Hyper Micro SIDELED
Hyper-Bright LED

LS Y876, LA Y876, LO Y876, LY Y876

Vorläufige Daten / Preliminary Data

Besondere Merkmale

- **Gehäusetyp:** weißes SMT-Gehäuse
- **Besonderheit des Bauteils:** kleine Bauform mit extrem breiter Abstrahlcharakteristik; ideal für Einkopplungen in Lichtleiter
- **Wellenlänge:** 633 nm (super-rot), 615 nm (amber), 606 nm (orange), 587 nm (gelb)
- **Abstrahlwinkel:** Lambertscher Strahler (120°)
- **Technologie:** InGaAlP
- **optischer Wirkungsgrad:** 9 lm/W (gelb, orange, amber), 5 lm/W (super-rot)
- **Gruppierungsparameter:** Lichtstärke
- **Verarbeitungsmethode:** für alle SMT-Bestücktechniken geeignet
- **Lötmethode:** IR Reflow Löten und Wellenlöten (TTW)
- **Vorbehandlung:** nach JEDEC Level 2
- **Gurtung:** 8 mm Gurt mit 3000/Rolle, ø180 mm oder 10000/Rolle, ø330 mm

Anwendungen

- optimale Einkopplung in Lichtleiter
- Hinterleuchtung (LCD, Mobiltelefone, Tasten, Allgemeinbeleuchtung, Werbebeleuchtung)
- Signal- und Symbolleuchten
- Automobilbereich (z. B. Instrumentenbeleuchtung)

Features

- **package:** white SMT package
- **feature of the device:** small package with extremely wide viewing angle; ideal for coupling in light guides
- **wavelength:** 633 nm (super-red), 615 nm (amber), 606 nm (orange), 587 nm (yellow)
- **viewing angle:** Lambertian Emitter (120°)
- **technology:** InGaAlP
- **optical efficiency:** 9 lm/W (yellow, orange, amber), 5 lm/W (super-red)
- **grouping parameter:** luminous intensity
- **assembly methods:** suitable for all SMT assembly methods
- **soldering methods:** IR reflow soldering and TTW soldering
- **preconditioning:** acc. to JEDEC Level 2
- **taping:** 8 mm tape with 3000/reel, ø180 mm or 10000/reel, ø330 mm

Applications

- optimized coupling into light guides
- backlighting (LCD, cellular phones, keys, general lightning, illuminated advertising)
- signal and symbol luminaire
- automotive (e. g. car radio backlighting)

Typ **Type**	**Emissionsfarbe** **Color of Emission**	**Farbe der Lichtaustrittsfläche** **Color of the Light Emitting Area**	**Lichtstärke** **Luminous Intensity** I_F = 20 mA I_V (mcd)	**Lichtstrom** **Luminous Flux** I_F = 20 mA Φ_V (mlm)	**Bestellnummer** **Ordering Code**
LS Y876-N1P1-1 LS Y876-P1Q2-1	super-red	colorless clear	28.0 ... 56.0 45.0 ... 112.0	120 (typ.) 230 (typ.)	Q62703-Q6195 Q62703-Q6196
LA Y876-P1Q1-1 LA Y876-Q1R2-1	amber	colorless clear	45.0 ... 90.0 71.0 ... 180.0	200 (typ.) 370 (typ.)	Q62703-Q6193 Q62703-Q6194
LO Y876-P2Q2-1 LO Y876-Q2S1-1	orange	colorless clear	56.0 ... 112.0 90.0 ... 224.0	240 (typ.) 440 (typ.)	Q62703-Q6199 Q62703-Q6200
LY Y876-P1Q1-1 LY Y876-Q1R2-1	yellow	colorless clear	45.0 ... 90.0 71.0 ... 180.0	200 (typ.) 370 (typ.)	Q62703-Q6197 Q62703-Q6198

Anm.: -1 gesamter Farbbereich

Die Standardlieferform von Serientypen beinhaltet eine untere bzw. eine obere Familiengruppe, die aus nur 3 bzw. 4 Halbgruppen besteht. Einzelne Halbgruppen sind nicht erhältlich.
In einer Verpackungseinheit / Gurt ist immer nur eine Halbgruppe enthalten.

Note: -1 Total color tolerance range
-
The standard shipping format for serial types includes a lower or upper family group of 3 or 4 individual groups. Individual half groups are not available.
No packing unit / tape ever contains more than one luminous intensity half group..

Grenzwerte
Maximum Ratings

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Werte** **Values**		**Einheit** **Unit**
		LS, LO, LA	**LY**	
Betriebstemperatur Operating temperature range	T_{op}	– 40 … + 100		°C
Lagertemperatur Storage temperature range	T_{stg}	– 40 … + 100		°C
Sperrschichttemperatur Junction temperature	T_j	+ 125		°C
Durchlassstrom Forward current	I_F	30		mA
Stoßstrom Surge current $t \leq 10$ µs, $D = 0.005$	I_{FM}	t.b.d.	t.b.d.	A
Sperrspannung Reverse voltage $I_F = 10$ µA	V_R	3		V
Leistungsaufnahme Power consumption $T_A \leq 25$ °C	P_{tot}	80		mW
Wärmewiderstand Thermal resistance				
Sperrschicht/Umgebung Junction/ambient	$R_{th\ JA}$	630		K/W
Sperrschicht/Lötpad Junction/solder point Montage auf PC-Board FR 4 (Padgröße ≥ 16 mm²) mounted on PC board FR 4 (pad size ≥ 16 mm²)	$R_{th\ JS}$	350		K/W

Kennwerte (T_A = 25 °C)
Characteristics

Bezeichnung **Parameter**		**Symbol** **Symbol**	**Werte** **Values**				**Einheit** **Unit**
			LS	**LA**	**LO**	**LY**	
Wellenlänge des emittierten Lichtes Wavelength at peak emission I_F = 20 mA	(typ.)	λ_{peak}	645	622	610	591	nm
Dominantwellenlänge 1) Dominant wavelength 1) I_F = 20 mA	(typ.)	λ_{dom}	633 ± 6	617 ± 5	606 ± 6	587 +8/–7	nm
Spektrale Bandbreite bei 50 % $I_{rel\ max}$ Spectral bandwidth at 50 % $I_{rel\ max}$ I_F = 20 mA	(typ.)	$\Delta\lambda$	16	16	16	15	nm
Abstrahlwinkel bei 50 % I_V (Vollwinkel) Viewing angle at 50 % I_V	(typ.)	2φ	120	120	120	120	Grad deg.
Durchlassspannung 2) Forward voltage 2) I_F = 20 mA	(typ.) (max.)	V_F V_F	2.0 2.4	2.0 2.4	2.0 2.4	2.0 2.4	V V
Sperrstrom Reverse current V_R = 3 V	(typ.) (max.)	I_R I_R	0.01 10	0.01 10	0.01 10	0.01 10	µA µA
Temperaturkoeffizient von λ_{peak} Temperature coefficient of λ_{peak} I_F = 20 mA; $-10°C \leq T \leq 100°C$	(typ.)	$TC_{\lambda peak}$	0.14	0.13	0.13	0.13	nm/K
Temperaturkoeffizient von λ_{dom} Temperature coefficient of λ_{dom} I_F = 20 mA; $-10°C \leq T \leq 100°C$	(typ.)	$TC_{\lambda dom}$	0.01	0.06	0.07	0.10	nm/K
Temperaturkoeffizient von V_F Temperature coefficient of V_F I_F = 20 mA; $-10°C \leq T \leq 100°C$	(typ.)	TC_V	– 2.0	– 1.8	– 1.7	– 2.5	mV/K
Optischer Wirkungsgrad Optical efficiency I_F = 20 mA	(typ.)	η_{opt}	5	9	9	9	lm/W

1) Wellenlängen werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von ±1 nm ermittelt.
Wavelengths are tested at a current pulse duration of 25 ms and a tolerance of ±1 nm.

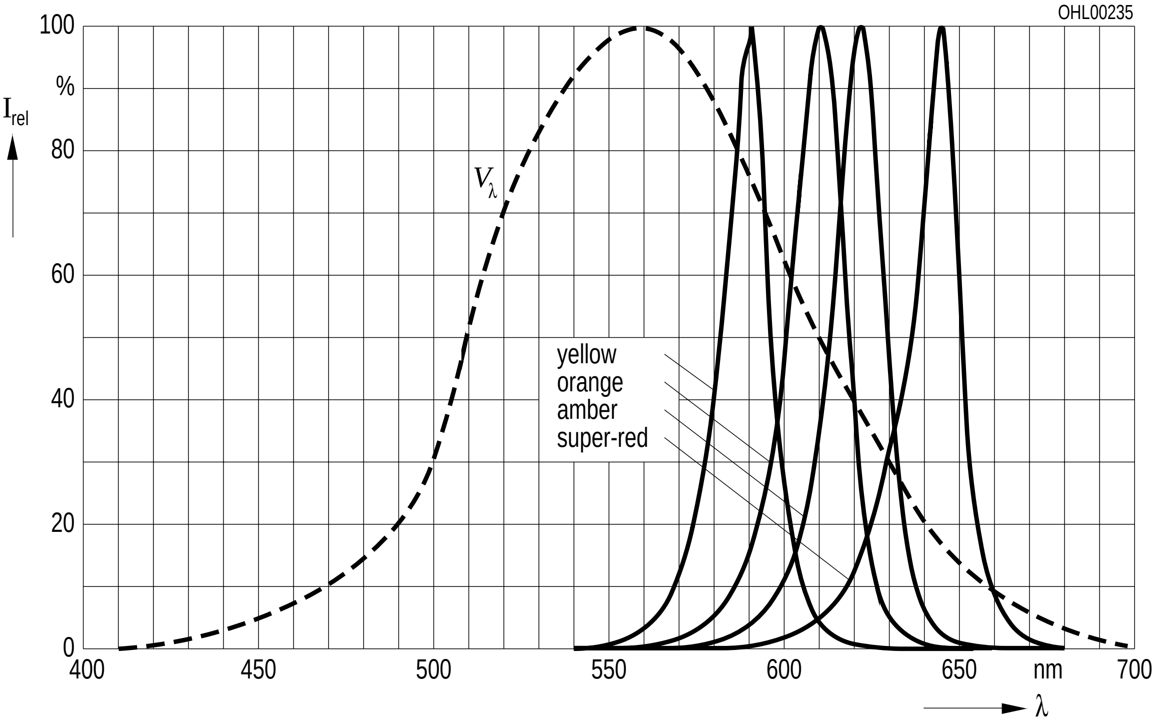
2) Spannungswerte werden mit einer Stromeinprägedauer von 1 ms und einer Genauigkeit von ±0.1 V ermittelt.
Voltages are tested at a current pulse duration of 1 ms and a tolerance of ±0.1 V.

Helligkeits-Gruppierungsschema
Luminous Intensity Groups

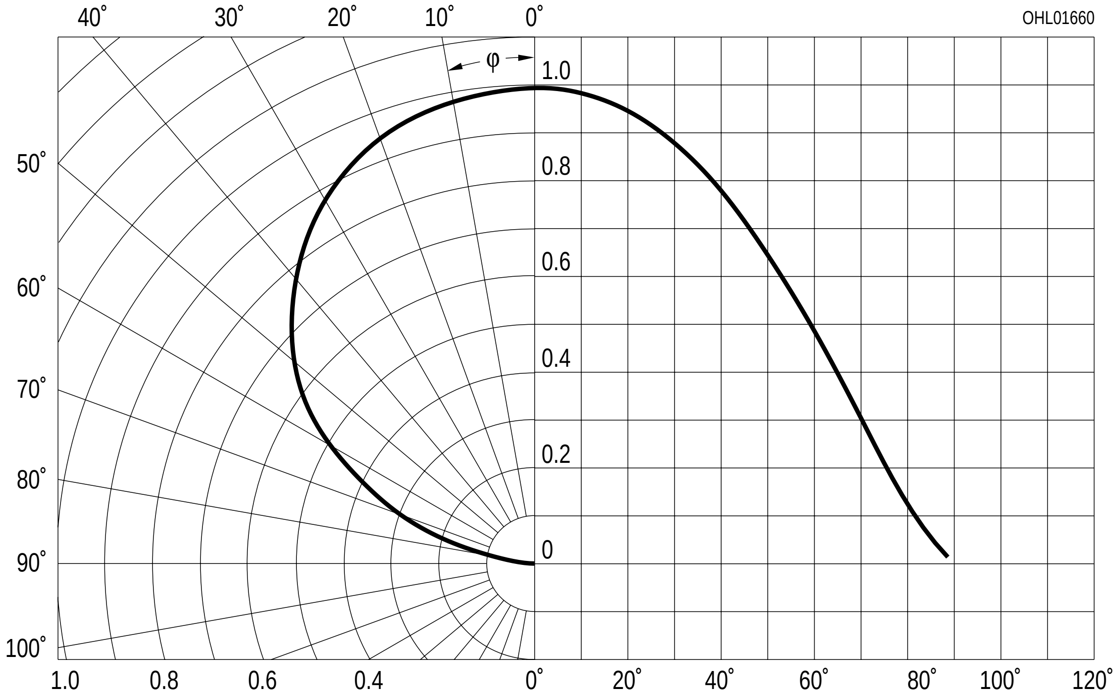
Lichtgruppe Luminous Intensity Group	Lichtstärke Luminous Intensity I_V (mcd)	Lichtstrom Luminous Flux Φ_V (mlm)
N1	28.0 ... 35.5	95 (typ.)
N2	35.5 ... 45.0	120 (typ.)
P1	45.0 ... 56.0	150 (typ.)
P2	56.0 ... 71.0	190 (typ.)
Q1	71.0 ... 90.0	240 (typ.)
Q2	90.0 ... 112.0	300 (typ.)
R1	112.0 ... 140.0	380 (typ.)
R2	140.0 ... 180.0	480 (typ.)
S1	180.0 ... 224.0	600 (typ.)

Helligkeitswerte werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von ±11 % ermittelt.
Luminous intensity is tested at a current pulse duration of 25 ms and a tolerance of ±11 %.

Relative spektrale Emission $I_{rel} = f(\lambda)$, $T_A = 25$ °C, $I_F = 20$ mA
Relative Spectral Emission
V(λ) = spektrale Augenempfindlichkeit
Standard eye response curve

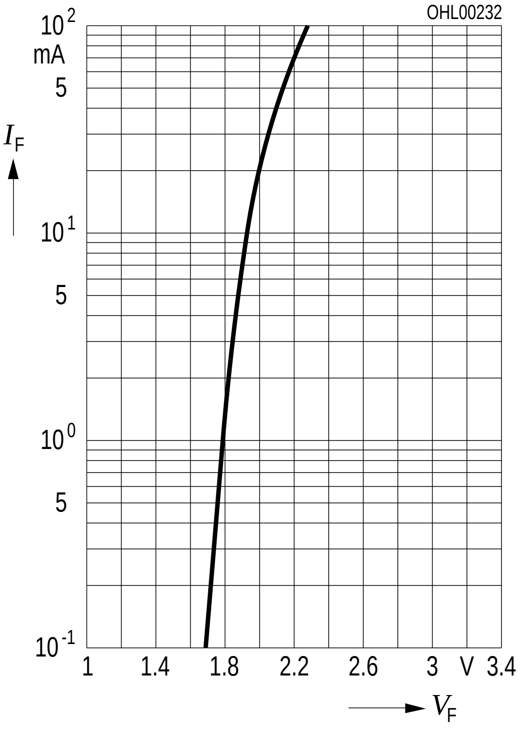


Abstrahlcharakteristik $I_{rel} = f(\varphi)$
Radiation Characteristic



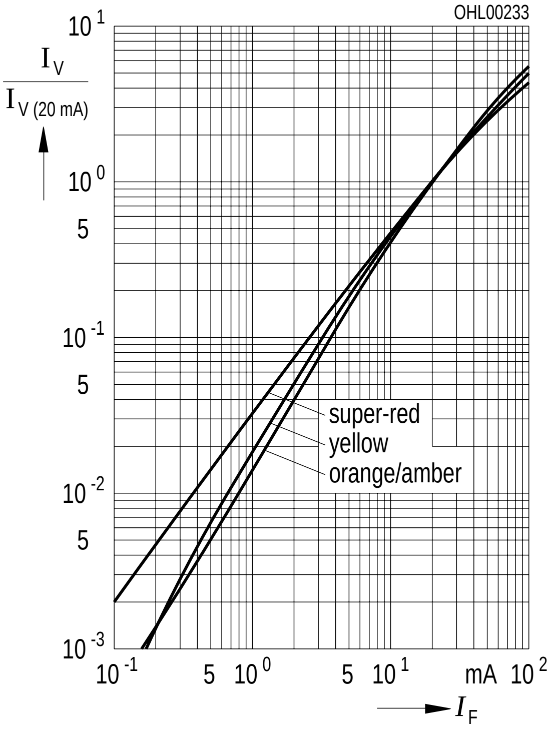
Durchlassstrom $I_F = f(V_F)$
Forward Current

$T_A = 25$ °C

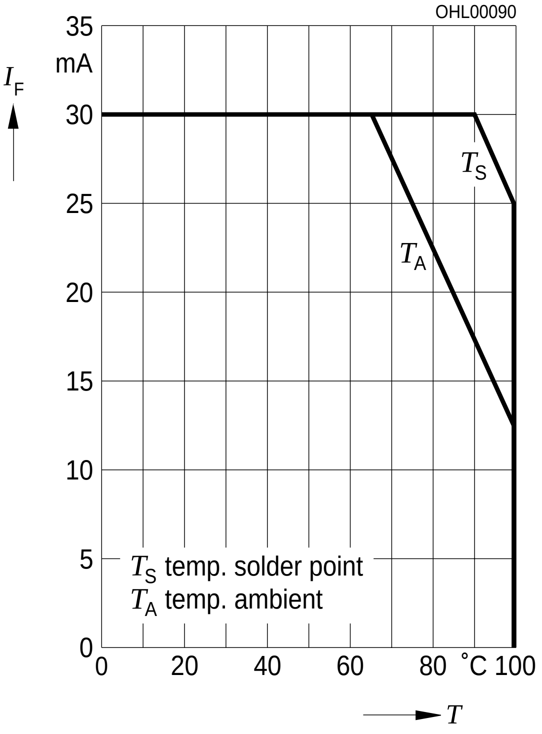


Relative Lichtstärke $I_V/I_{V(20\ mA)} = f(I_F)$
Relative Luminous Intensity

$T_A = 25$ °C

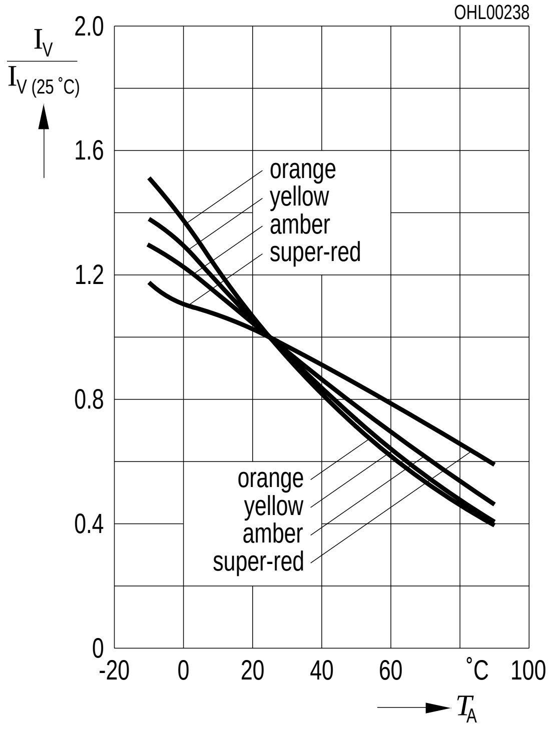


Maximal zulässiger Durchlassstrom $I_F = f(T)$
Max. Permissible Forward Current



Relative Lichtstärke $I_V/I_{V(25\ °C)} = f(T_A)$
Relative Luminous Intensity

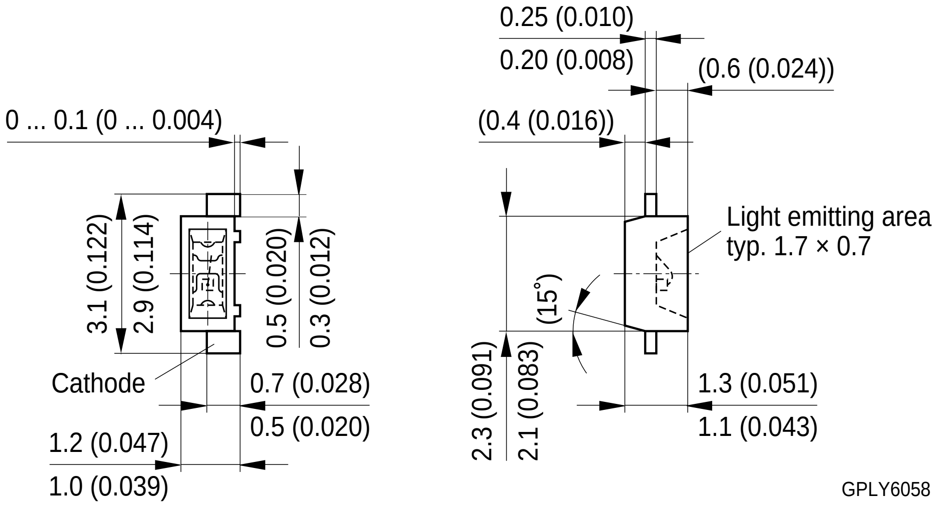
$I_F = 20$ mA



Zulässige Impulsbelastbarkeit $I_F = f(t_p)$
Permissible Pulse Handling Capability
Duty cycle D = parameter, T_A = 25 °C
LS, LA, LO

Zulässige Impulsbelastbarkeit $I_F = f(t_p)$
Permissible Pulse Handling Capability
Duty cycle D = parameter, T_A = 25 °C
LY

Maßzeichnung
Package Outlines

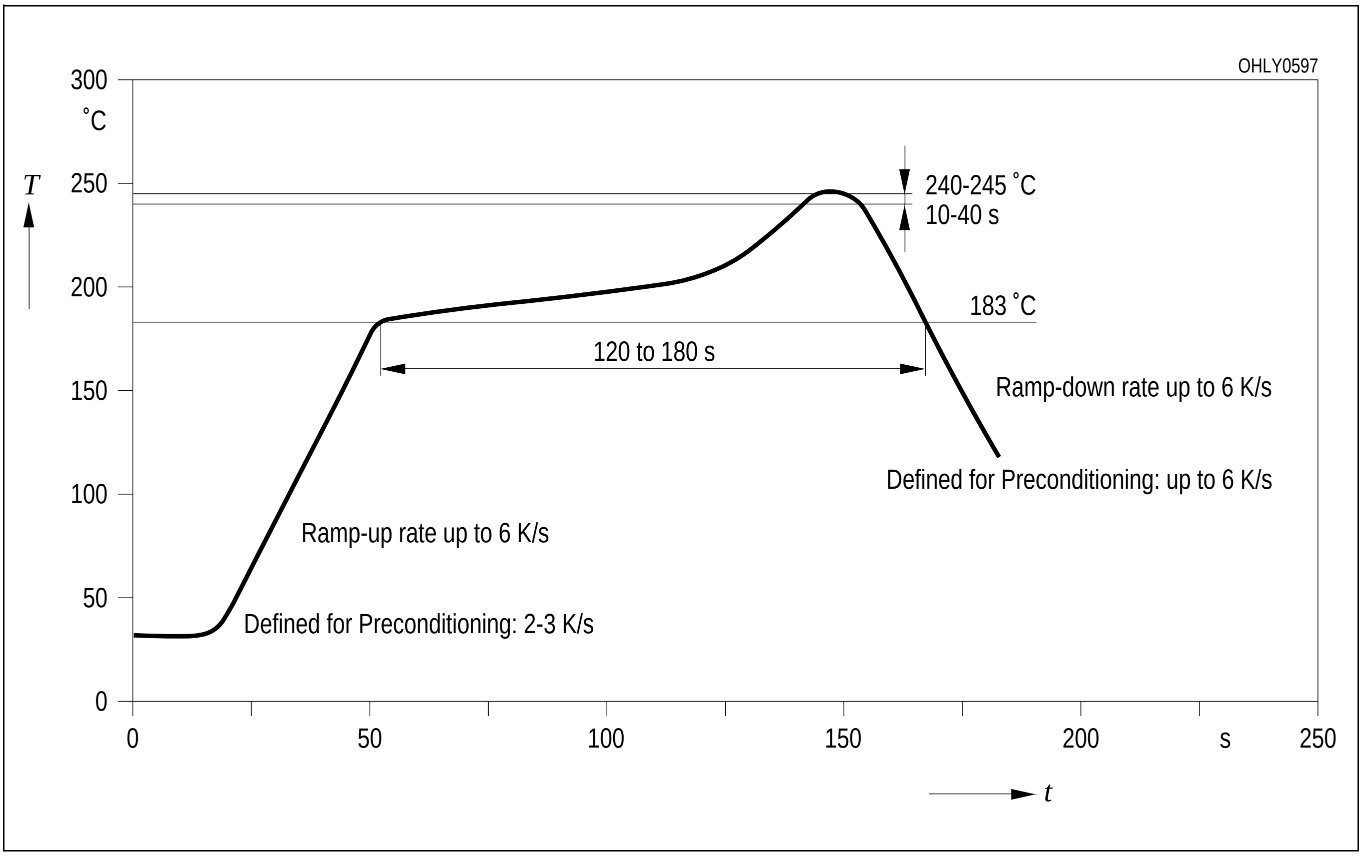


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

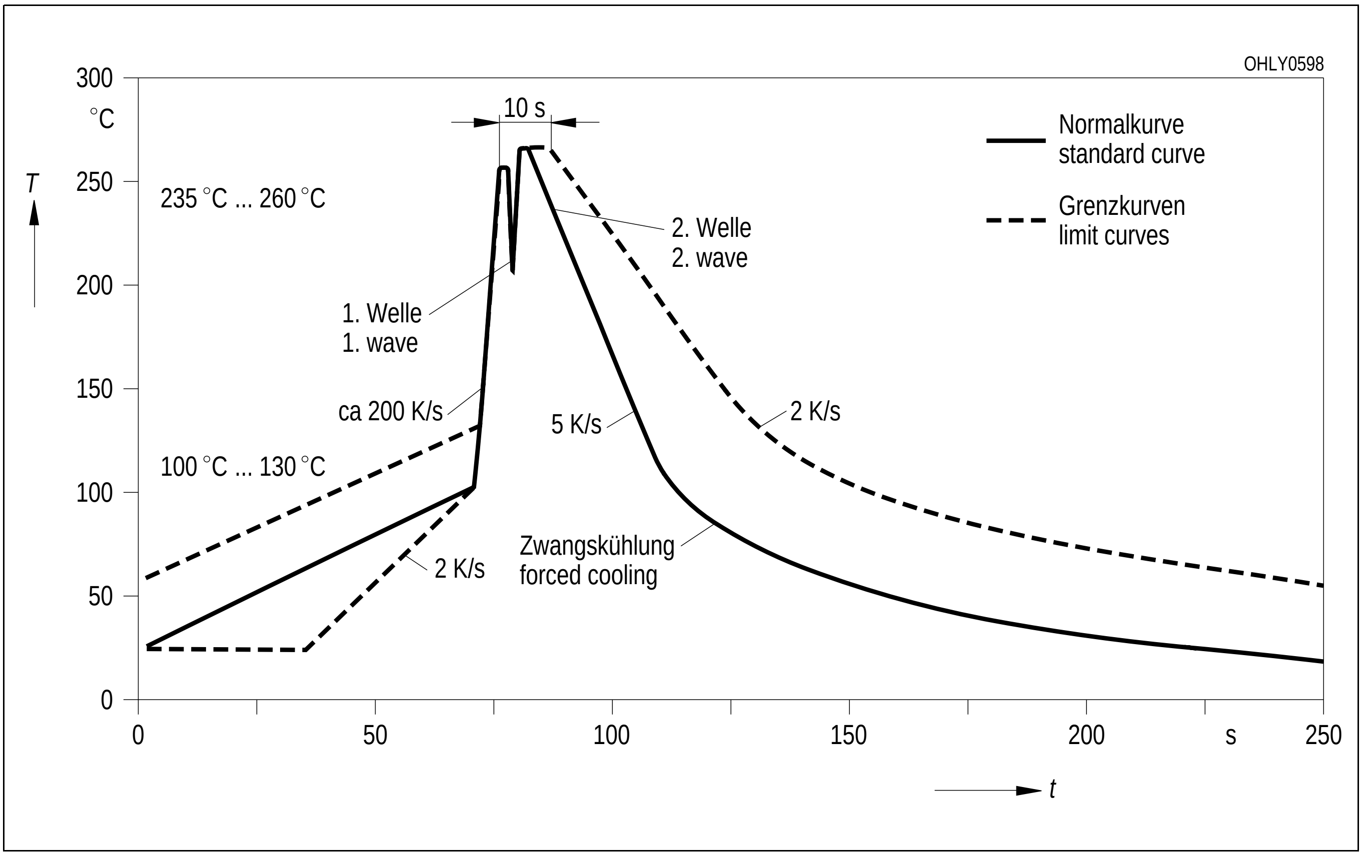
Gewicht / Approx. weight: 6 mg

Lötbedingungen Vorbehandlung nach JEDEC Level 2
Soldering Conditions Preconditioning acc. to JEDEC Level 2

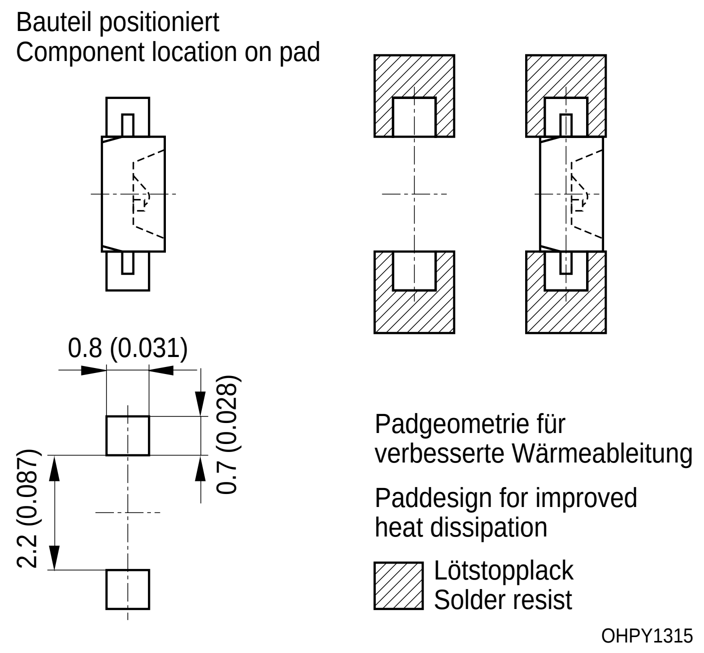
IR-Reflow Lötprofil (nach IPC 9501)
IR Reflow Soldering Profile (acc. to IPC 9501)



Wellenlöten (TTW) (nach CECC 00802)
TTW Soldering (acc. to CECC 00802)



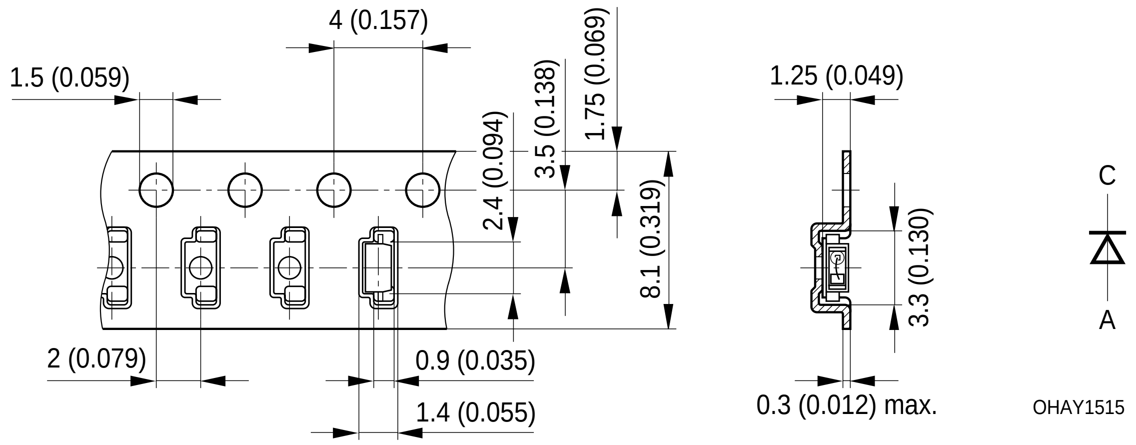
Empfohlenes Lötpaddesign IR Reflow Löten
Recommended Solder Pad IR Reflow Soldering



Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).
Gehäuse für Wellenlöten (TTW) geeignet / Package suitable for TTW-soldering

Gurtung / Polarität und Lage Verpackungseinheit 3000/Rolle, ø180 mm
oder 10000/Rolle, ø330 mm

Method of Taping / Polarity and Orientation Packing unit 3000/reel, ø180 mm
or 10000/reel, ø330 mm



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Page	**Subjects (major changes since last revision)**

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