

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 |

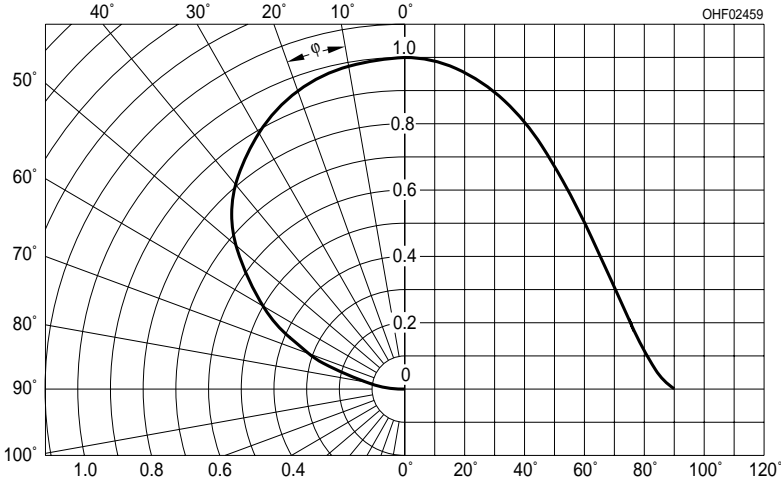
Kennwerte ($T_A = 25\text{ °C}$, $\lambda = 950\text{ nm}$)

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 \times mm |
| Halbwinkel Half angle | φ | ± 60 | 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 $E_e = 0.1\text{ mW/cm}^2$, $V_{\text{CE}} = 5\text{ V}$ | I_{PCE} | >32 | 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 $I_C = 10\mu\text{A}$ $E_e = 0.1\text{ mW/cm}^2$, $\lambda = 950\text{ nm}$ | V_{CEsat} | 140 | mV |

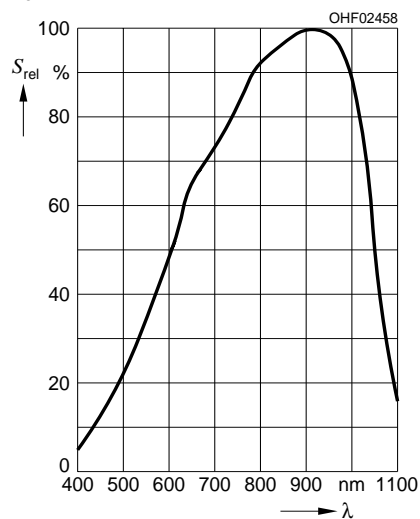
Directional Characteristics

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



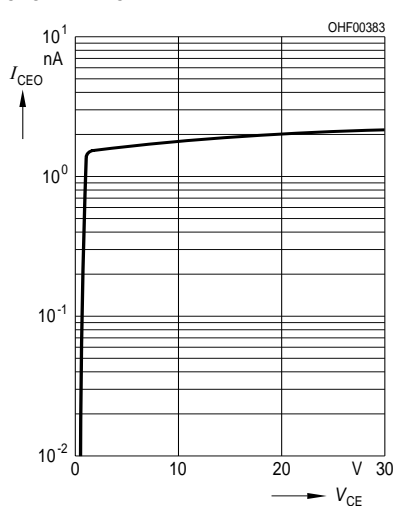
Rel. Spectral Sensitivity,

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



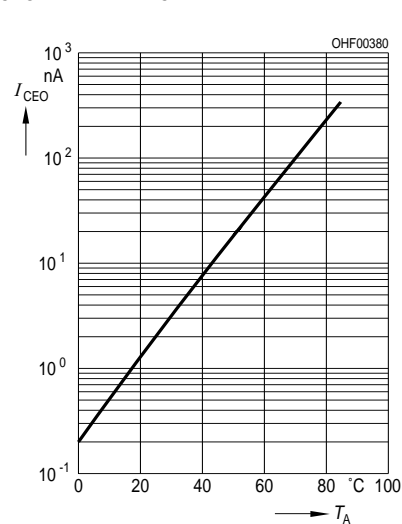
Dark Current

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



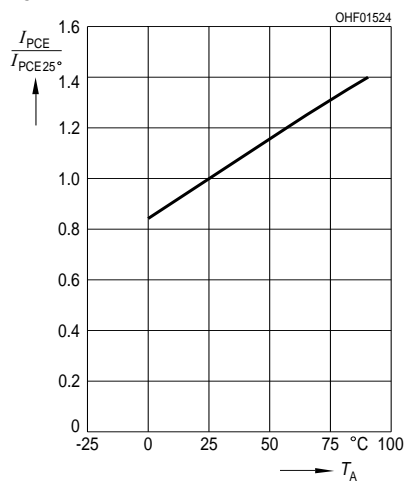
Dark Current

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



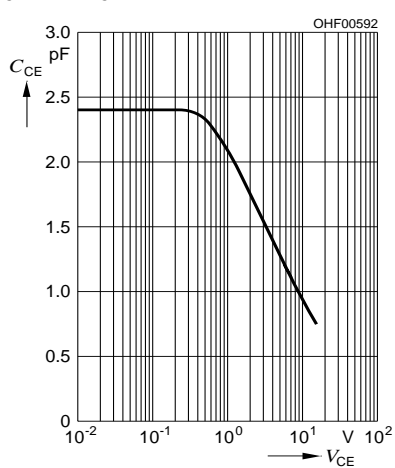
Photocurrent $I_{PCE} = f(T_A)$,

$V_{CE} = 5 V$, normalized to 25 °C

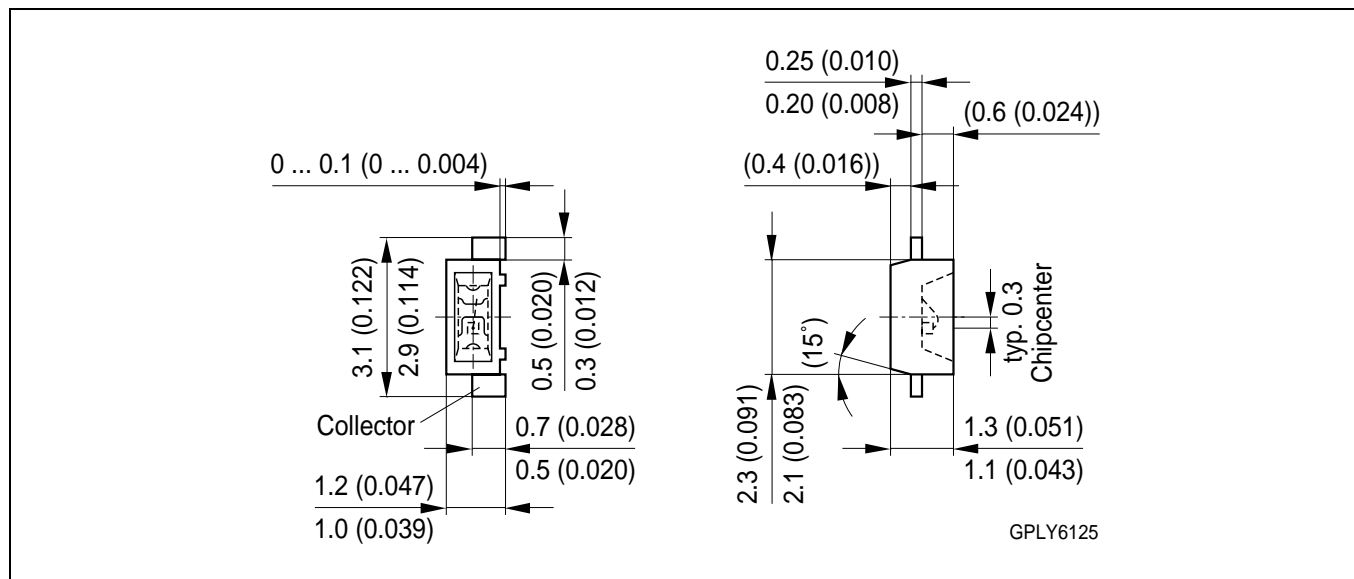


Collector-Emitter Capacitance

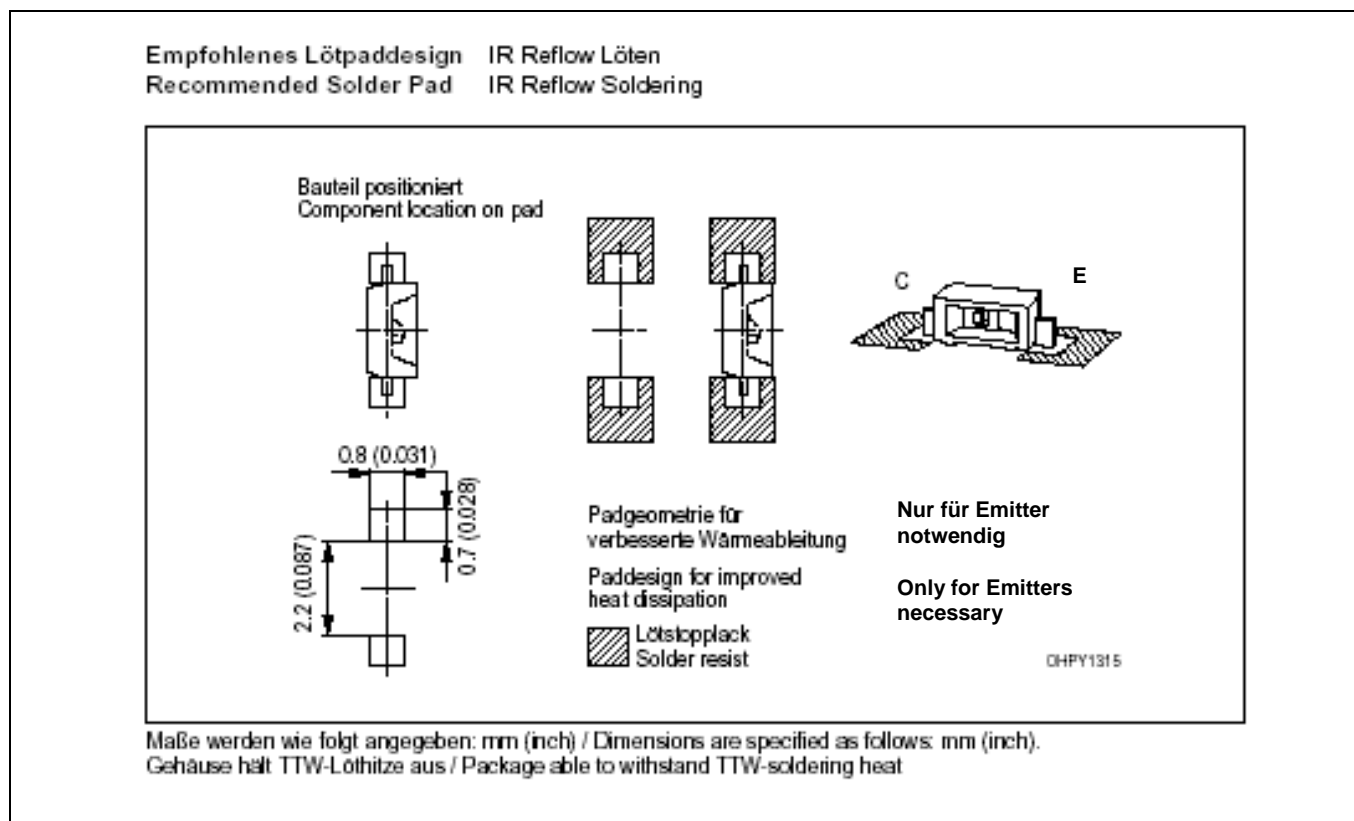
$C_{CE} = f(V_{CE}), f = 1 MHz$



**Maßzeichnung
Package Outlines**

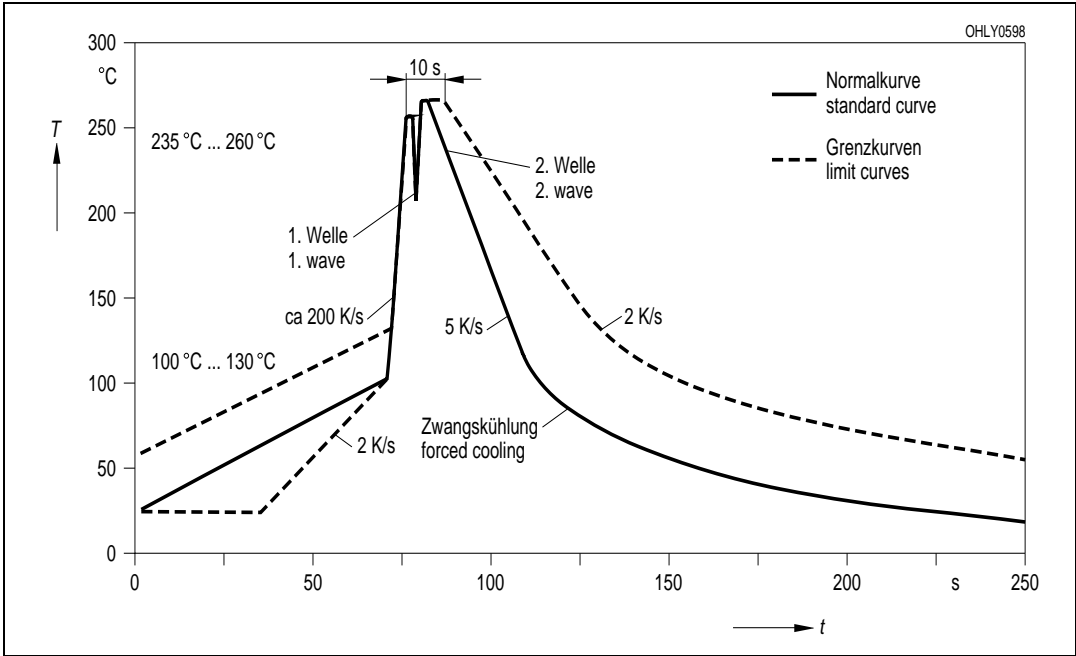


Maße in mm (inch) / Dimensions in mm (inch).



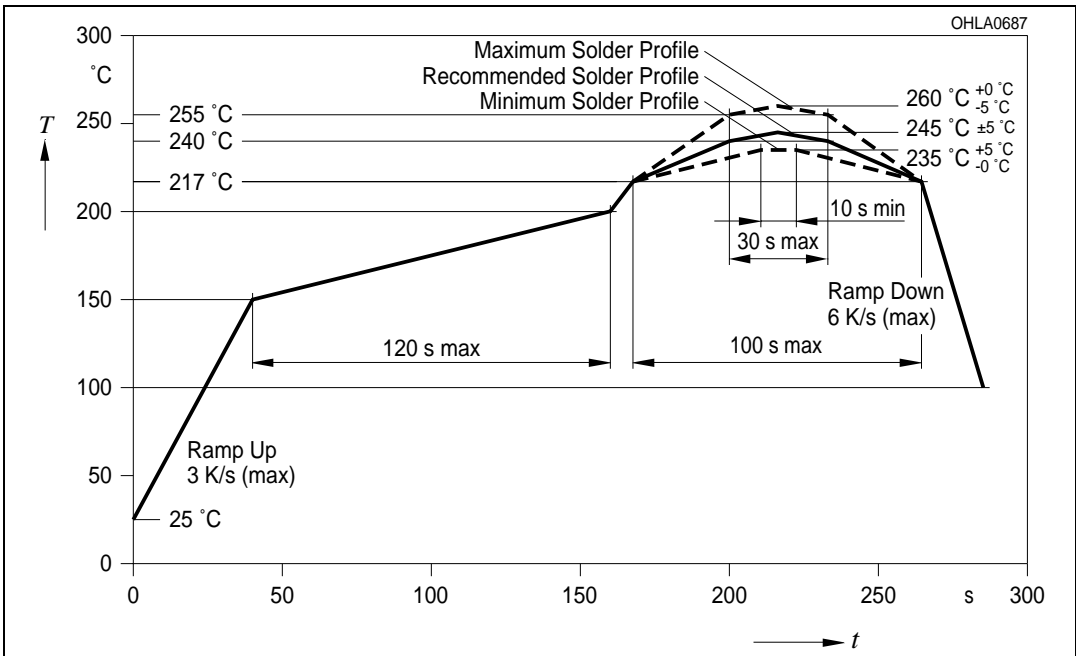
Lötbedingungen
Soldering Conditions
Wellenlöten (TTW)
TTW Soldering

(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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