Infrarot-LED mit hoher Ausgangsleistung
High Power Infrared LED
Lead (Pb) Free Product - RoHS Compliant

SFH 4258
SFH 4259

Wesentliche Merkmale

- Infrarot LED mit hoher Ausgangsleistung
- Emissionswellenlänge typ. 850nm
- Halbwinkel SFH 4258: ± 15°
- Halbwinkel SFH 4259: ± 25°
- Hohe Bestromung bei hohen Temperaturen möglich

Anwendungen

- Infrarotbeleuchtung für CMOS Kameras
- IR-Datenübertragung
- Sensorik

Sicherheitshinweise

Je nach Betriebsart emittieren diese Bauteile hochkonzentrierte, nicht sichtbare Infrarot-Strahlung, die gefährlich für das menschliche Auge sein kann. Produkte, die diese Bauteile enthalten, müssen gemäß den Sicherheits-richtlinien der IEC-Norm 60825-1 behandelt werden.

Features

- High Power Infrared LED
- Peak wavelength typ. 850nm
- Half angle SFH 4258: ± 15°
- Half angle SFH 4259: ± 25°
- High forward current allowed at high temperature

Applications

- Infrared Illumination for CMOS cameras
- IR Data Transmission
- optical sensors

Safety Advices

Depending on the mode of operation, these devices emit highly concentrated non visible infrared light which can be hazardous to the human eye. Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1 “Safety of laser products”.

Typ **Type**	**Bestellnummer** **Ordering Code**	**Strahlstärkegruppierung**[1] (I_F = 100 mA, t_p = 20 ms) **Radiant Intensity Grouping**[1] I_e (mW/sr)
SFH 4258 SFH 4259	Q65110A2975 Q65110A2464	≥ 40 (typ. 90) ≥ 25 (typ. 55)

[1] gemessen bei einem Raumwinkel Ω = 0.01 sr / measured at a solid angle of Ω = 0.01 sr

ATTENTION - Observe Precautions For Handling - Electrostatic Sensitive Device

Grenzwerte
Maximum Ratings

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Betriebstemperatur Operating temperature range	T_{op}	– 40 …+ 100	°C
Lagertemperatur Storage temperature range	T_{stg}	– 40 …+ 100	°C
Sperrspannung Reverse voltage	V_R	3	V
Vorwärtsgleichstrom, $T_A \leq 65$ °C Forward current	I_F	100	mA
Stoßstrom, t_p = 10 µs, D = 0, T_A = 25 °C Surge current	I_{FSM}	1.5	A
Verlustleistung T_A = 25 °C Power dissipation	P_{tot}	180	mW
Wärmewiderstand Thermal resistance Sperrschicht/Umgebung Junction/ambient Sperrschicht/Lötpad Junction/soldering point Montage auf PC-Board FR 4 (Padgröße ≥ 16 mm²) mounted on PC board FR 4 (pad size ≥ 16 mm²)	 R_{thJA} R_{thJS}	 300 140	 K/W K/W

Kennwerte (T_A = 25 °C)
Characteristics

Bezeichnung Parameter	Typ	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der Strahlung Wavelength at peak emission I_F = 100 mA		λ_{peak}	850	nm
Spektrale Bandbreite bei 50% von I_{max} Spectral bandwidth at 50% of I_{max} I_F = 100 mA		$\Delta\lambda$	35	nm
Abstrahlwinkel Half angle	SFH 4258 SFH 4259	φ	± 15 ± 25	Grad deg.
Aktive Chipfläche Active chip area		A	0.09	mm²

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

Bezeichnung **Parameter**	**Typ**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Abmessungen der aktiven Chipfläche Dimension of the active chip area		$L \times B$ $L \times W$	0.3 × 0.3	mm
Schaltzeiten, I_e von 10% auf 90% und von 90% auf 10%, bei I_F = 100 mA, R_L = 50 Ω Switching times, I_e from 10% to 90% and from 90% to 10%, I_F = 100 mA, R_L = 50 Ω		t_r, t_f	12	ns
Durchlassspannung Forward voltage I_F = 100 mA, t_p = 20 ms I_F = 1 A, t_p = 100 µs		 V_F V_F	 1.5 (< 1.8) 2.4 (< 3.0)	 V V
Sperrstrom Reverse current V_R = 3 V		I_R	0.01 (≤10)	µA
Gesamtstrahlungsfluss Total radiant flux I_F = 100 mA, t_p = 20 ms		Φ_e	45	mW
Temperaturkoeffizient von I_e bzw. Φ_e, I_F = 100 mA Temperature coefficient of I_e or Φ_e, I_F = 100 mA		TC_I	– 0.5	%/K
Temperaturkoeffizient von V_F, I_F = 100 mA Temperature coefficient of V_F, I_F = 100 mA		TC_V	– 0.7	mV/K
Temperaturkoeffizient von λ, I_F = 100 mA Temperature coefficient of λ, I_F = 100 mA		TC_λ	+ 0.2	nm/K

Strahlstärke I_e in Achsrichtung[1)]
gemessen 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
		SFH 4258-U	**SFH 4258-V**	**SFH 4258-AW**	
Strahlstärke Radiant intensity I_F = 100 mA, t_p = 20 ms	$I_{e\ min}$ $I_{e\ max}$	40 80	63 125	100 200	mW/sr mW/sr
Strahlstärke Radiant intensity I_F = 1A, t_p = 100 µs	$I_{e\ typ.}$	400	600	800	mW/sr
		SFH 4259-T	**SFH 4259-U**		
Strahlstärke Radiant intensity I_F = 100 mA, t_p = 20 ms	$I_{e\ min}$ $I_{e\ max}$	25 50	40 80		mW/sr mW/sr
Strahlstärke Radiant intensity I_F = 1A, t_p = 100 µs	$I_{e\ typ.}$	250	350		mW/sr

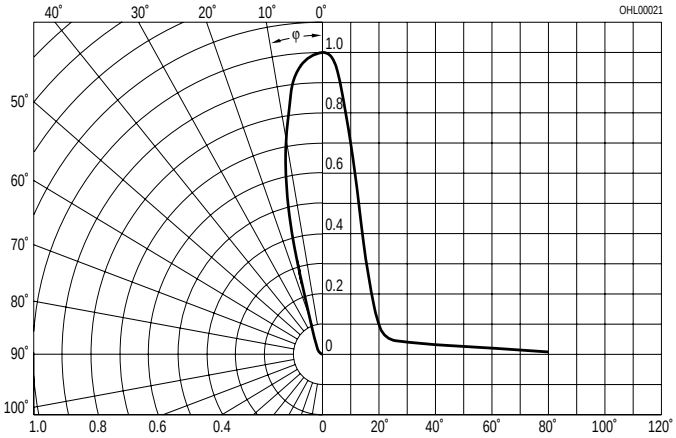
1) Nur eine Gruppe in einer Verpackungseinheit (Streuung kleiner 2:1)

1) Only one group in one packing unit, (variation lower 2:1)

Radiation Characteristics

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

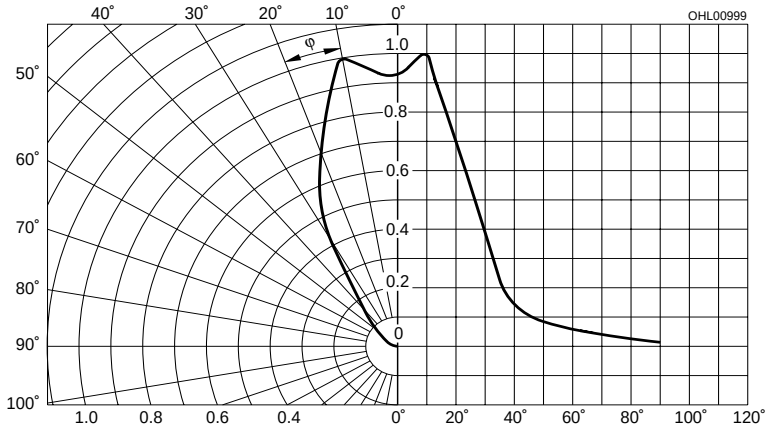
SFH 4258



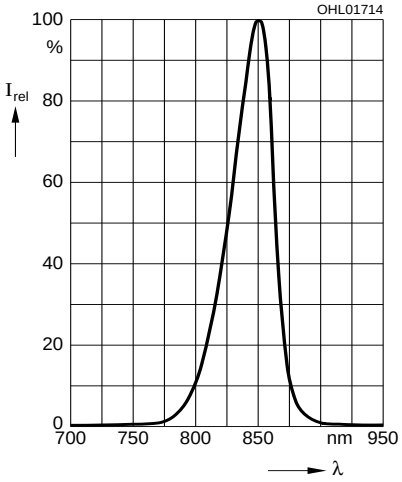
Radiation Characteristics

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

SFH 4259

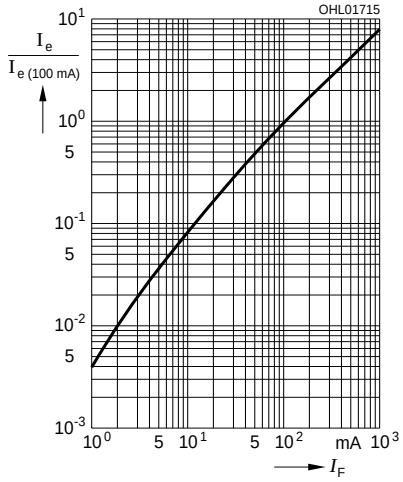


Relative Spectral Emission
$I_{rel} = f(\lambda)$

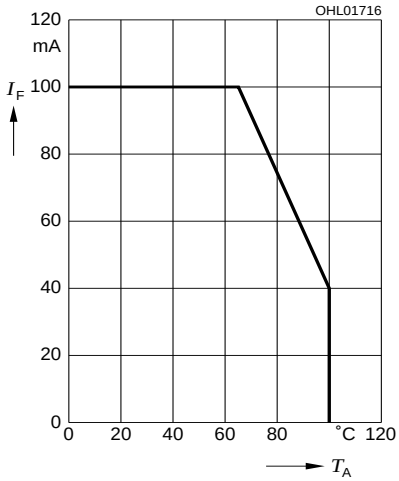


Radiant Intensity $\frac{I_e}{I_e\ 100\ mA} = f(I_F)$

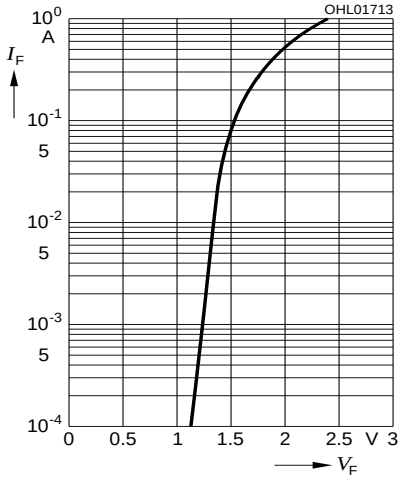
Single pulse, t_p = 20 µs



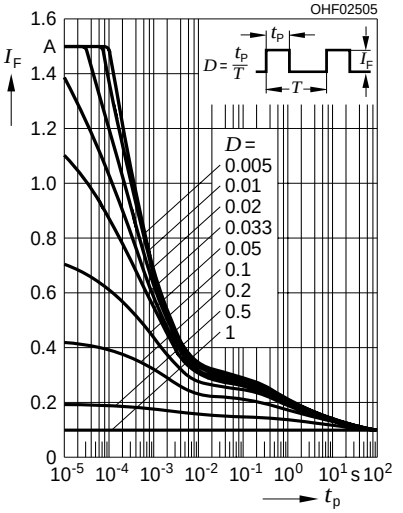
Max. Permissible Forward Current
$I_F = f(T_A)$, R_{thJA} = 300 K/W[1)]



Forward Current $I_F = f(V_F)$
Single pulse, t_p = 20 µs



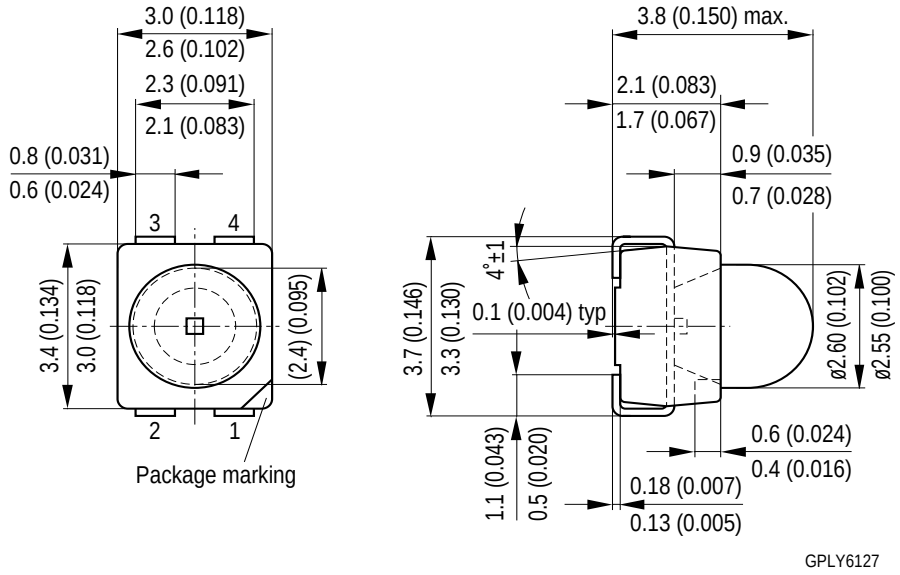
Permissible Pulse Handling Capability $I_F = f(\tau)$, T_A = 25 °C, duty cycle D = parameter[1)]



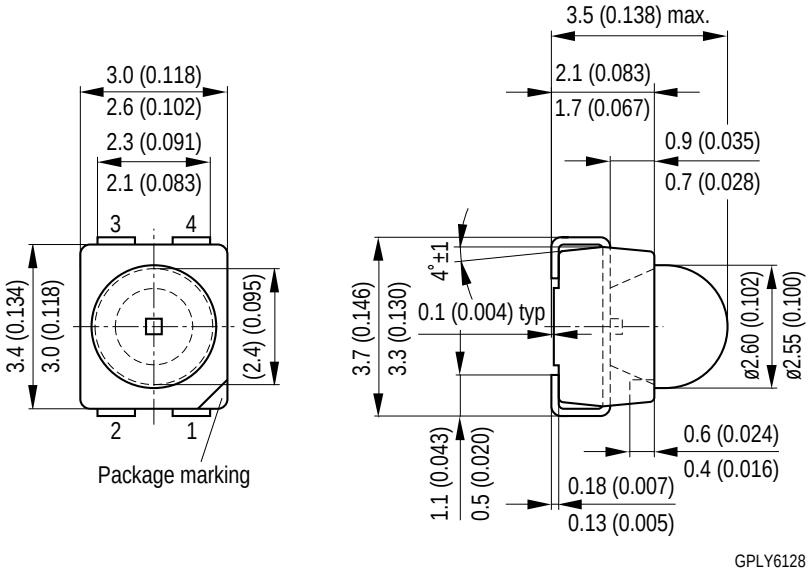
[1)] mounted on PC board FR 4 (pad size ≥ 16 mm [2])

Maßzeichnung
Package Outlines

SFH 4258



SFH 4259

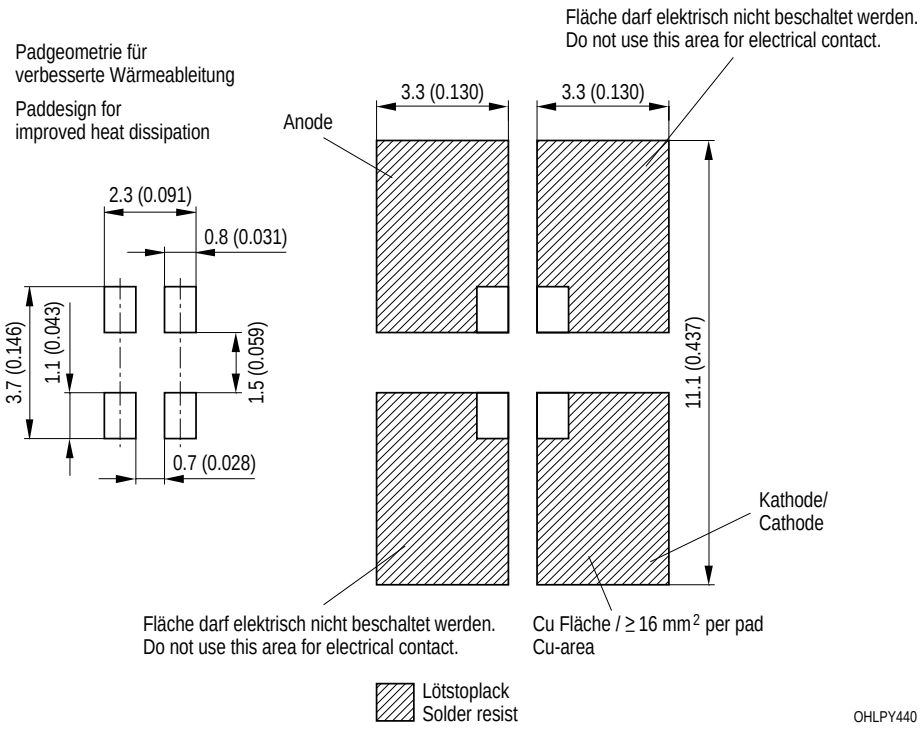


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

Gehäuse / Package	Topled mit Linse, klares Gehäuse / Topled with lens, clear resin
Anschlussbelegung pin configuration	1 = Kathode / cathode 2/3/4 = Anode / anode

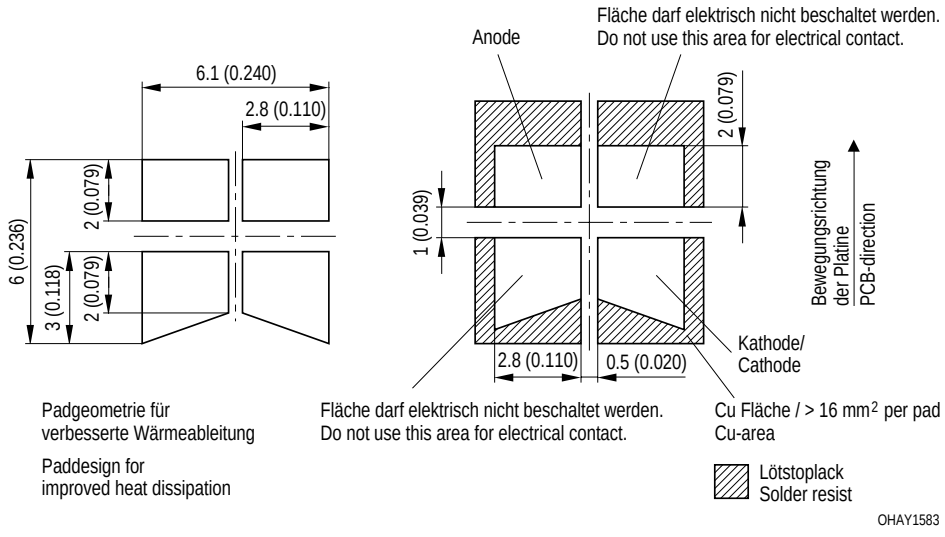
Empfohlenes Lötpaddesign
Recommended Solder Pad

IR Flow Löten
IR Reflow Soldering



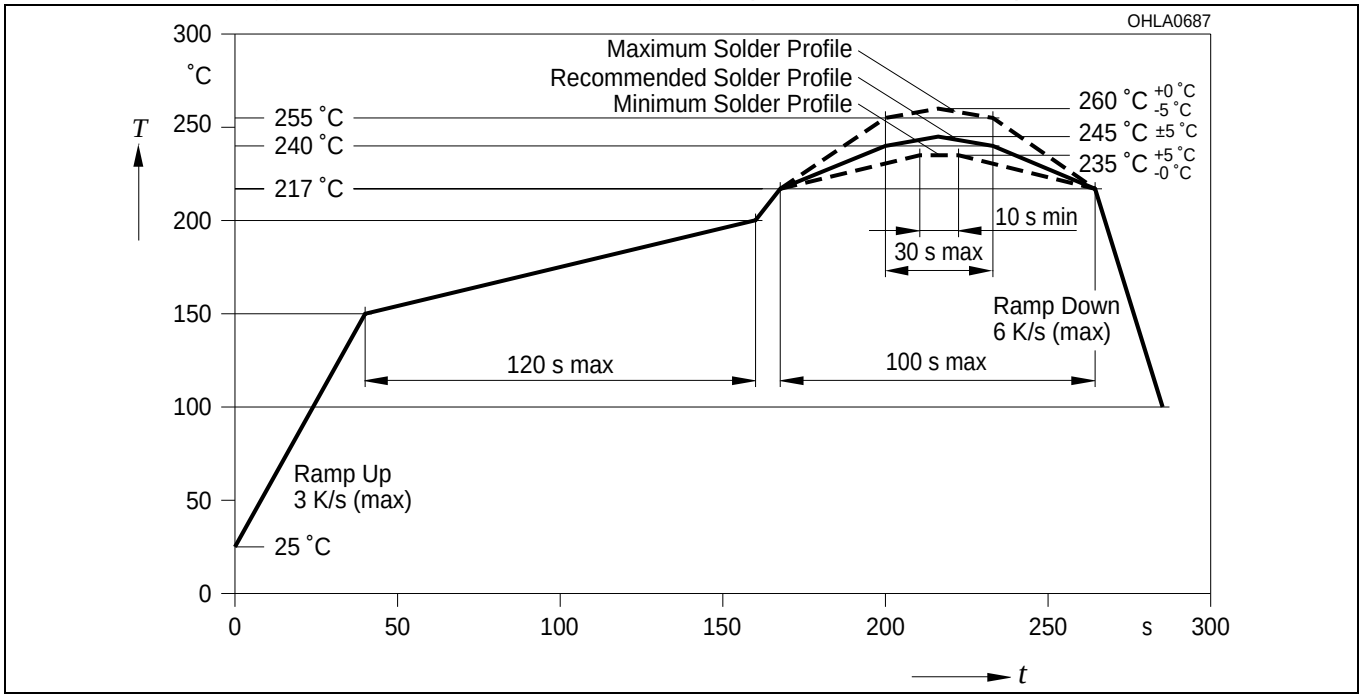
Empfohlenes Lötpaddesign
Recommended Solder Pad

Wellenlöten TTW
TTW Soldering



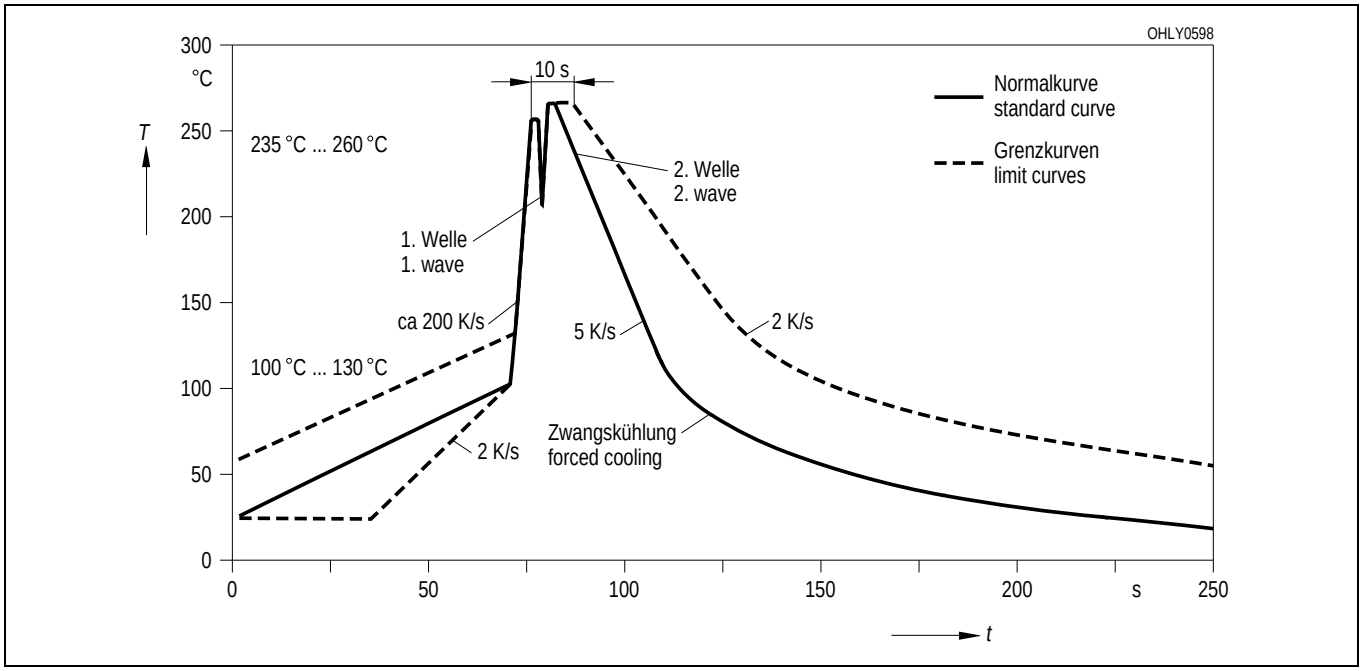
Lötbedingungen
Soldering Conditions
IR-Reflow Lötprofil für bleifreies Löten
IR Reflow Soldering Profile for lead free soldering

Vorbehandlung nach JEDEC Level 2
Preconditioning acc. to JEDEC Level 2
(nach J-STD-020B)
(acc. to J-STD-020B)



Lötbedingungen
Soldering Conditions
Wellenlöten (TTW)
TTW Soldering

Vorbehandlung nach JEDEC Level 2
Preconditioning acc. to JEDEC Level 2
(nach CECC 00802)
(acc. to CECC 00802)



Published by
OSRAM Opto Semiconductors GmbH
Wernerwerkstrasse 2, D-93049 Regensburg
www.osram-os.com

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