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

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

Anwendungen

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

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 $t_p \leq 10$ µs, $D = 0$	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 °C)
Characteristics

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**		**Einheit** **Unit**
		IRED	**LED**	
Wellenlänge der Strahlung Wavelength of peak emission I_F = 100 mA	λ_{peak}	880	565 (I_F = 10 mA)	nm
Dominantwellenlänge Dominant wavelength I_F = 10 mA	λ_{dom}	–	570	nm
Spektrale Bandbreite bei 50% von I_{max} Spectral bandwidth at 50% of I_{max} I_F = 100 mA	$\Delta\lambda$	80	25 (I_F = 10 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 mA, R_L = 50 Ω	t_r, t_f	500	450, 200	ns
Kapazität Capacitance V_R = 0 V, f = 1 MHz	C_o	25	15	pF
Durchlassspannung Forward voltage I_F = 10 mA I_F = 100 mA, t_p = 20 ms I_F = 1 A, t_p = 100 µs	V_F	 – 1.5 (≤ 1.8) 3.0 (≤ 3.8)	 2.0 (≤ 2.6) – –	V
Sperrstrom, V_R = 5 V Reverse current	I_R	0.01 (≤ 1)	0.01 (≤ 10)	µA
Gesamtstrahlungsfluss Total radiant flux I_F = 100 mA, t_p = 20 ms	Φ_e	23	–	mW
Lichtstärke Luminous intensity I_F = 2 mA	I_V	–	>0.25	mcd
Temperaturkoeffizient von I_e bzw. Φ_e Temperature coefficient of I_e or Φ_e I_F = 100 mA	TC_I	– 0.5	– 0.3	%/K

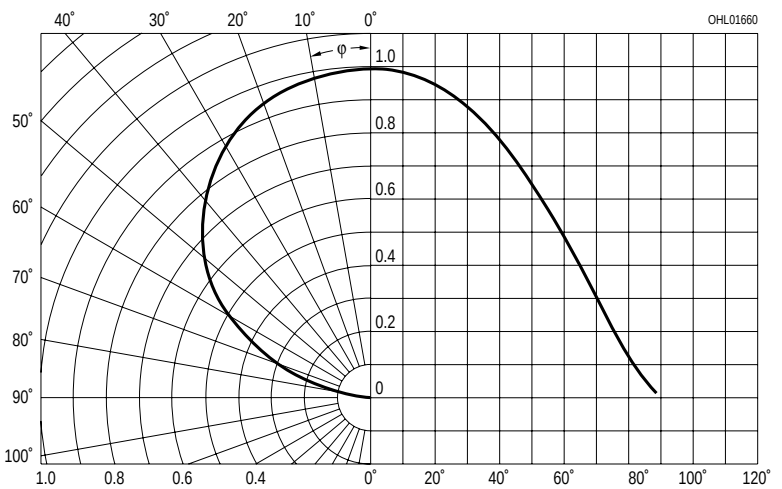
Kennwerte (T_A = 25 °C)
Characteristics (cont'd)

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

Strahlstärke I_e der IRED in Achsrichtung
gemessen bei einem Raumwinkel Ω = 0.01 sr
Radiant Intensity I_e of the IRED in Axial Direction
at a solid angle of Ω = 0.01 sr

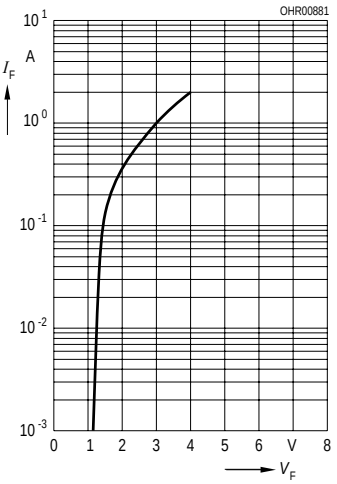
Bezeichnung Description	Symbol Symbol	Werte Values	Einheit Unit
Strahlstärke Radiant intensity I_F = 100 mA, t_p = 20 ms	$I_{e\ min.}$	≥ 4	mW/sr
Strahlstärke Radiant intensity I_F = 1 A, t_p = 100 µs	$I_{e\ typ.}$	48	mW/sr

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

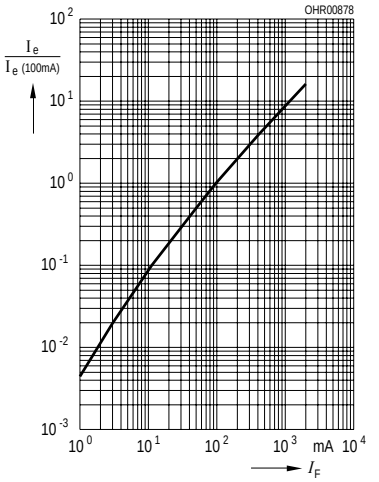


IRED

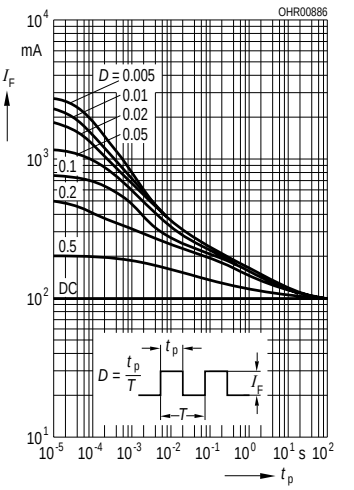
Forward Current $I_F = f(V_F)$
T_A = 25 °C



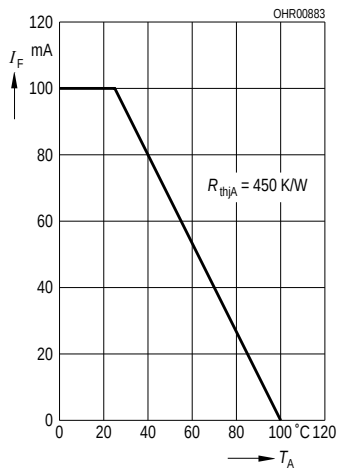
Rel Luminous Intensity
$I_V / I_{V(10\ mA)} = f(I_F)$
T_A = 25 °C



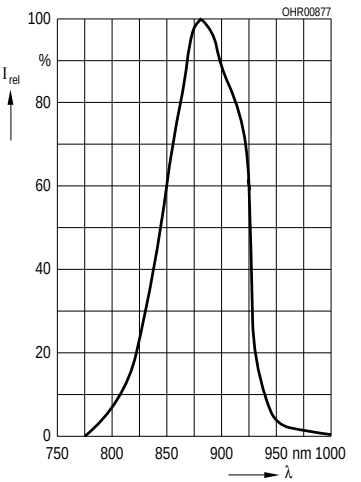
Perm. Pulse Handling Capability
$I_F = f(t_p)$, Duty cycle D = parameter,
T_A = 25 °C



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

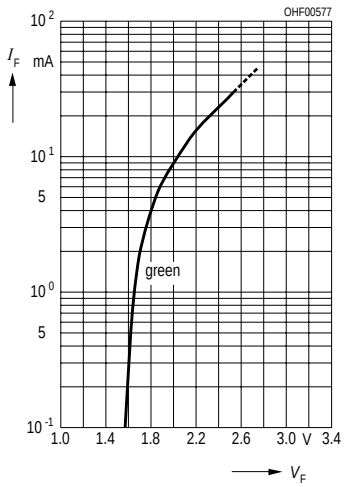


Relative Spectral Emission
$I_{rel} = f(\lambda)$

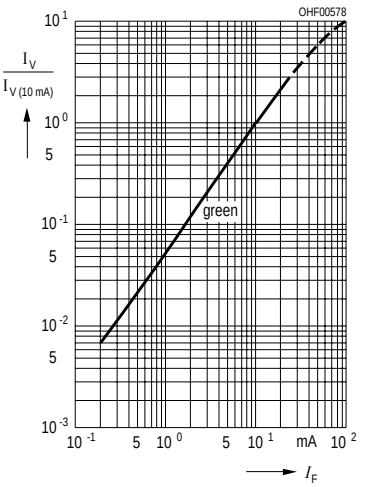


LED

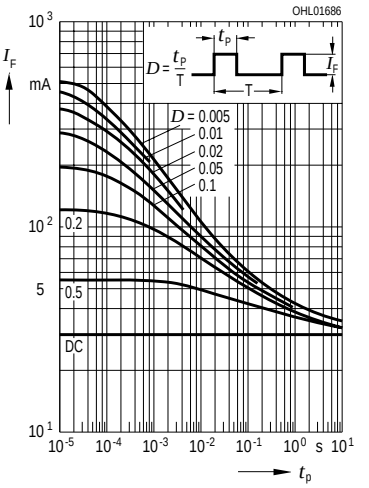
Forward Current $I_F = f(V_F)$
T_A = 25 °C



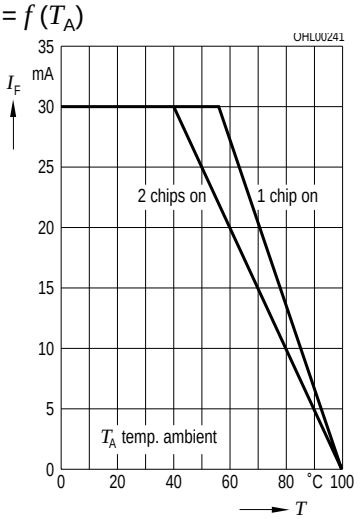
Relative Luminous Intensity
$I_V / I_{V(10\ mA)} = f(I_F)$, T_A = 25 °C



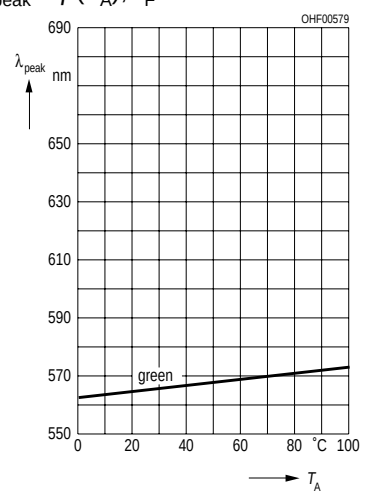
Perm. Pulse Handling Capability
$I_F = f(t_p)$
Duty cycle D = parameter, T_A = 25 °C



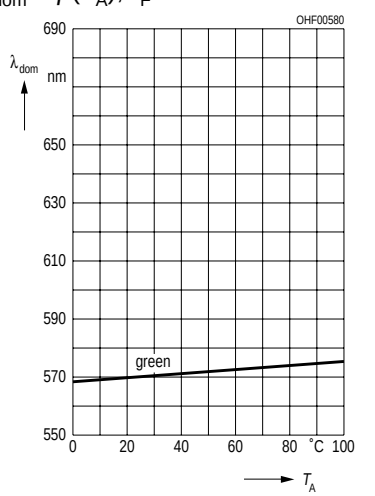
Max. Permissible Forward Current
$I_F = f(T_A)$



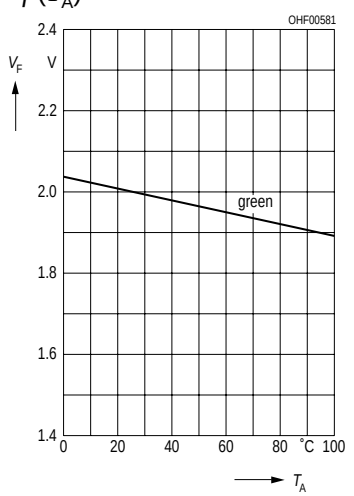
Wavelength at Peak Emission
$\lambda_{peak} = f(T_A)$, I_F = 10 mA



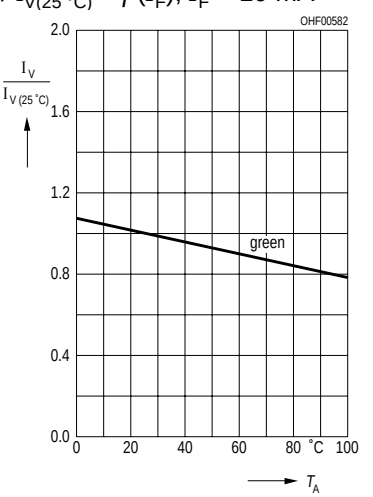
Dominant Wavelength
$\lambda_{dom} = f(T_A)$, I_F = 10 mA



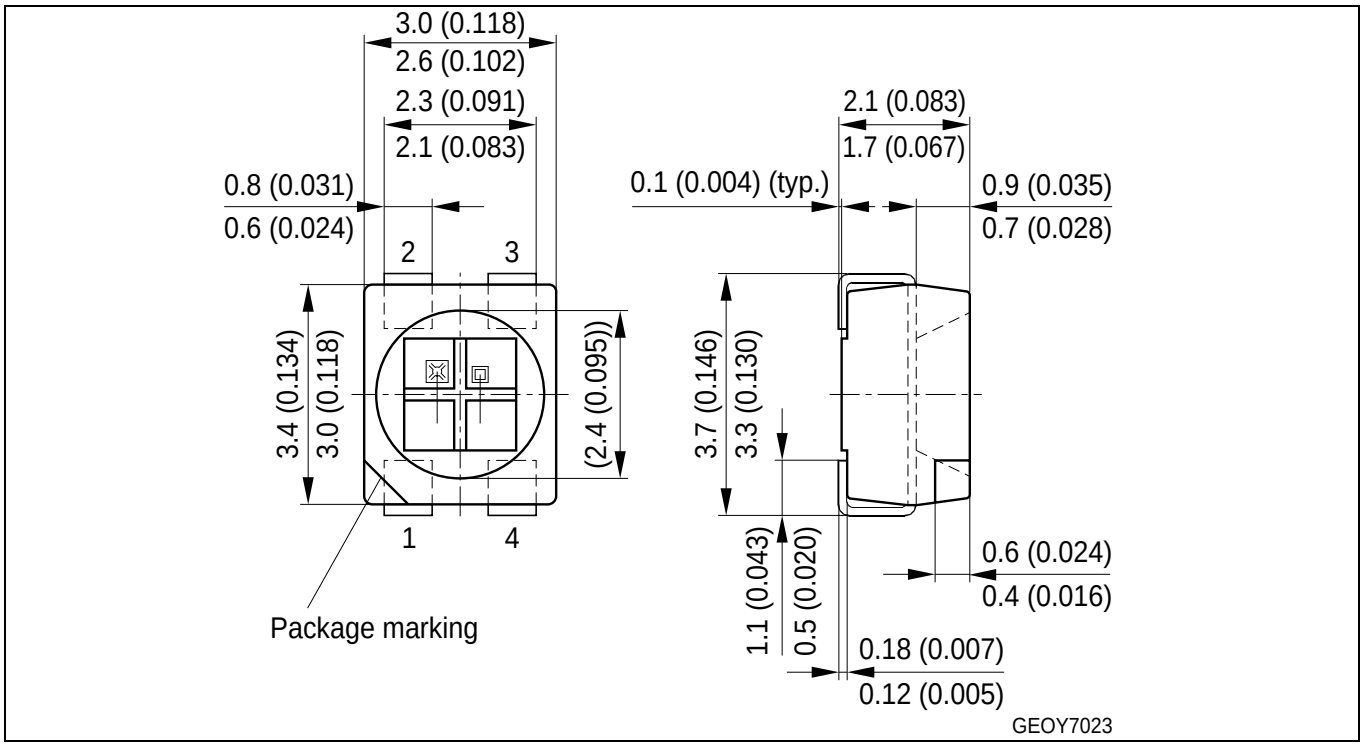
Forward Voltage $V_F = f(T_A)$
$I_F = f(T_A)$



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



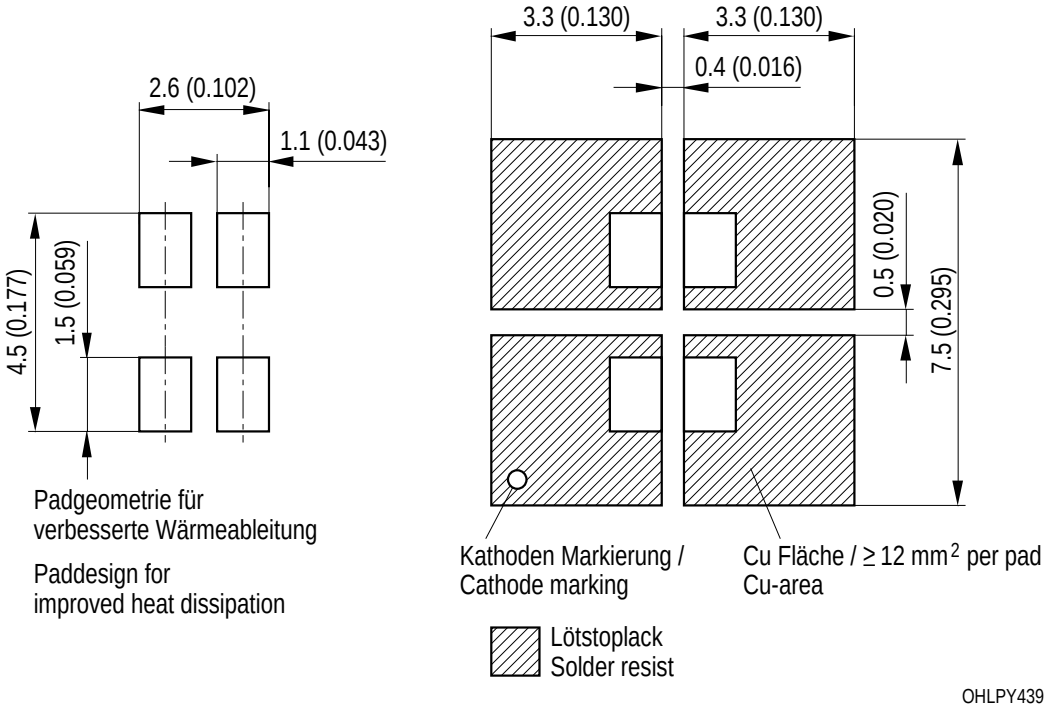
Maßzeichnung
Package Outlines



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

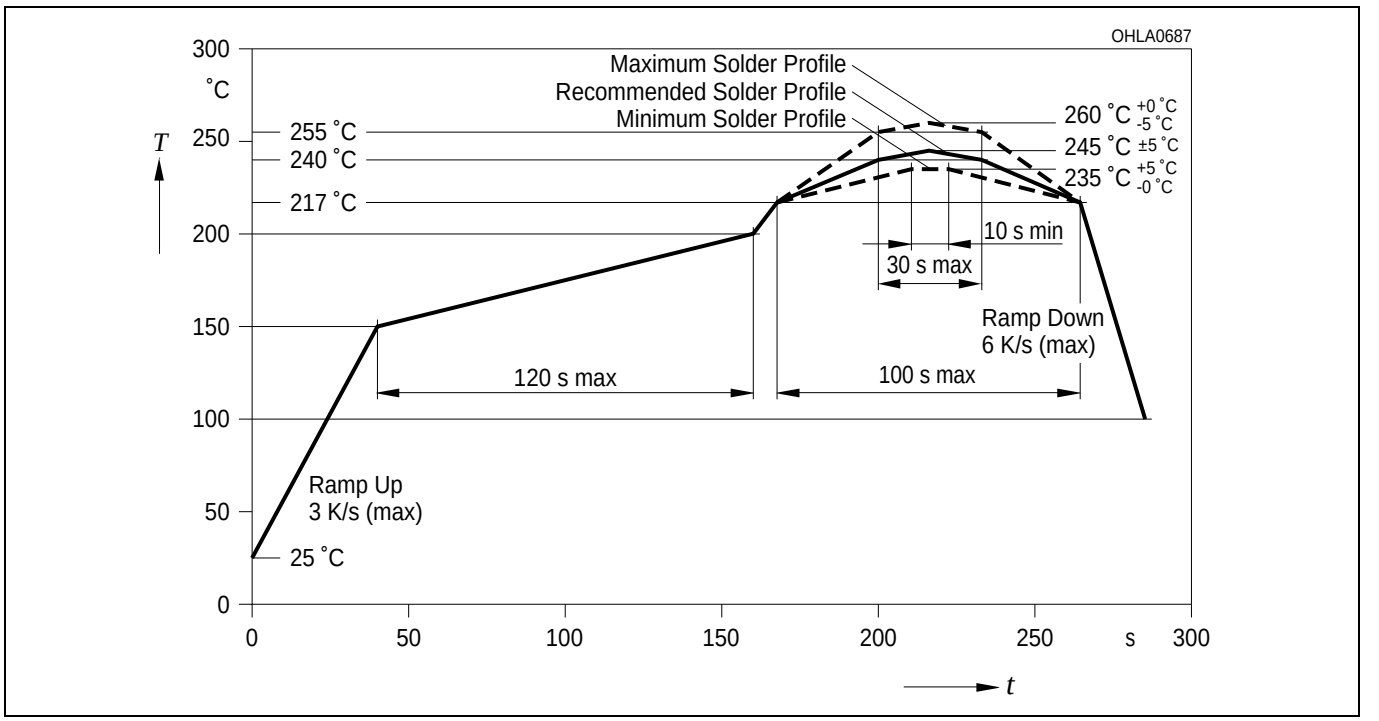
Empfohlenes Lötpaddesign
Recommended Solder Pad



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

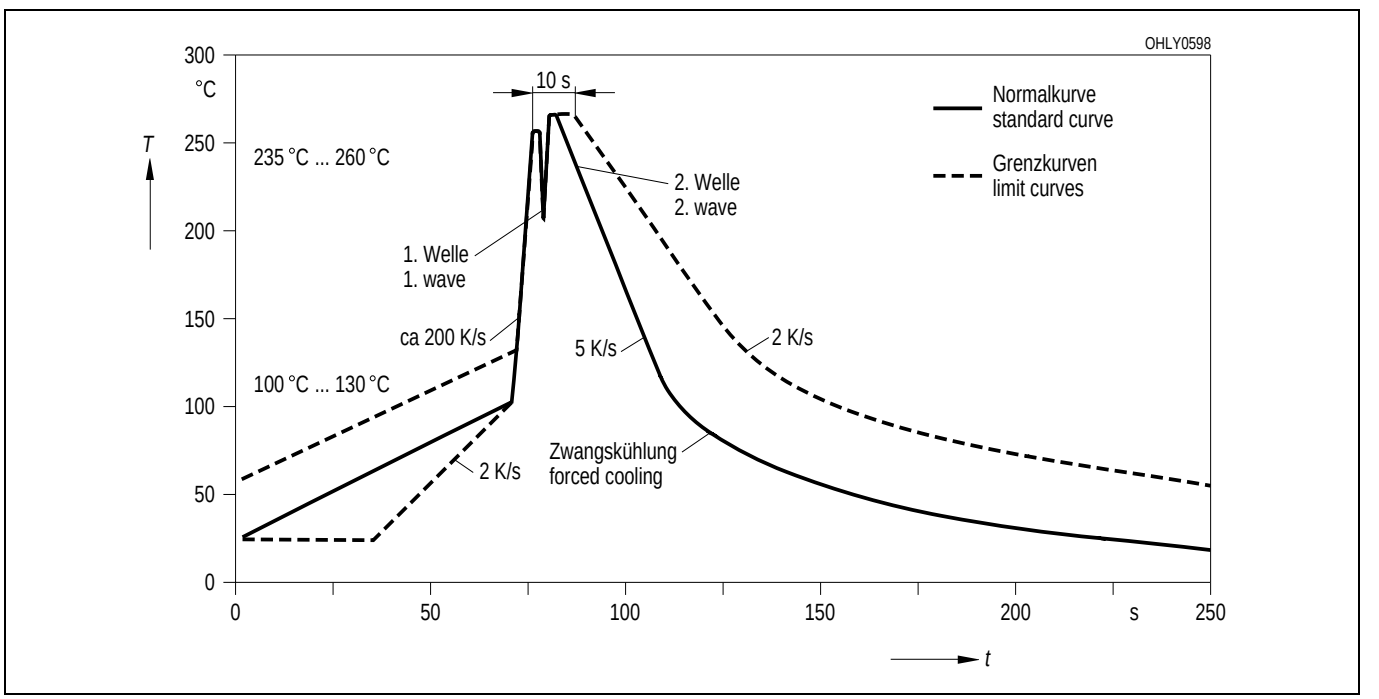
Lötbedingungen
Soldering Conditions
Reflow Lötprofil für bleifreies Löten
Reflow Soldering Profile for lead free soldering

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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