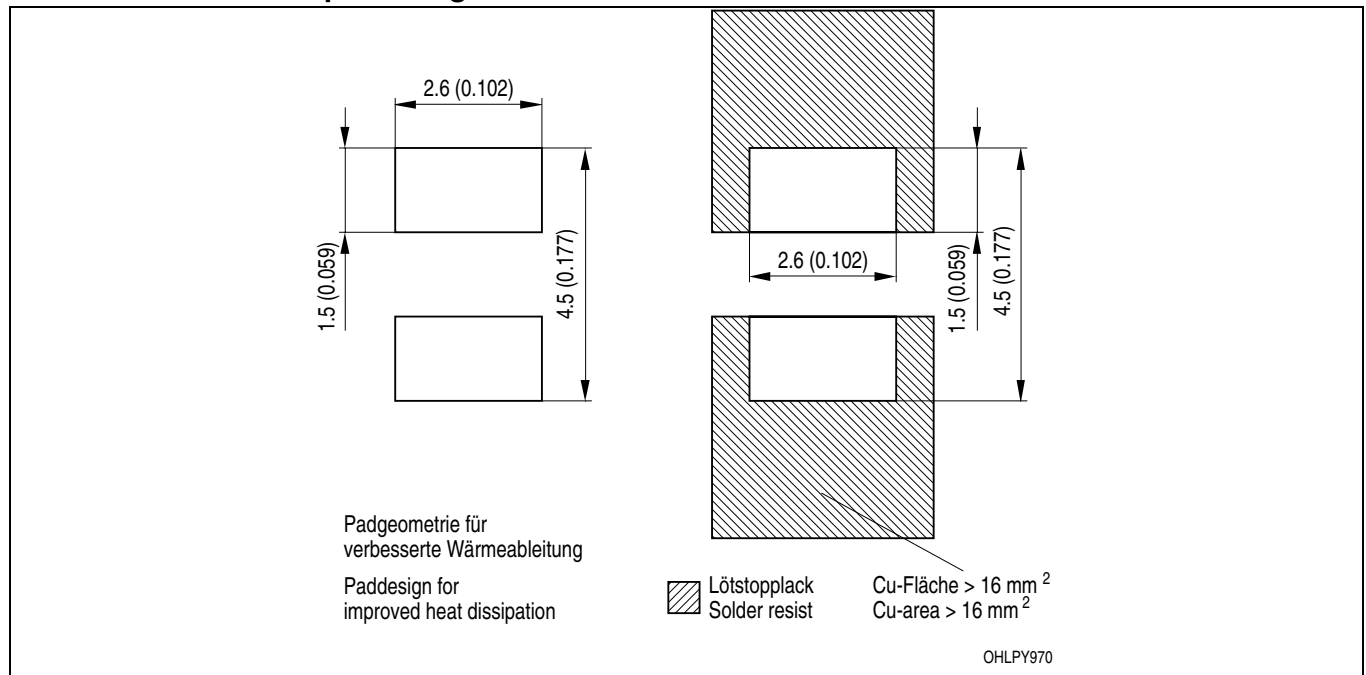
Maßzeichnung Package Outlines



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

Gehäuse / Package	TOPLED® mit Linse (P-LCC-2) / TOPLED® with lens (P-LCC-2)
Anschlussbelegung pin configuration	1 = Emitter / emitter 2 = Kollektor / collector
Farbe Color	weiß white

Empfohlenes Lötpaddesign Recommended Solderpad Design



Lötbedingungen

Soldering Conditions

Reflow Lötprofil für bleifreies Löt

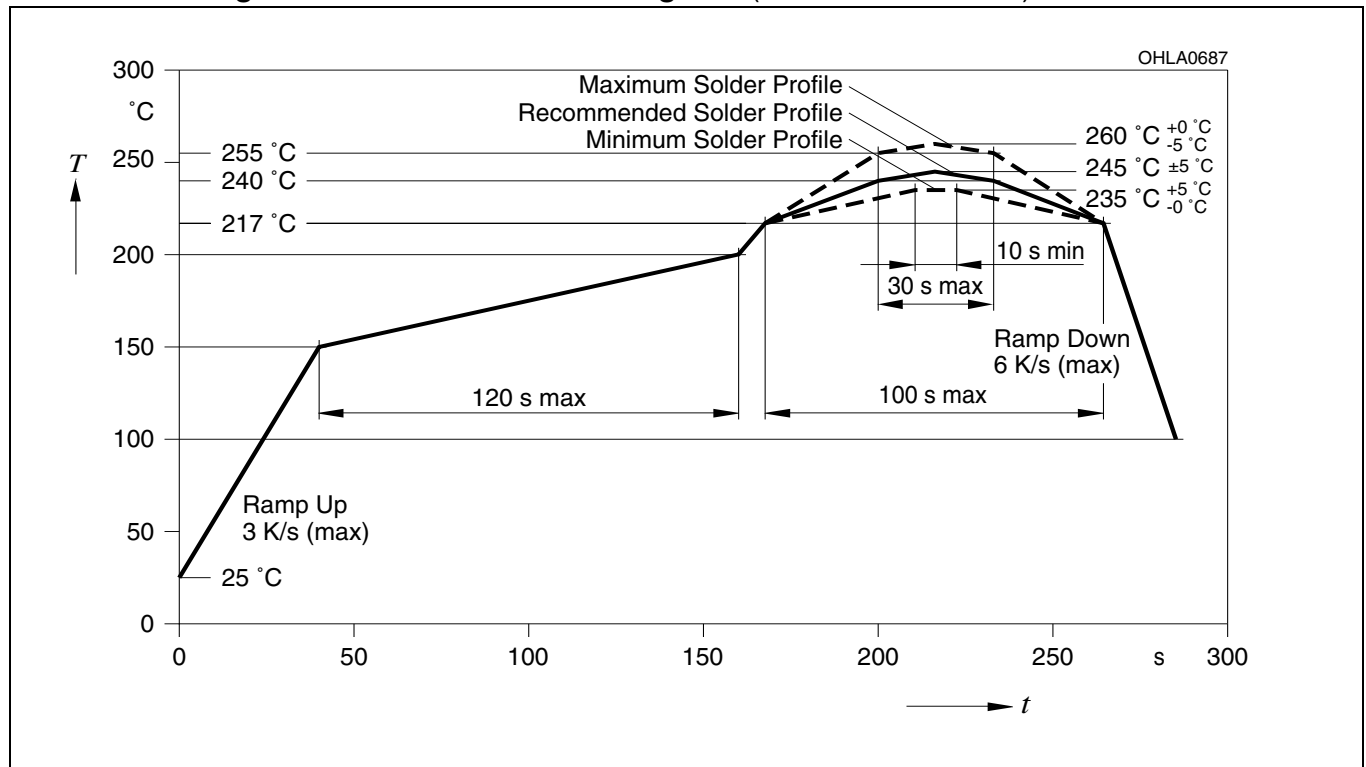
Reflow Soldering Profile for lead free soldering

Vorbehandlung nach JEDEC Level 2

Preconditioning acc. to JEDEC Level 2

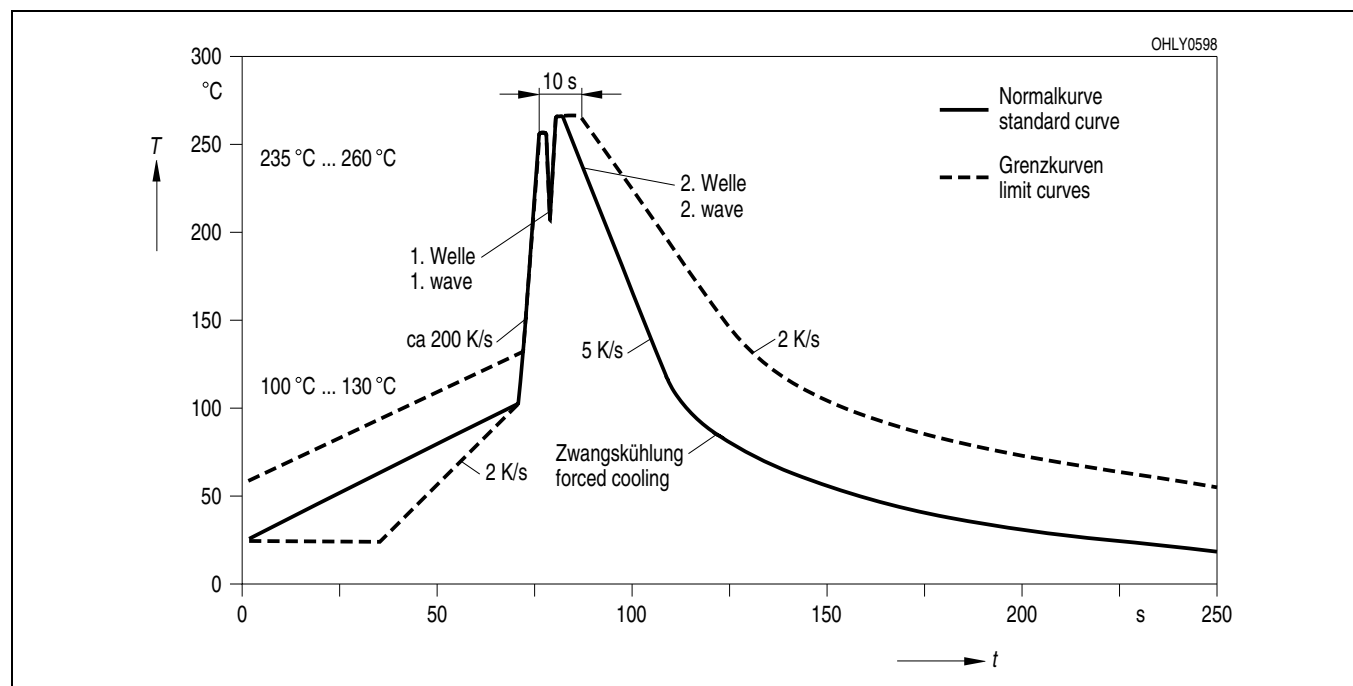
(nach J-STD-020C)

(acc. to J-STD-020C)



Wellenlöten (TTW) TTW Soldering

(nach CECC 00802)
(acc. to CECC 00802)



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