



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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GaAs-IR-Lumineszenzdiode (950 nm) in SMR® Gehäuse
GaAs Infrared Emitters (950 nm) in SMR® Package
Lead (Pb) Free Product - RoHS Compliant

SFH 4510
SFH 4515



SFH 4510



SFH 4515

Wesentliche Merkmale

- GaAs-LED mit sehr hohem Wirkungsgrad
- SMR® (Surface Mount Radial) Gehäuse
- Für Oberflächenmontage geeignet
- Gegurtet lieferbar
- Gehäusegleich mit Fotodiode SFH 2500/ SFH 2505
- Hohe Zuverlässigkeit
- Gute spektrale Anpassung an Si-Fotoempfänger

Anwendungen

- IR-Fernsteuerung von Fernseh- und Rundfunkgeräten, Videorecordern, Lichtdimmern
- Gerätefernsteuerungen für Gleich- und Wechsellichtbetrieb
- Sensorik
- Diskrete Lichtschranken
- Diskrete Optokoppler

Features

- Very highly efficient GaAs-LED
- SMR® (Surface Mount Radial) package
- Suitable for surface mounting (SMT)
- Available on tape and reel
- Same package as photodiode SFH 2500/ SFH 2505
- High reliability
- Spectral match with silicon photodetectors

Applications

- IR remote control of hi-fi and TV-sets, video tape recorders, dimmers
- Remote control for steady and varying intensity
- Sensor technology
- Discrete interrupters
- Discrete optocouplers

| Typ Type | Bestellnummer Ordering Code | Gehäuse Package |
|-------------|--------------------------------|---|
| SFH 4510 | Q65110A2630 | 5-mm-SMR®-Gehäuse (T 1 3/4), schwarzes Epoxy-Gießharz, Anschlüsse (SFH 4510 gebogen, SFH 4515 gerade) im 2.54-mm-Raster (1/10"), Kathodenkennzeichnung: siehe Maßzeichnung. 5 mm SMR® package (T 1 3/4), black-colored epoxy resin, solder tabs (SFH 4510 bent, SFH 4515 straight) lead spacing 2.54 mm (1/10"), cathode marking: see package outline. |
| SFH 4515 | Q65110A2633 | |

Grenzwerte ($T_A = 25\text{ °C}$)**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 |
| Sperrspannung Reverse voltage | V_R | 5 | V |
| Durchlassstrom Forward current | I_F (DC) | 100 | mA |
| Stoßstrom, $t_p = 10\ \mu\text{s}$, $D = 0$ Surge current | I_{FSM} | 3 | A |
| Verlustleistung Power dissipation | P_{tot} | 150 | mW |
| Wärmewiderstand Sperrschicht - Umgebung bei Montage auf FR4 Platine, Padgröße je $20\ \text{mm}^2$ Thermal resistance junction - ambient mounted on PC-board (FR4), padsizes $20\ \text{mm}^2$ each | R_{thJA} | 300 | K/W |

Kennwerte ($T_A = 25\text{ °C}$)**Characteristics**

| Bezeichnung Parameter | Symbol Symbol | Wert Value | Einheit Unit |
|---|------------------------------|------------------|-----------------|
| Wellenlänge der Strahlung Wavelength at peak emission $I_F = 100\ \text{mA}$ | λ_{peak} | 950 | nm |
| Spektrale Bandbreite bei 50% von I_{max} Spectral bandwidth at 50% of I_{max} $I_F = 100\ \text{mA}$ | $\Delta\lambda$ | 55 | nm |
| Abstrahlwinkel Half angle | φ | ± 14 | Grad deg. |
| Aktive Chipfläche Active chip area | A | 0.09 | mm^2 |
| Abmessungen der aktiven Chipfläche Dimension of the active chip area | $L \times B$ $L \times W$ | 0.3×0.3 | mm^2 |
| Schaltzeiten, I_e von 10% auf 90% und von 90% auf 10%, bei $I_F = 100\ \text{mA}$, $R_L = 50\ \Omega$ Switching times, I_e from 10% to 90% and from 90% to 10%, $I_F = 100\ \text{mA}$, $R_L = 50\ \Omega$ | t_r, t_f | 0.5 | μs |

Kennwerte ($T_A = 25\text{ °C}$)
Characteristics (cont'd)

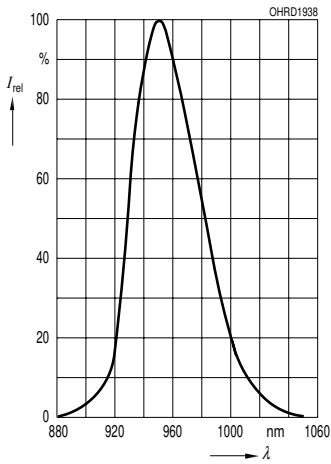
| Bezeichnung Parameter | Symbol Symbol | Wert Value | Einheit Unit |
|---|------------------|--|-----------------|
| Kapazität Capacitance $V_R = 0\text{ V}, f = 1\text{ MHz}$ | C_o | 25 | pF |
| Durchlassspannung Forward voltage $I_F = 100\text{ mA}, t_p = 20\text{ ms}$ $I_F = 1\text{ A}, t_p = 100\text{ }\mu\text{s}$ | V_F V_F | 1.30 (≤ 1.5) 2.30 (≤ 2.8) | V V |
| Sperrstrom Reverse current $V_R = 5\text{ V}$ | I_R | 0.01 (≤ 1) | μA |
| Gesamtstrahlungsfluss Total radiant flux $I_F = 100\text{ mA}, t_p = 20\text{ ms}$ | Φ_e | 22 | mW |
| Temperaturkoeffizient von I_e bzw. Φ_e , $I_F = 100\text{ mA}$ Temperature coefficient of I_e or Φ_e , $I_F = 100\text{ mA}$ | TC_I | - 0.5 | %/K |
| Temperaturkoeffizient von V_F , $I_F = 100\text{ mA}$ Temperature coefficient of V_F , $I_F = 100\text{ mA}$ | TC_V | - 2 | mV/K |
| Temperaturkoeffizient von λ , $I_F = 100\text{ mA}$ Temperature coefficient of λ , $I_F = 100\text{ mA}$ | TC_λ | 0.3 | nm/K |

Strahlstärke I_e in Achsrichtunggemessen bei einem Raumwinkel $\Omega = 0.01$ sr**Radiant Intensity I_e in Axial Direction**at a solid angle of $\Omega = 0.01$ sr

| Bezeichnung Parameter | Symbol | Werte Values | Einheit Unit |
|---|--|-----------------|-----------------|
| Strahlstärke Radiant intensity $I_F = 100$ mA, $t_p = 20$ ms | $I_{e \text{ typ}}$ $I_{e \text{ min}}$ | 50 ≥ 25 | mW/sr mW/sr |
| Strahlstärke Radiant intensity $I_F = 1$ A, $t_p = 100$ μ s | $I_{e \text{ typ}}$ | 450 | mW/sr |

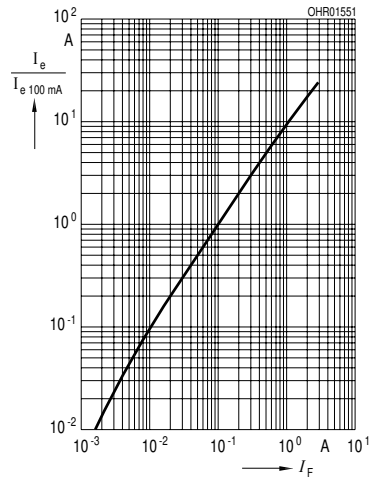
Relative Spectral Emission

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



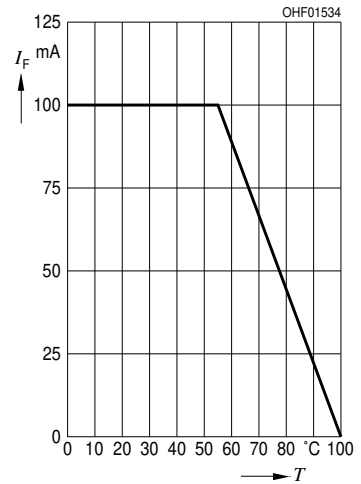
Radiant Intensity $\frac{I_e}{I_e 100 \text{ mA}} = f(I_F)$

Single pulse, $t_p = 20 \mu\text{s}$



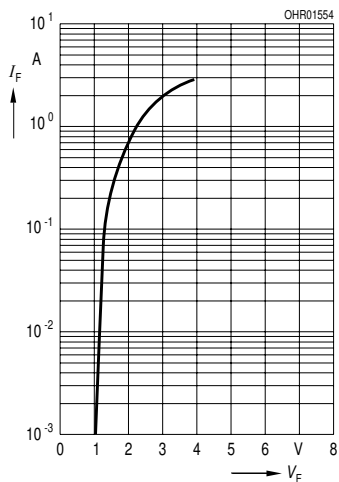
Max. Permissible Forward Current

$I_F = f(T_A)$



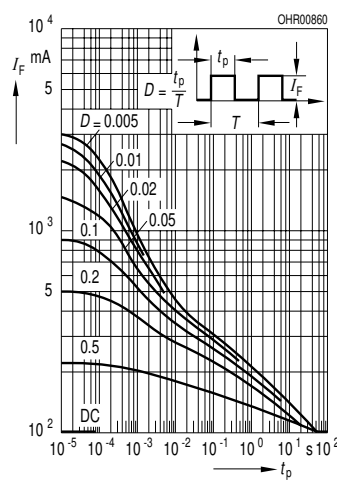
Forward Current

$I_F = f(V_F)$, single pulse, $t_p = 20 \mu\text{s}$

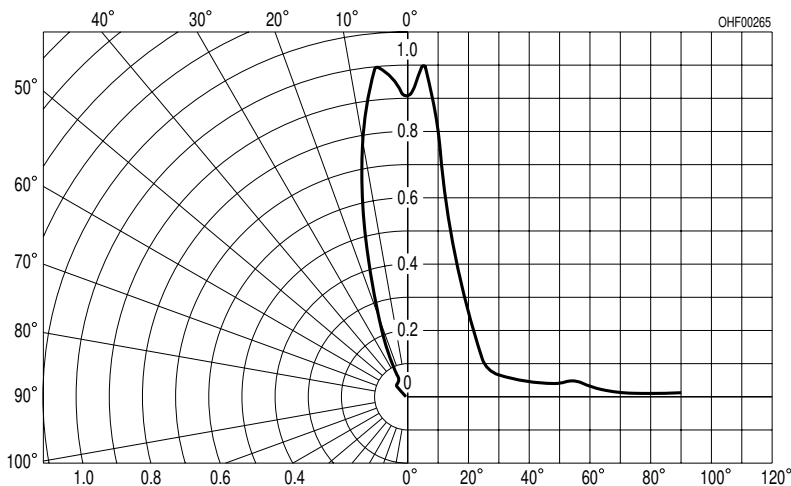


Permissible Pulse Handling Capability

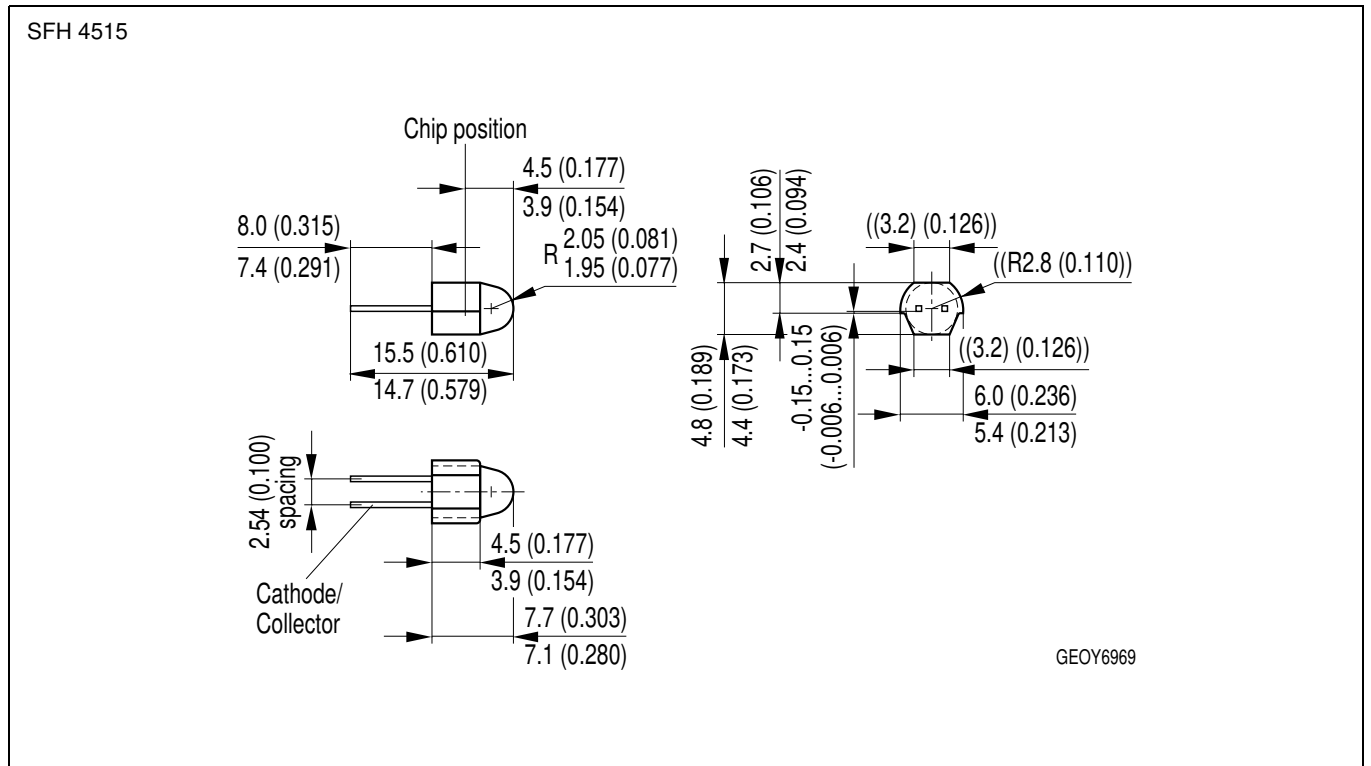
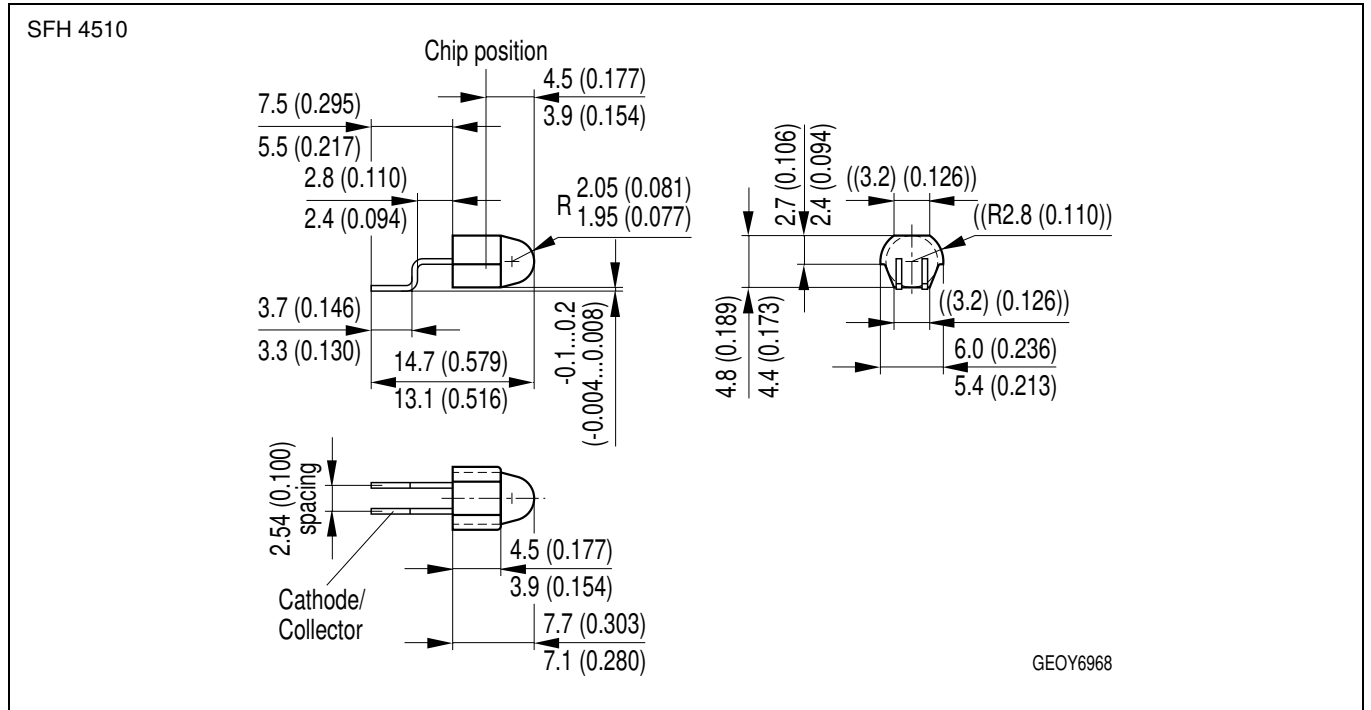
$I_F = f(\tau)$, $T_A = 25 \text{ }^\circ\text{C}$, duty cycle $D = \text{parameter}$



Radiation Characteristics $I_{rel} = f(\varphi)$

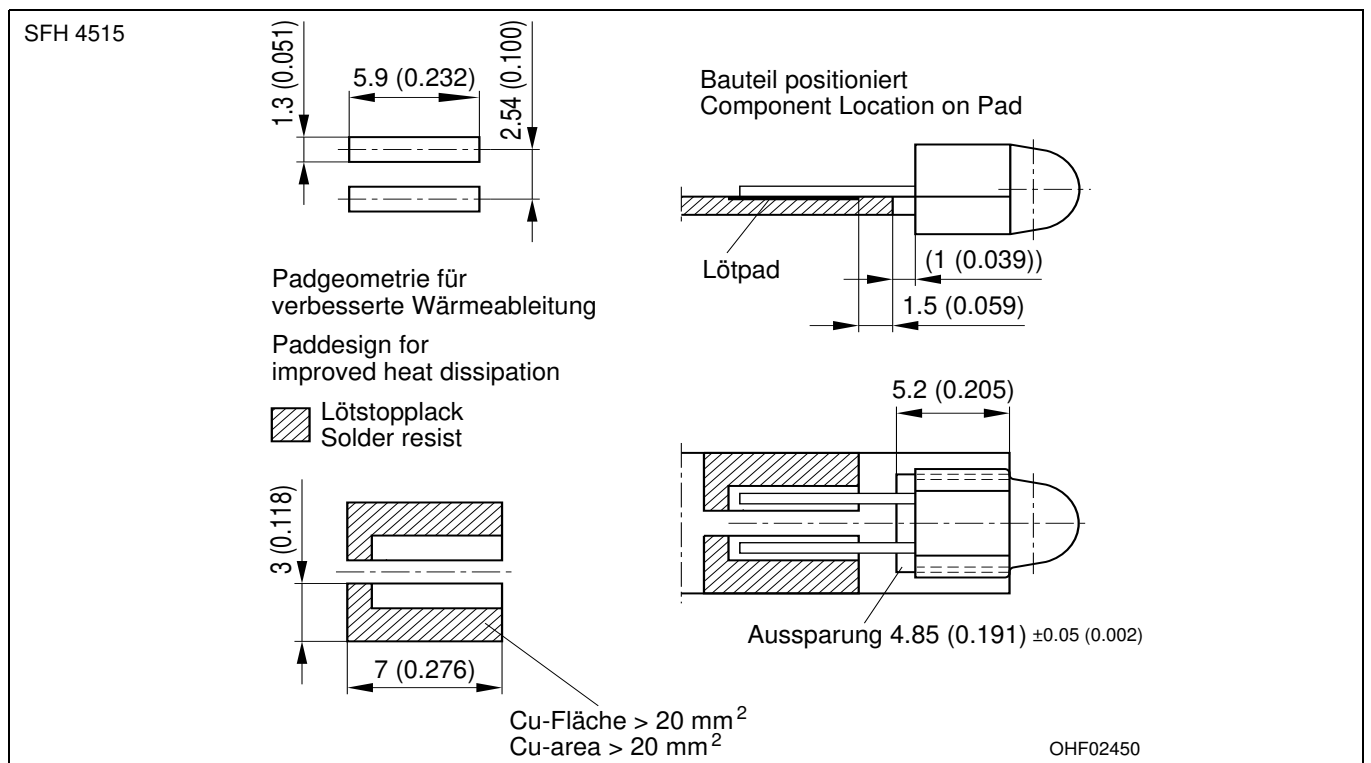
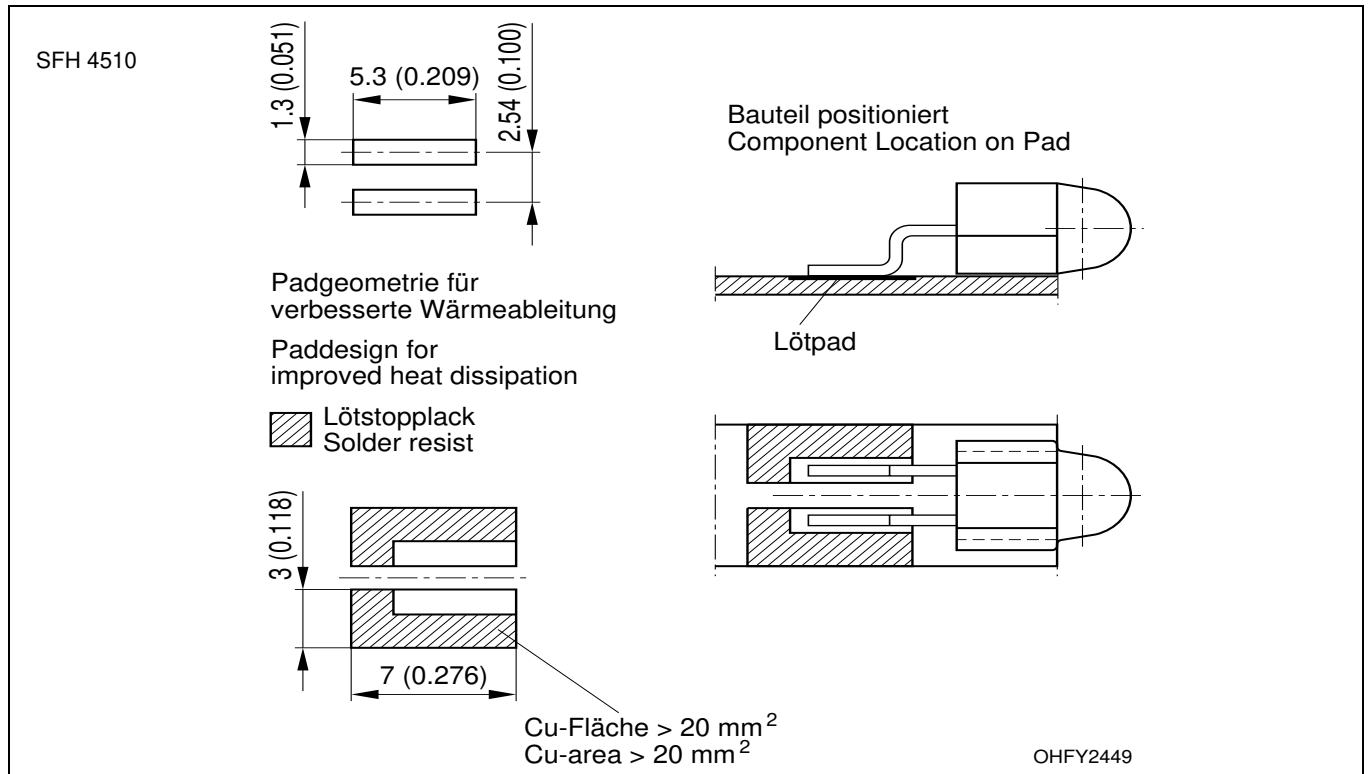


Maßzeichnung
Package Outlines



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

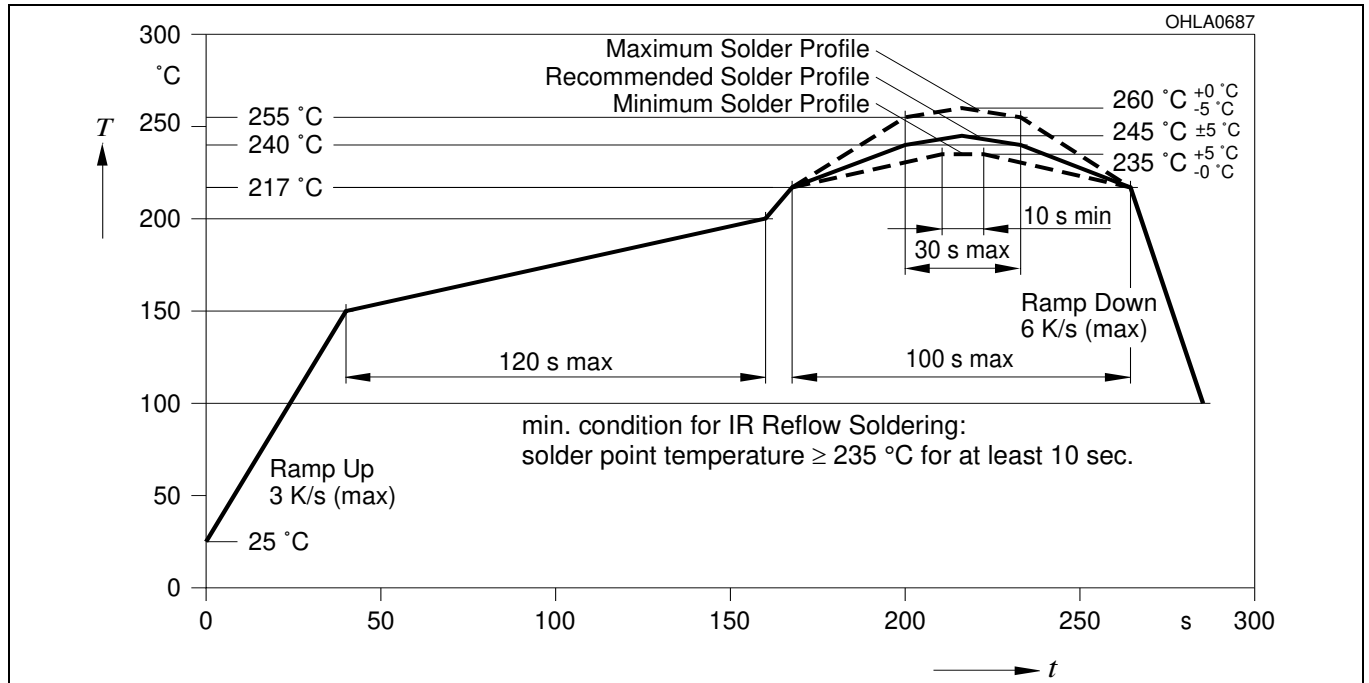
Empfohlenes Lötpaddesign
Recommended Solder Pad



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

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

Vorbehandlung nach JEDEC Level 3
 Preconditioning acc. to JEDEC Level 3
 (nach J-STD-020C)
 (acc. to J-STD-020C)



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