

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_e=0,1mW/cm²,λ=950nm V_{CE} = 5 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

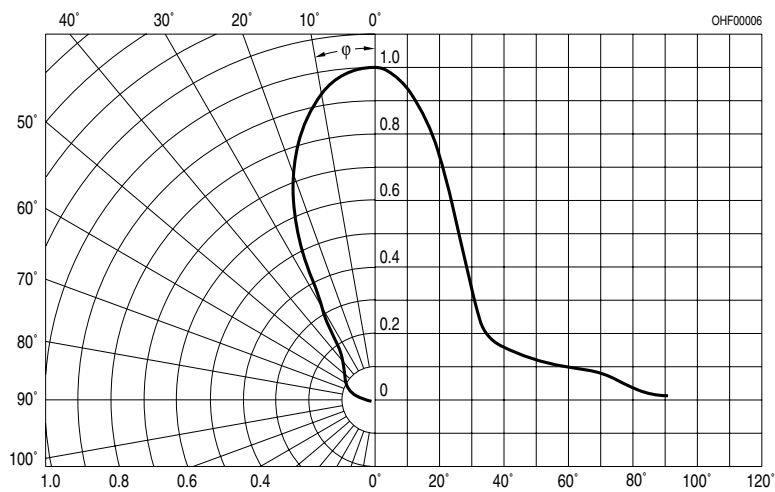
Kennwerte ($T_A = 25\text{ °C}$, $\lambda = 950\text{ nm}$)

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	mm \times 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 $I_{\text{C}} = 1\text{ mA}$, $V_{\text{CC}} = 5\text{ V}$, $R_{\text{L}} = 1\text{ k}\Omega$	t_r , t_f	7	μs
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage $I_{\text{C}} = 20\text{ }\mu\text{A}$ $E_e = 0.1\text{ mW/cm}^2$	V_{CEsat}	150	mV

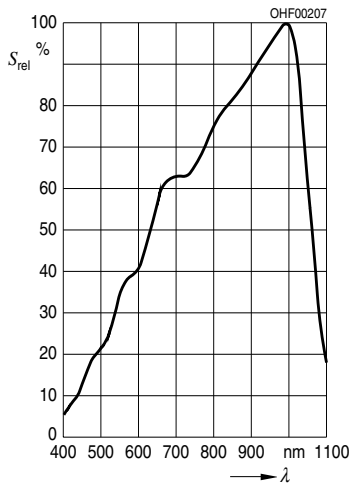
Directional Characteristics

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



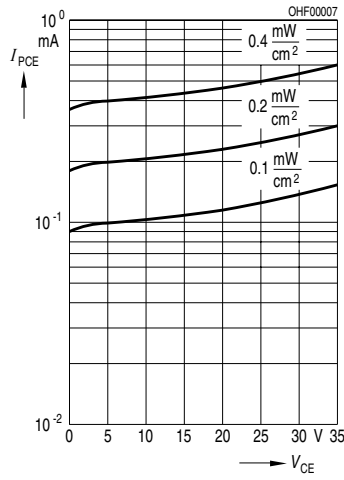
Relative Spectral Sensitivity

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



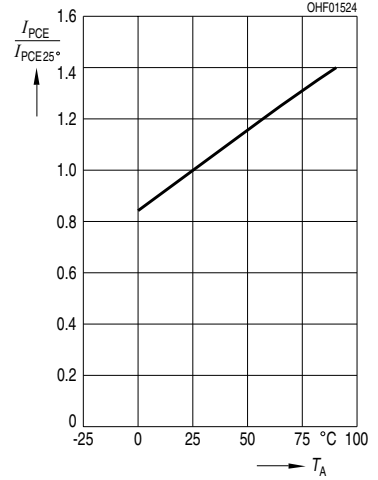
Photocurrent

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



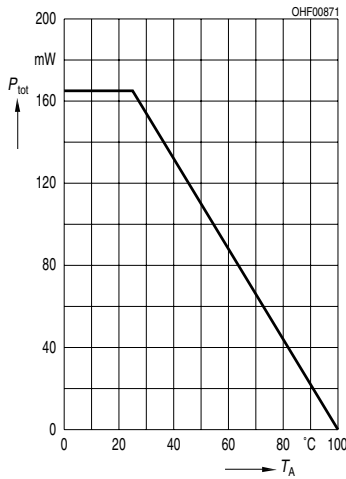
Photocurrent

$I_{PCE} / I_{PCE25^\circ} = f(T_A), V_{CE} = 5 \text{ V}$



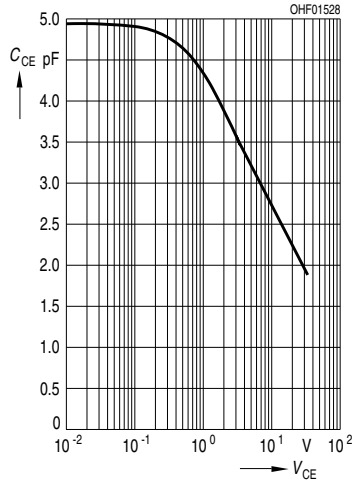
Total Power Dissipation

$P_{tot} = f(T_A)$



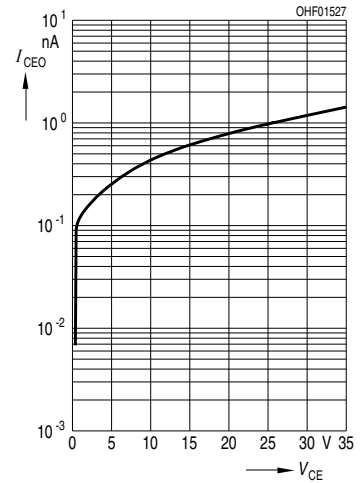
Capacitance

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



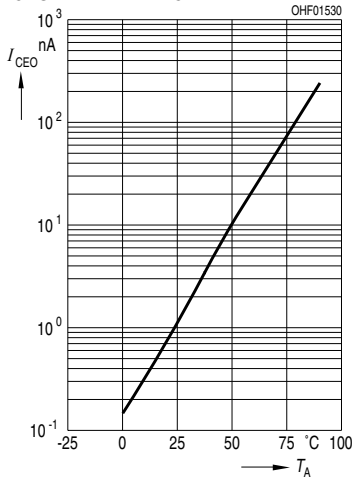
Dark Current

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

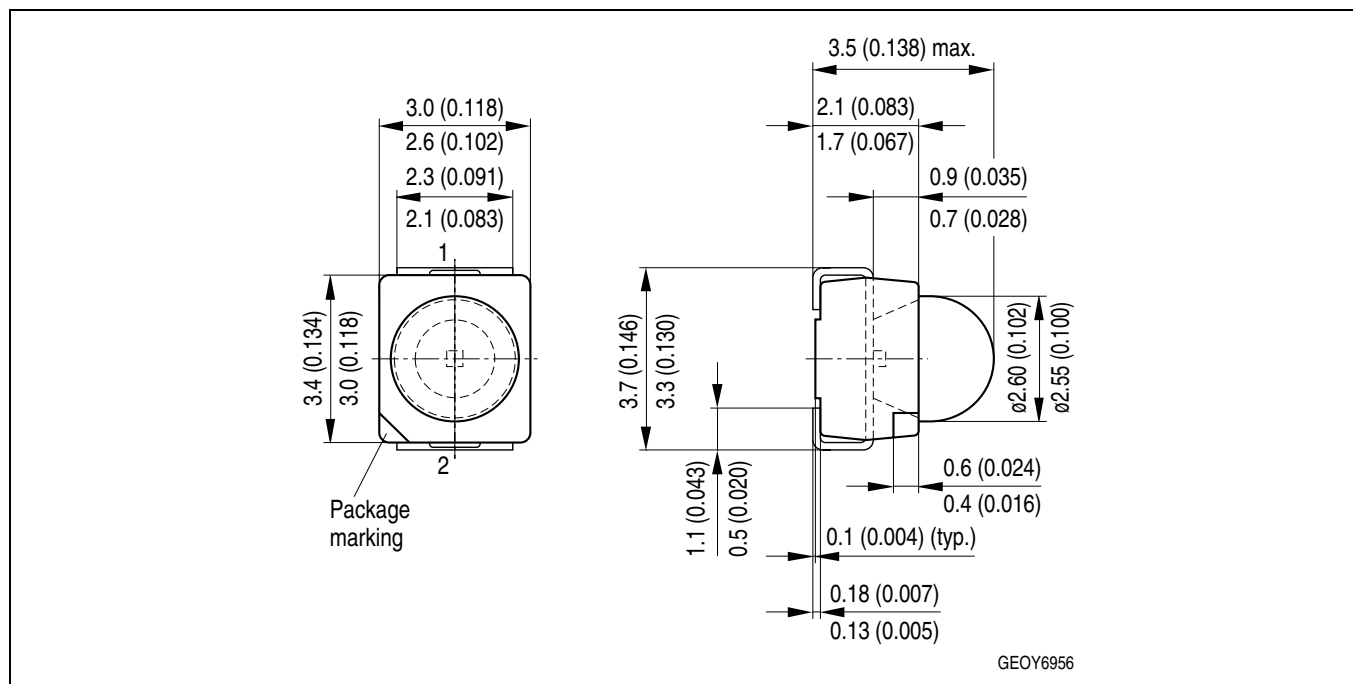


Dark Current

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



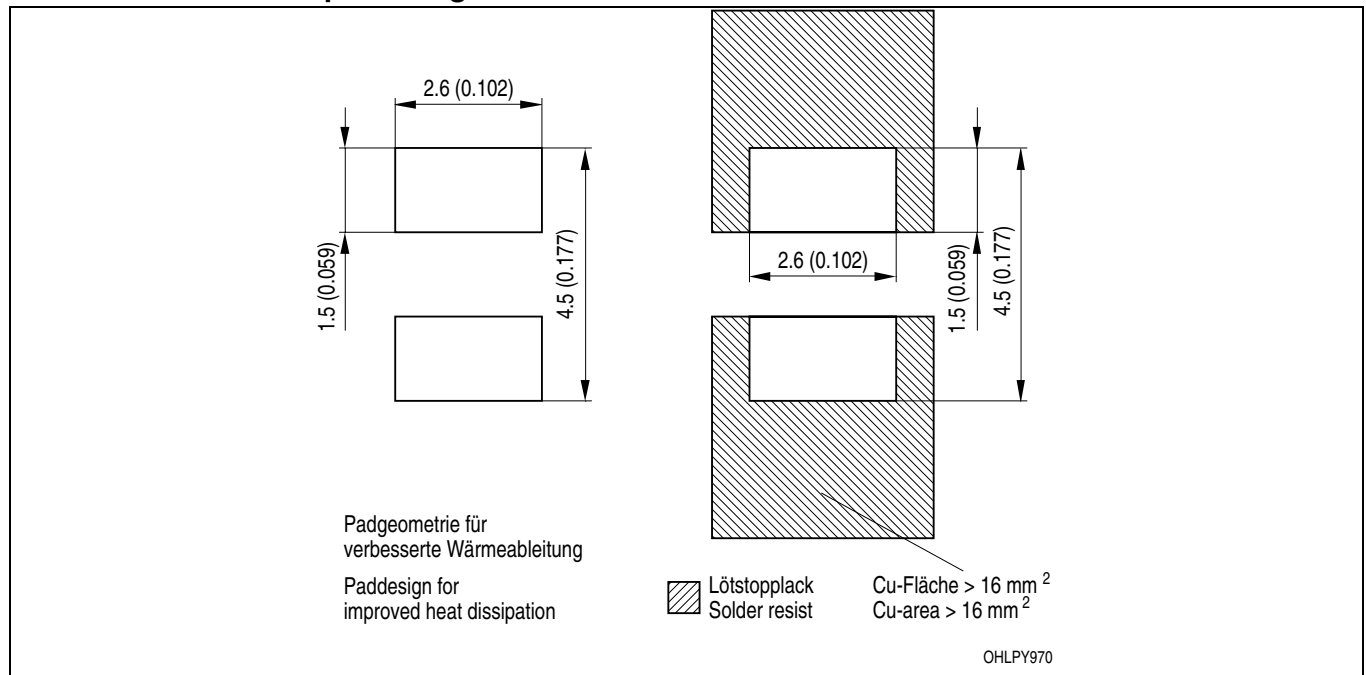
Maßzeichnung Package Outlines



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

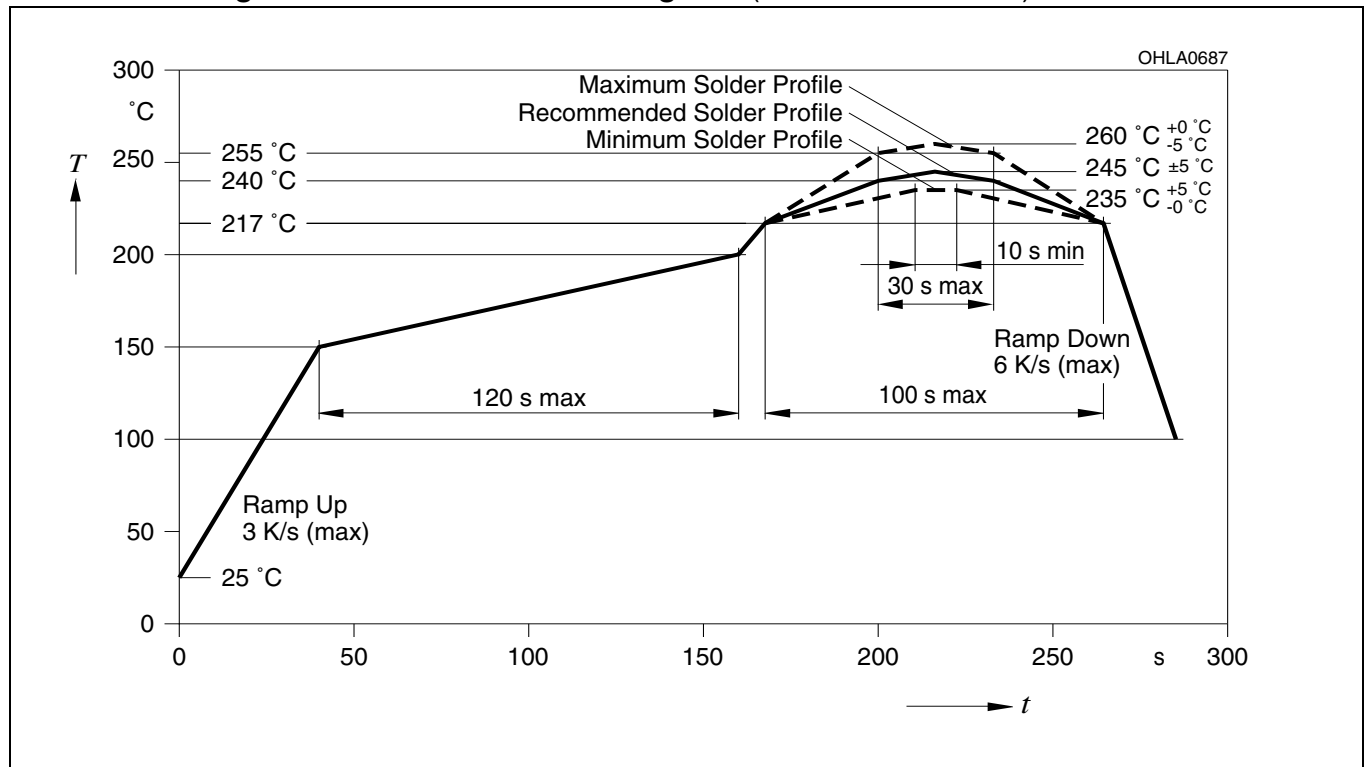
Gehäuse / Package	TOPLED® mit Linse (P-LCC-2) / TOPLED® with lens (P-LCC-2)
Anschlussbelegung pin configuration	1 = Emitter / emitter 2 = Kollektor / collector
Farbe Color	weiß white

Empfohlenes Lötpaddesign
Recommended Solderpad Design



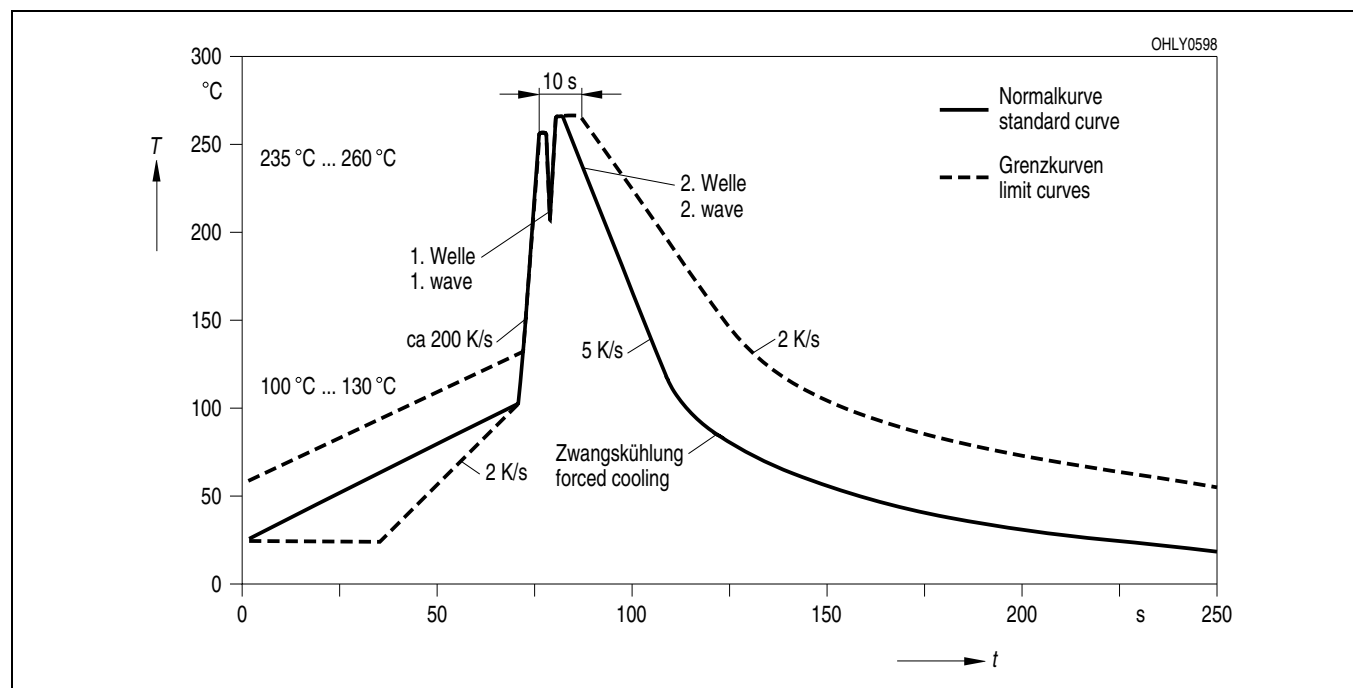
Lötbedingungen
Soldering Conditions
Reflow Lötprofil für bleifreies Löt
Reflow Soldering Profile for lead free soldering

Vorbehandlung nach JEDEC Level 2
Preconditioning acc. to JEDEC Level 2
(nach J-STD-020C)
(acc. to J-STD-020C)



Wellenlötten (TTW) TTW Soldering

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



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