

GaAlAs-IR-Lumineszenzdiode (880 nm) und grüne GaP-LED (565 nm)
GaAlAs-Infrared-Emitter (880 nm) and green GaP-LED (565 nm)
Lead (Pb) Free Product - RoHS Compliant

SFH 7222



Wesentliche Merkmale

- SMT-Gehäuse mit IR-Sender (880 nm) und grünem Sender (565 nm)
- Geeignet für SMT-Bestückung
- Gegurtet lieferbar
- Sender und Empfänger getrennt ansteuerbar

Anwendungen

- Kombination von Anzeigeelement mit:
 - Datenübertragung
 - Fernsteuerung
 - Infrarotschnittstelle

Features

- SMT package with IR emitter (880 nm) and green emitter (565 nm)
- Suitable for SMT assembly
- Available on tape and reel
- Emitter und detector can be controlled separately

Applications

- Combination of display with:
 - data transmission
 - remote control
 - infrared interface

Typ Type	Bestellnummer Ordering Code	Gehäuse Package
SFH 7222	Q65110A2742	SMT Multi TOPLED®

Grenzwerte
Maximum Ratings

Bezeichnung Parameter	Symbol Symbol	Wert Value		Einheit Unit
		IRED	LED	
Betriebstemperatur Operating temperature range	T_{op}	- 40 ... + 100	- 40 ... + 100	°C
Lagertemperatur Storage temperature range	T_{stg}	- 40 ... + 100	- 40 ... + 100	°C
Sperrspannung Reverse voltage	V_R	5	5	V
Durchlassstrom Forward current	I_F (DC)	100	30	mA
Stoßstrom Surge current $t_p \leq 10 \mu s, D = 0$	I_{FSM}	2.5	0.5	A
Verlustleistung Total power dissipation	P_{tot}	180	100	mW
Wärmewiderstand Thermal resistance junction/ambient ¹⁾	$R_{th JA}$	450	500	K/W
Wärmewiderstand Thermal resistance junction/ambient ²⁾	$R_{th JA}$	650		K/W

¹⁾ nur ein Chip betrieben / only one chip on

²⁾ beide Chips betrieben / both chips on

Hinweis/Notes

Die angegebenen Grenzdaten gelten für einen Chip, wenn nicht anders angegeben.
The stated maximum ratings refer to one chip, unless otherwise specified.

Kennwerte ($T_A = 25\text{ °C}$)

Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value		Einheit Unit
		IRED	LED	
Wellenlänge der Strahlung Wavelength of peak emission $I_F = 100\text{ mA}$	λ_{peak}	880	565 ($I_F = 10\text{ mA}$)	nm
Dominantwellenlänge Dominant wavelength $I_F = 10\text{ mA}$	λ_{dom}	–	570	nm
Spektrale Bandbreite bei 50% von I_{max} Spectral bandwidth at 50% of I_{max} $I_F = 100\text{ mA}$	$\Delta\lambda$	80	25 ($I_F = 10\text{ mA}$)	nm
Abstrahlwinkel Half angle	φ	± 60	± 60	Grad deg.
Abmessungen der aktiven Chipfläche Dimensions of the active chip area	$L \times B$ $L \times W$	0.4×0.4	0.25×0.25	mm^2
Schaltzeiten Switching times 10%/90%, $I_F = 100\text{ mA}$, $R_L = 50\ \Omega$	t_r, t_f	500	450, 200	ns
Kapazität Capacitance $V_R = 0\text{ V}$, $f = 1\text{ MHz}$	C_o	25	15	pF
Durchlassspannung Forward voltage $I_F = 10\text{ mA}$ $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$ $I_F = 1\text{ A}$, $t_p = 100\ \mu\text{s}$	V_F	– 1.5 (≤ 1.8) 3.0 (≤ 3.8)	2.0 (≤ 2.6) – –	V
Sperrstrom, $V_R = 5\text{ V}$ Reverse current	I_R	0.01 (≤ 1)	0.01 (≤ 10)	μA
Gesamtstrahlungsfluss Total radiant flux $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	Φ_e	23	–	mW
Lichtstärke Luminous intensity $I_F = 2\text{ mA}$	I_V	–	>0.25	mcd
Temperaturkoeffizient von I_e bzw. Φ_e Temperature coefficient of I_e or Φ_e $I_F = 100\text{ mA}$	TC_1	–0.5	–0.3	%/K

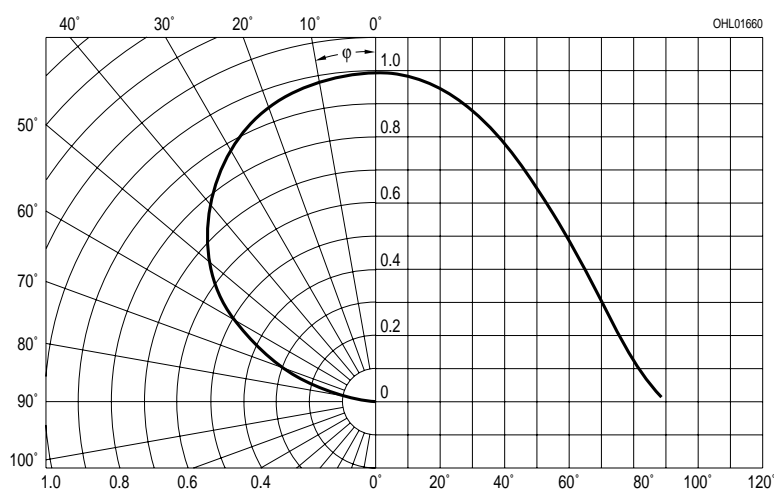
Kennwerte ($T_A = 25\text{ °C}$)

Characteristics (cont'd)

Bezeichnung Parameter	Symbol Symbol	Wert Value		Einheit Unit
		IRED	LED	
Temperaturkoeffizient von V_F Temperature coefficient of V_F $I_F = 100\text{ mA}$	TC_V	- 2	- 1.4	mV/K
Temperaturkoeffizient von λ Temperature coefficient of λ $I_F = 100\text{ mA}$	TC_λ	+ 0.25	0.30 (λ_{peak}) 0.07 (λ_{dom})	nm/K

Strahlstärke I_e der IRED in Achsrichtunggemessen bei einem Raumwinkel $\Omega = 0.01\text{ sr}$ Radiant Intensity I_e of the IRED in Axial Directionat a solid angle of $\Omega = 0.01\text{ sr}$

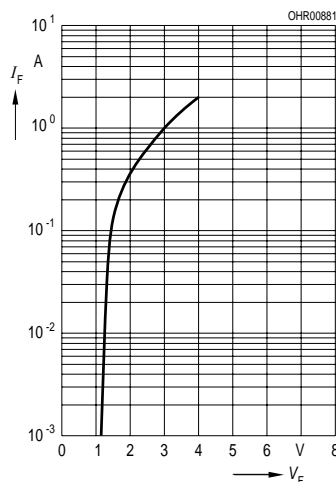
Bezeichnung Description	Symbol Symbol	Werte Values	Einheit Unit
Strahlstärke Radiant intensity $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	$I_{e\text{ min.}}$	≥ 4	mW/sr
Strahlstärke Radiant intensity $I_F = 1\text{ A}$, $t_p = 100\text{ }\mu\text{s}$	$I_{e\text{ typ.}}$	48	mW/sr

IRED Radiation Characteristics $I_{\text{rel}} = f(\varphi)$ LED Directional Characteristics $S_{\text{rel}} = f(\varphi)$ 

URED

Forward Current $I_F = f(V_F)$

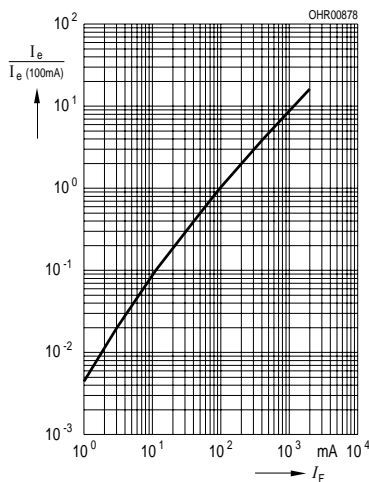
$T_A = 25\text{ }^\circ\text{C}$



Rel Luminous Intensity

$I_V / I_{V(10\text{ mA})} = f(I_F)$

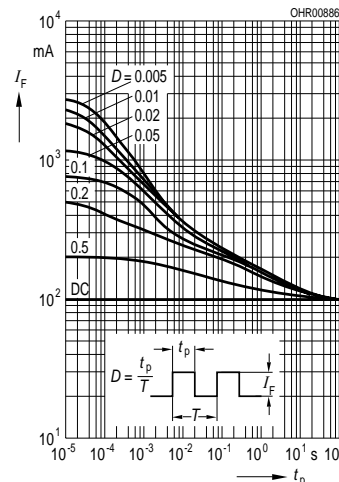
$T_A = 25\text{ }^\circ\text{C}$



Perm. Pulse Handling Capability

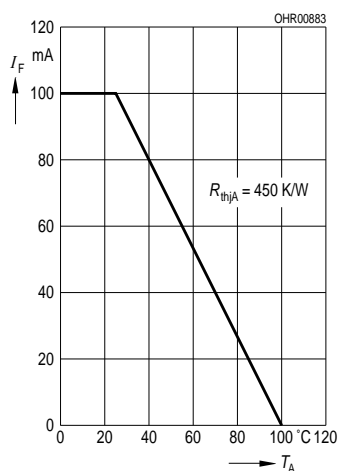
$I_F = f(t_p)$, Duty cycle $D = \text{parameter}$,

$T_A = 25\text{ }^\circ\text{C}$



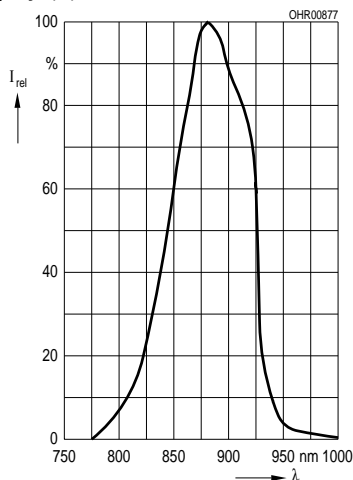
Max. Permissible Forward Current

$I_F = f(T_A)$



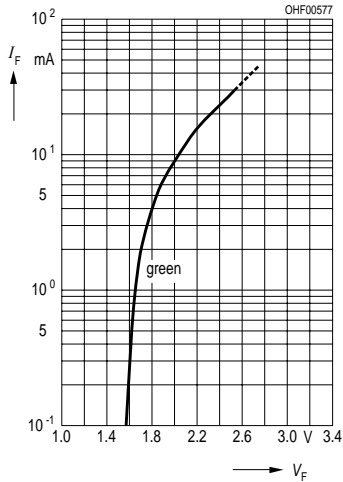
Relative Spectral Emission

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

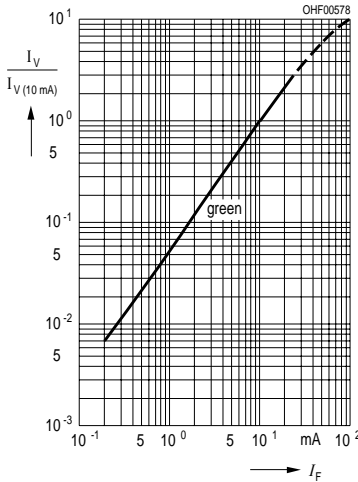


LED

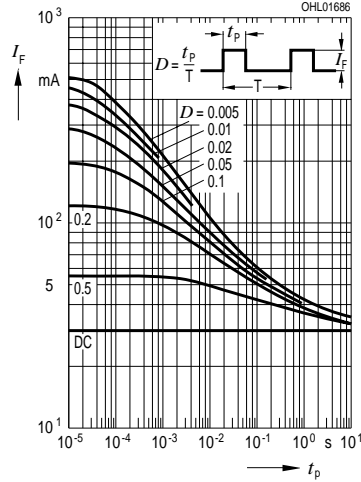
Forward Current $I_F = f(V_F)$
 $T_A = 25\text{ }^\circ\text{C}$



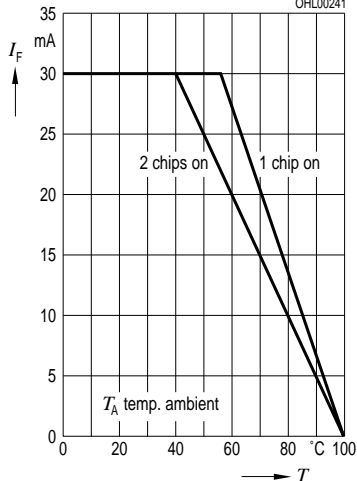
Relative Luminous Intensity $I_V / I_{V(10\text{ mA})} = f(I_F), T_A = 25\text{ }^\circ\text{C}$



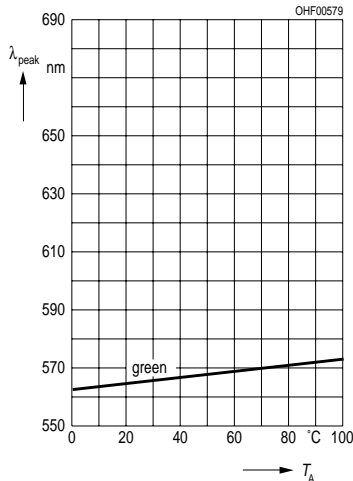
Perm. Pulse Handling Capability $I_F = f(t_p)$
 Duty cycle $D = \text{parameter}, T_A = 25\text{ }^\circ\text{C}$



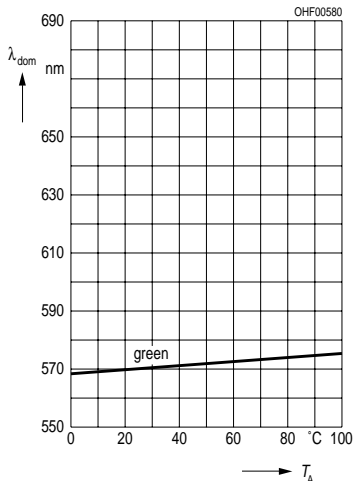
Max. Permissible Forward Current $I_F = f(T_A)$



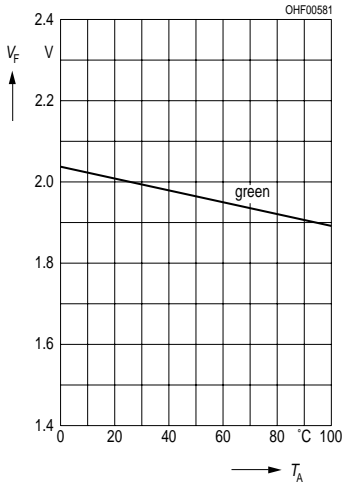
Wavelength at Peak Emission $\lambda_{\text{peak}} = f(T_A), I_F = 10\text{ mA}$



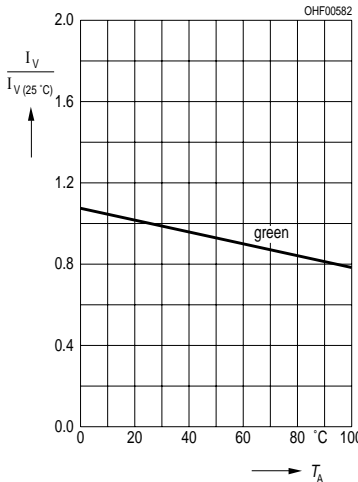
Dominant Wavelength $\lambda_{\text{dom}} = f(T_A), I_F = 10\text{ mA}$



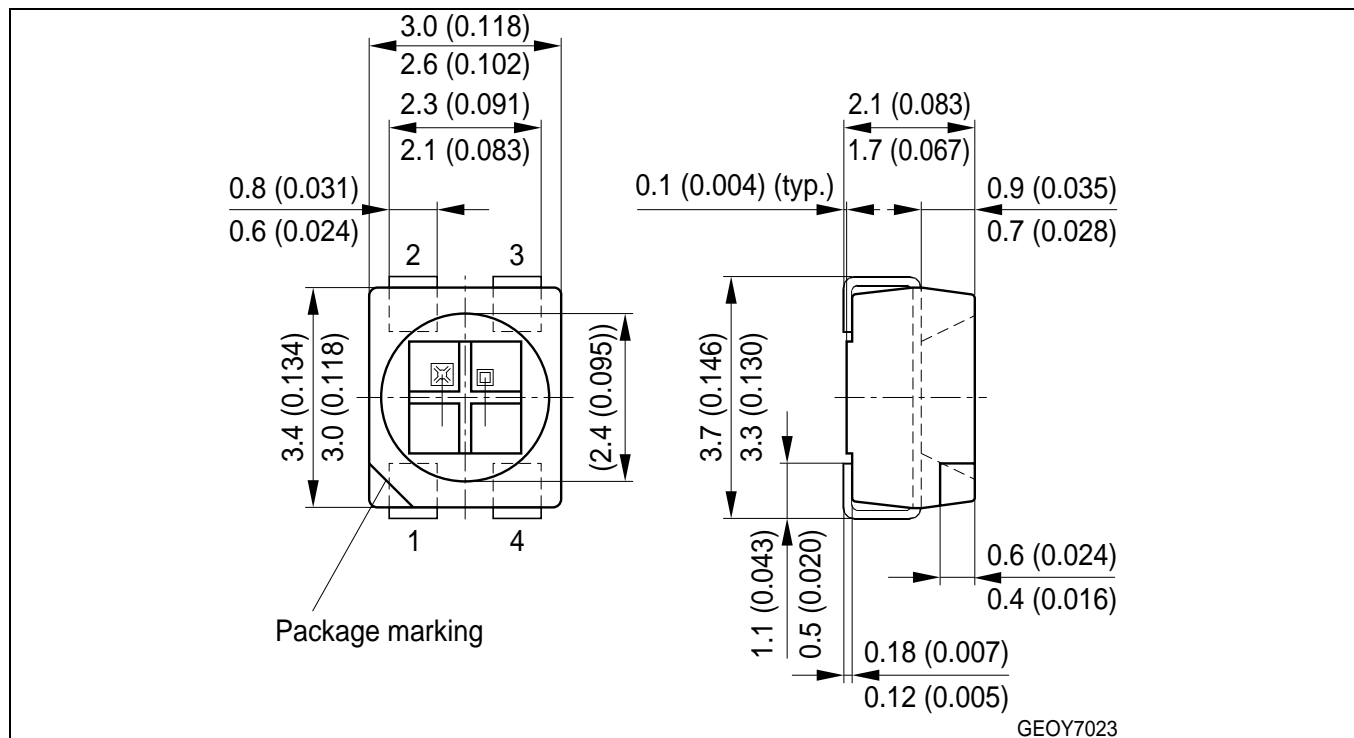
Forward Voltage $V_F = f(T_A)$
 $I_F = f(T_A)$



Relative Luminous Intensity $I_V / I_{V(25\text{ }^\circ\text{C})} = f(I_F), I_F = 10\text{ mA}$



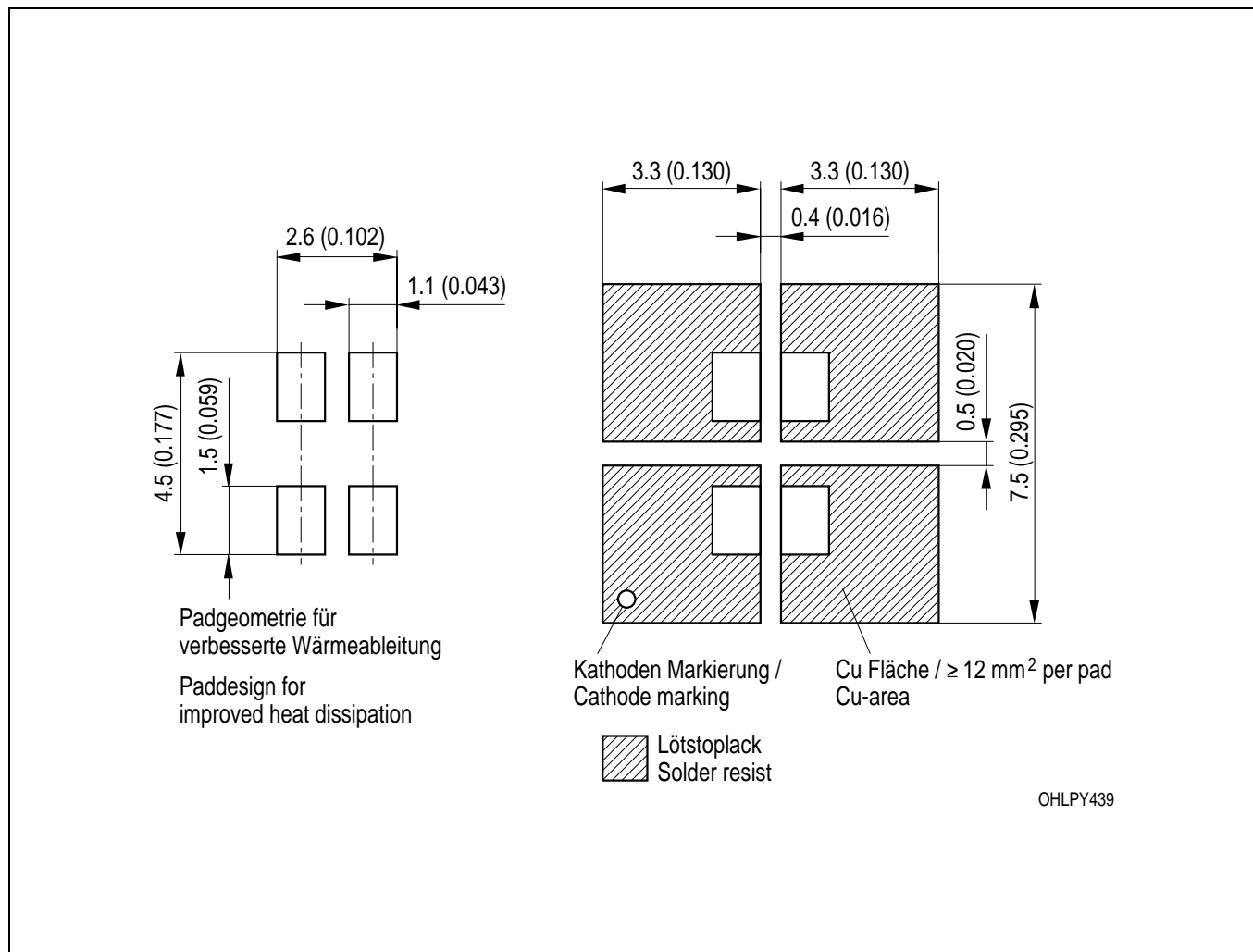
Maßzeichnung Package Outlines



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

Gehäuse / Package	weiß, klarer Verguss / white, clear resin
Anschlussbelegung pin configuration	1: Kathode (cathode) 880nm 2: Anode (anode) 880nm 3: Kathode (cathode) 565nm 4: Anode (anode) 565nm

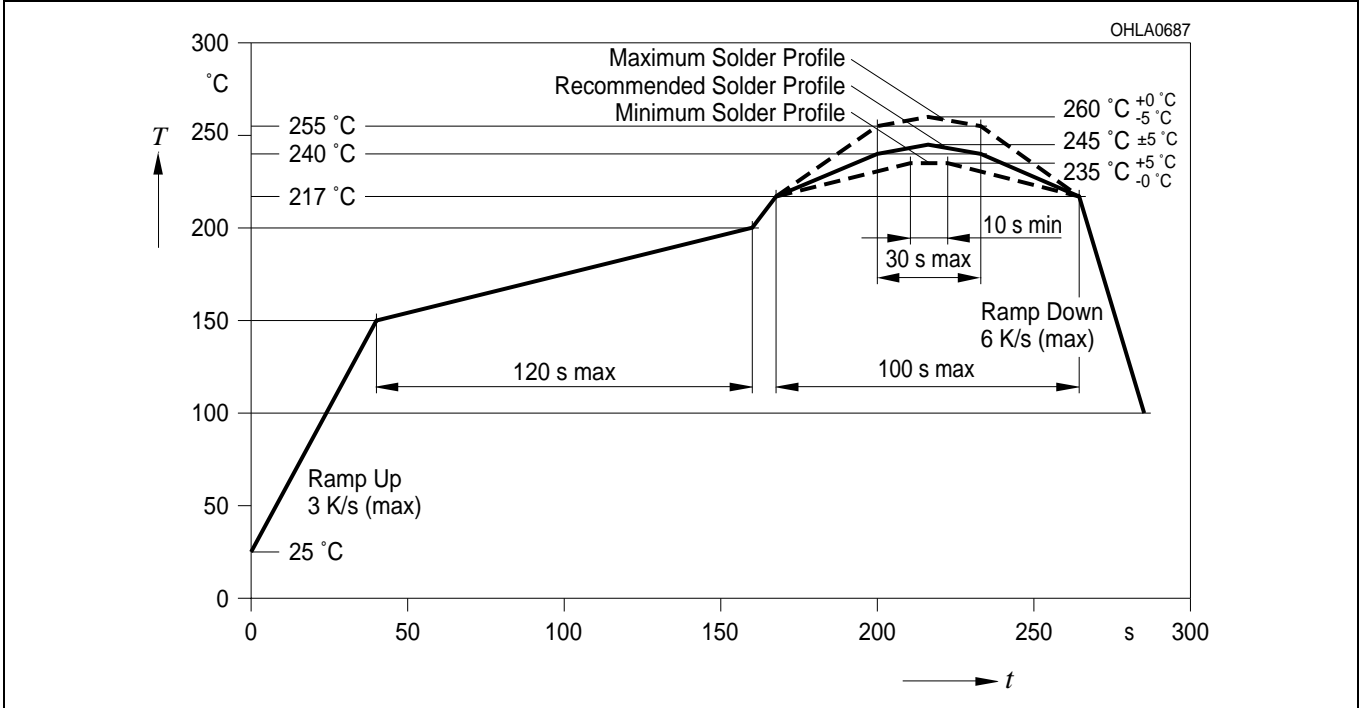
Empfohlenes Lötpaddesign
Recommended Solder Pad



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

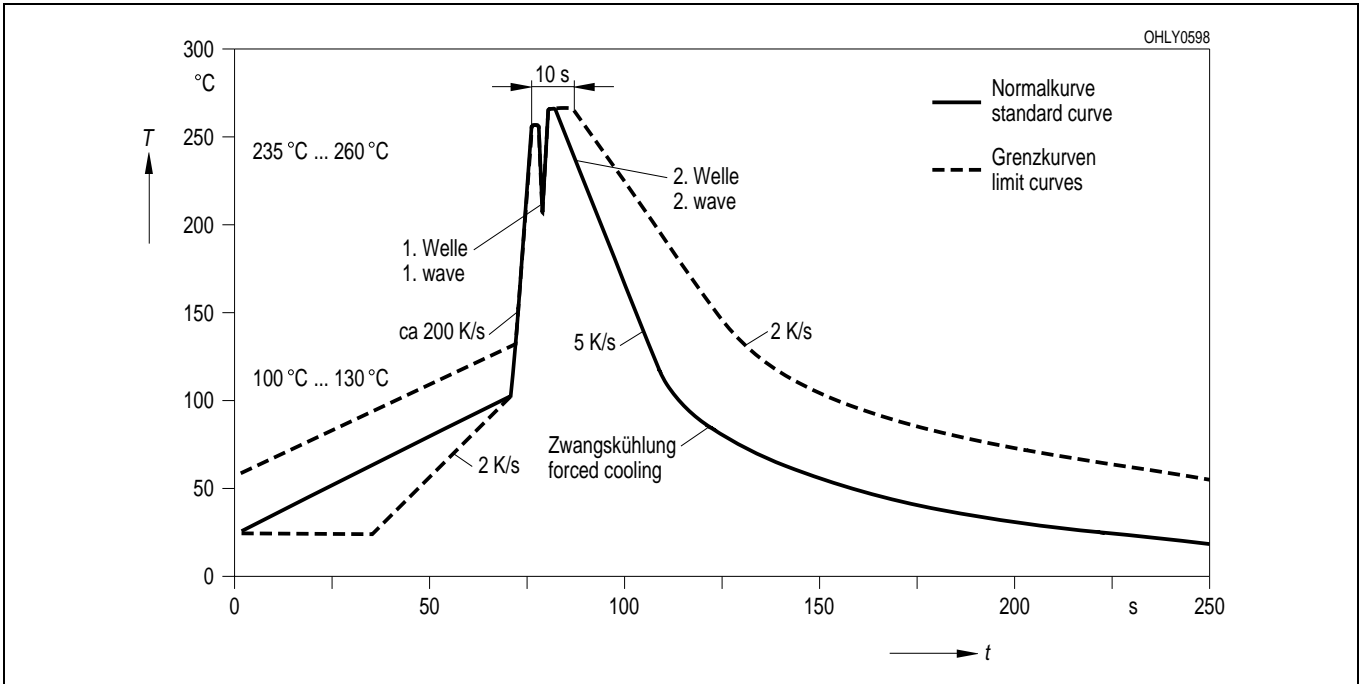
Lötbedingungen
Soldering Conditions
Reflow Lötprofil für bleifreies Löten
Reflow Soldering Profile for lead free soldering

Vorbehandlung nach JEDEC Level 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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