

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

SFH 3204



Wesentliche Merkmale

- Sehr kleines Sidelooker SMT-Gehäuse
- Speziell geeignet für Anwendungen im Bereich von 420 nm bis 1100 nm
- Großer Empfangswinkel $\pm 60^\circ$

Anwendungen

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

Features

- Very small sidelooker SMT package
- Especially suitable for applications from 420 nm to 1100 nm
- Large viewing angle $\pm 60^\circ$

Applications

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

Typ Type	Bestellnummer Ordering Code
SFH 3204	Q65110A2506

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

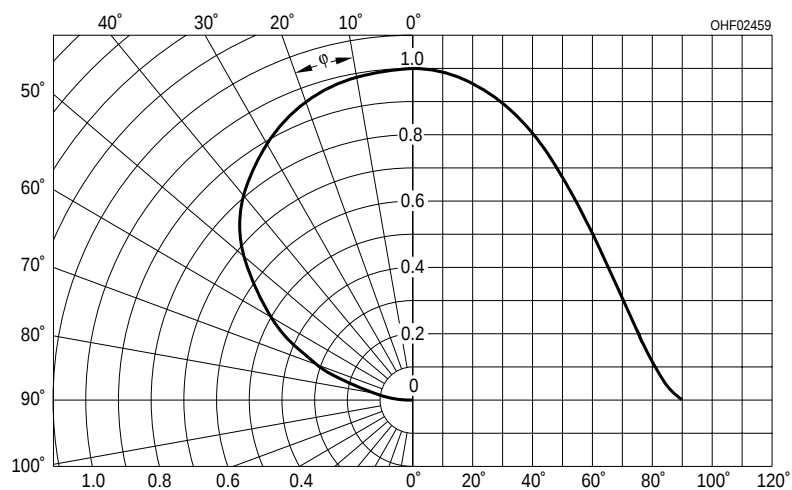
Kennwerte ($T_A = 25\text{ °C}$, $\lambda = 950\text{ nm}$)

Characteristics

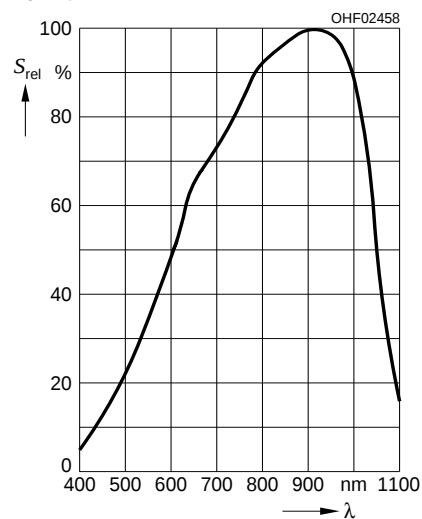
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\text{ max}}$	920	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von S_{max} Spectral range of sensitivity $S = 10\%$ of S_{max}	λ	450 ... 1120	nm
Bestrahlungsempfindliche 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 × mm
Halbwinkel Half angle	φ	± 60	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 (< 50)	nA
Fotostrom Photocurrent $E_e = 0.1\text{ mW/cm}^2$, $V_{CE} = 5\text{ V}$	I_{PCE}	>32	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 $I_C = 10\mu\text{A}$ $E_e = 0.1\text{ mW/cm}^2$, $\lambda = 950\text{ nm}$	V_{CEsat}	140	mV

Directional Characteristics

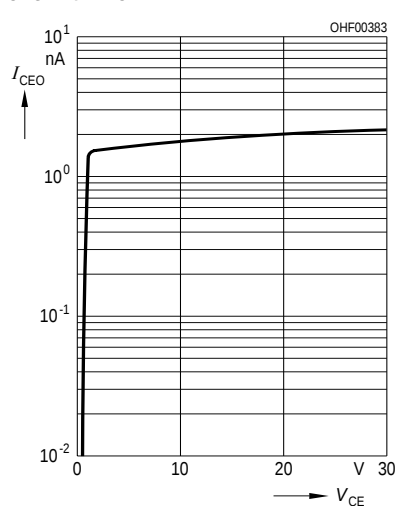
$$S_{\text{rel}} = f(\varphi)$$



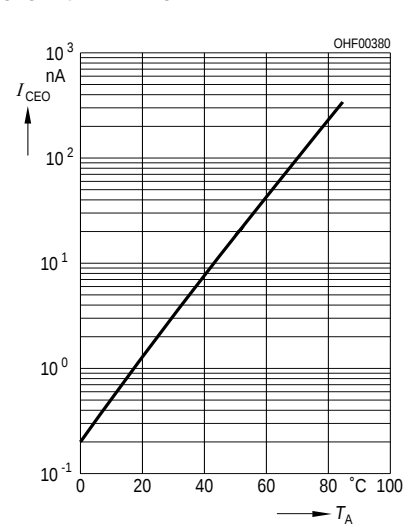
Rel. Spectral Sensitivity,
 $S_{\text{rel}} = f(\lambda)$



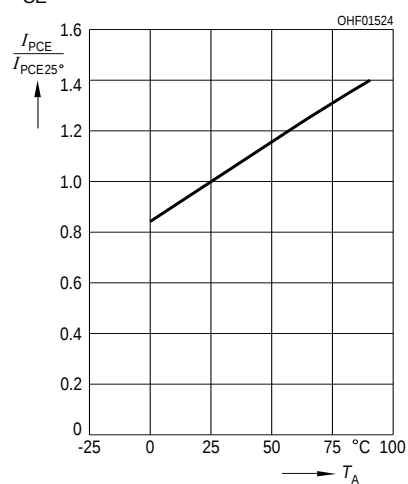
Dark Current
 $I_{\text{CEO}} = f(V_{\text{CE}}), E = (0)$



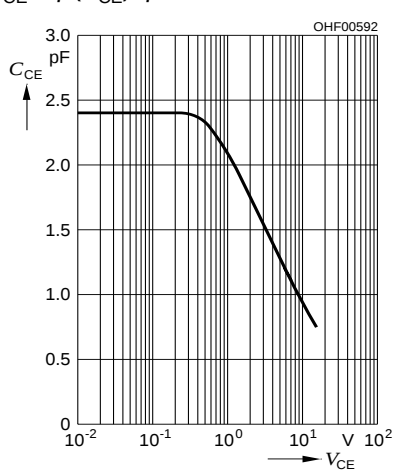
Dark Current
 $I_{\text{CEO}} = f(T_A), V_{\text{CE}} = 20 \text{ V}, E = (0)$



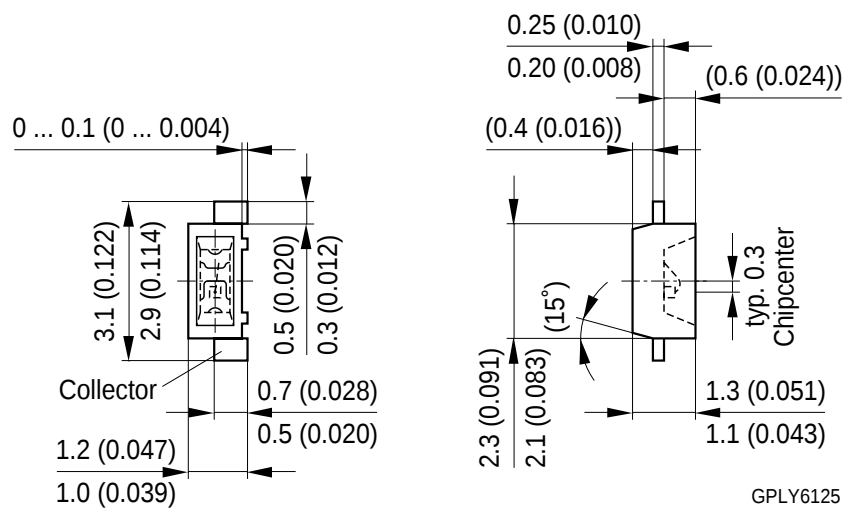
Photocurrent $I_{\text{PCE}} = f(T_A)$,
 $V_{\text{CE}} = 5 \text{ V}$, normalized to 25 °C



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

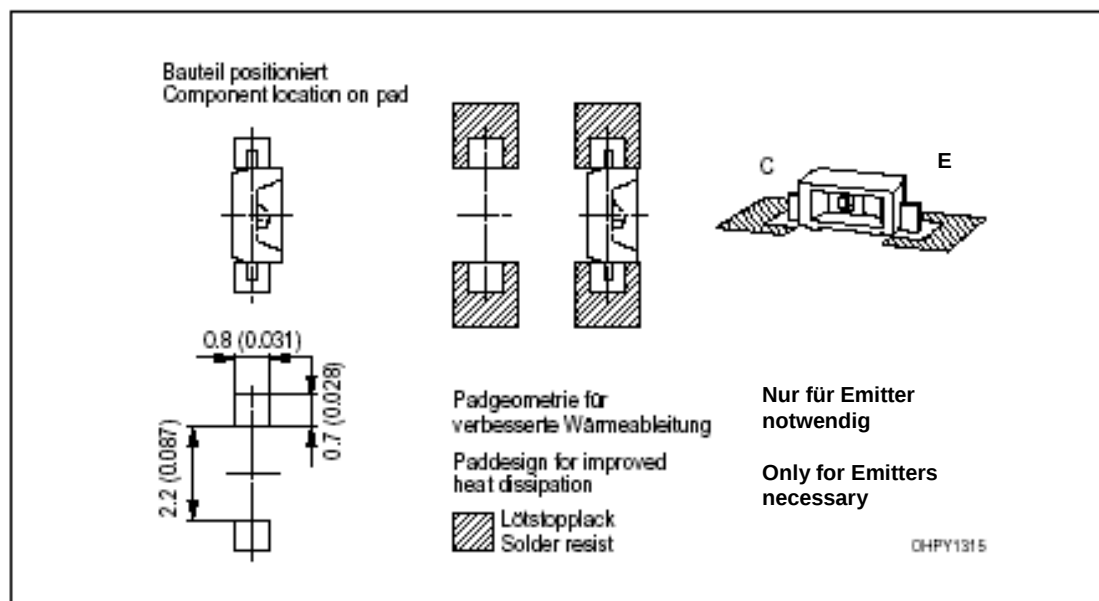


Maßzeichnung Package Outlines



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

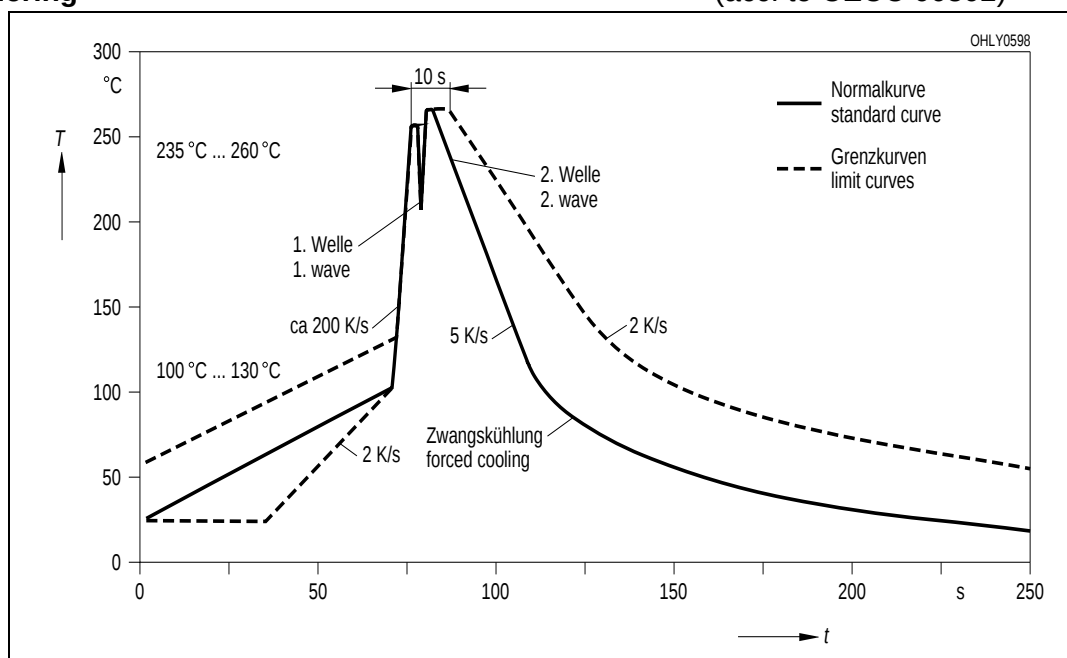
Empfohlenes Lötpad design IR Reflow Löten
Recommended Solder Pad IR Reflow Soldering



Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).
Gehäuse hält TTW-Löthitze aus / Package able to withstand TTW-soldering heat

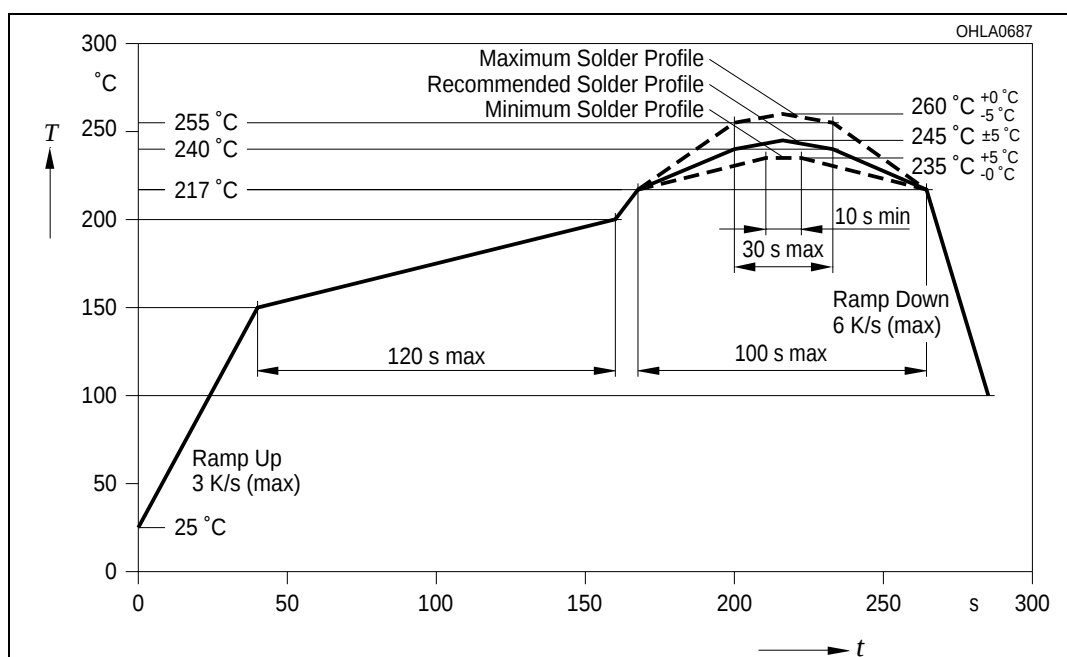
Lötbedingungen
Soldering Conditions
Wellenlöten (TTW)
TTW Soldering

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



Lötbedingungen
Soldering Conditions
Reflow Lötprofil für bleifreies Löten
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)



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EU RoHS and China RoHS compliant product



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