

Hyper Mini SIDELED® Hyper-Bright LED

LB C873, LV C873, LT C873



Vorläufige Daten / Preliminary Data

Besondere Merkmale

- **Gehäusotyp:** weißes SMT Gehäuse
- **Besonderheit des Bauteils:** kleine Bauform mit extrem breiter Abstrahlcharakteristik; ideal für Einkopplungen in Lichtleiter
- **Wellenlänge:** 470 nm (blau), 505 nm (verde), 528 nm (true green)
- **Abstrahlwinkel:** Lambertscher Strahler (120°)
- **Technologie:** InGaN
- **optischer Wirkungsgrad:** 2 lm/W (blau), 6 lm/W (verde), 8 lm/W (true green)
- **Gruppierungsparameter:** Lichtstärke
- **Verarbeitungsmethode:** für alle SMT-Bestücktechniken geeignet
- **Lötmethode:** IR Reflow Löten
- **Vorbehandlung:** nach JEDEC Level 2
- **Gurtung:** 8 mm Gurt mit 2000/Rolle, ø180 mm oder 8000/Rolle, ø330 mm
- **ESD-Festigkeit:** ESD-sicher bis 2 kV nach MIL STD 883 D, Method 3015.7

Anwendungen

- Signalindikatoren
- Hinterleuchtung (LCD, Handy, Schalter, Tasten, Displays, Werbebeleuchtung, Allgemeinbeleuchtung)
- Einkopplung in Lichtleiter

Features

- **package:** white SMT package
- **feature of the device:** small package with extremely wide viewing angle; ideal for coupling in light guides
- **wavelength:** 470 nm (blue), 505 nm (verde), 528 nm (true green)
- **viewing angle:** Lambertian Emitter (120°)
- **technology:** InGaN
- **optical efficiency:** 2 lm/W (blue), 6 lm/W (verde), 8 lm/W (true green)
- **grouping parameter:** luminous intensity
- **assembly methods:** suitable for all SMT assembly methods
- **soldering methods:** IR reflow soldering
- **preconditioning:** acc. to JEDEC Level 2
- **taping:** 8 mm tape with 2000/reel, ø180 mm or 8000/reel, ø330 mm
- **ESD-withstand voltage:** up to 2 kV acc. to MIL STD 883 D, Method 3015.7

Applications

- signaling applications
- backlighting (LCD, cellular phones, switches, keys, displays, illuminated advertising, general lighting)
- coupling into light guides

Typ	Emissions- farbe	Farbe der Lichtaustritts- fläche	Lichtstärke	Lichtstrom	Bestellnummer
Type	Color of Emission	Color of the Light Emitting Area	Luminous Intensity $I_F = 20 \text{ mA}$ $I_V \text{ (mcd)}$	Luminous Flux $I_F = 20 \text{ mA}$ $\Phi_V \text{ (lm)}$	Ordering Code
LB C873-L1M1-1 LB C873-M1N1-1 LB C873-L1 LB C873-L2 LB C873-M1 LB C873-M2 LB C873-N1	blue	colorless clear	11.2 ... 22.4 18.0 ... 35.5 11.2 ... 14.0 14.0 ... 18.0 18.0 ... 22.4 22.4 ... 28.0 28.0 ... 35.5	50.4 (typ.) 80.3 (typ.) 37.8 (typ.) 48.0 (typ.) 60.6 (typ.) 75.6 (typ.) 95.3 (typ.)	on request on request
LV C873-N1P1-1 LV C873-P1Q1-1 LV C873-N1 LV C873-N2 LV C873-P1 LV C873-P2 LV C873-Q1	verde	colorless clear	28.0 ... 56.0 45.0 ... 90.0 28.0 ... 35.5 35.5 ... 45.0 45.0 ... 56.0 56.0 ... 71.0 71.0 ... 90.0	126.0 (typ.) 202.5 (typ.) 95.3 (typ.) 120.8 (typ.) 151.5 (typ.) 190.5 (typ.) 241.5 (typ.)	on request on request
LT C873-N2P2-1 LT C873-P2Q2-1 LT C873-N2 LT C873-P1 LT C873-P2 LT C873-Q1 LT C873-Q2	true green	colorless clear	35.5 ... 71.0 56.0 ... 112.0 35.5 ... 45.0 45.0 ... 56.0 56.0 ... 71.0 71.0 ... 90.0 90.0 ... 112.0	159.8 (typ.) 252.0 (typ.) 120.8 (typ.) 151.5 (typ.) 190.5 (typ.) 241.5 (typ.) 303.0 (typ.)	on request on request

Helligkeitswerte werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von $\pm 11 \%$ ermittelt.

Luminous intensity is tested at a current pulse duration of 25 ms and an accuracy of $\pm 11 \%$.

-1 Farbselektiert nach Wellenlängengruppen (siehe Seite 4).

-1 Color selection acc. to Wavelength groups (see page 4).

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
Sperrschichttemperatur Junction temperature	T_j	+ 125	°C
Durchlaßstrom Forward current	I_F	20	mA
Stoßstrom Surge current $t \leq 10 \mu s, D = 0.005$	I_{FM}	t.b.d.	A
Sperrspannung Reverse voltage	V_R	5	V
Leistungsaufnahme Power dissipation $T_A \leq 25 \text{ °C}$	P_{tot}	85	mW
Wärmewiderstand Thermal resistance Sperrschicht/Umgebung Junction/ambient Sperrschicht/Lötpad Junction/solder point Montage auf PC-Board FR 4 (Padgröße $\geq 16 \text{ mm}^2$) mounted on PC board FR 4 (pad size $\geq 16 \text{ mm}^2$)	$R_{th JA}$ $R_{th JS}$	530 250	K/W K/W

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

Bezeichnung Parameter	Symbol Symbol	Werte Values			Einheit Unit
		LB	LV	LT	
Wellenlänge des emittierten Lichtes (typ.) Wavelength at peak emission $I_F = 20\text{ mA}$	λ_{peak}	465	503	523	nm
Dominantwellenlänge ¹⁾ (typ.) Dominant wavelength ¹⁾ $I_F = 20\text{ mA}$	λ_{dom}	470 ± 7	505 ± 8	528 ± 10	nm
Spektrale Bandbreite bei 50 % $I_{\text{rel max}}$ (typ.) Spectral bandwidth at 50 % $I_{\text{rel max}}$ $I_F = 20\text{ mA}$	$\Delta\lambda$	25	30	33	nm
Abstrahlwinkel bei 50 % I_V (Vollwinkel) (typ.) Viewing angle at 50 % I_V	2ϕ	120	120	120	Grad deg.
Durchlaßspannung (typ.) Forward voltage (max.) $I_F = 20\text{ mA}$	V_F V_F	3.5 4.2	3.3 4.2	3.3 4.2	V V
Sperrstrom (typ.) Reverse current (max.) $V_R = 5\text{ V}$	I_R I_R	0.01 10	0.01 10	0.01 10	μA μA
Temperaturkoeffizient von λ_{peak} (typ.) Temperature coefficient of λ_{peak} $I_F = 20\text{ mA}$	$TC_{\lambda_{\text{peak}}}$	0.04	0.03	0.04	nm/K
Temperaturkoeffizient von λ_{dom} (typ.) Temperature coefficient of λ_{dom} $I_F = 20\text{ mA}$	$TC_{\lambda_{\text{dom}}}$	0.02	0.02	0.03	nm/K
Temperaturkoeffizient von V_F (typ.) Temperature coefficient of V_F $I_F = 20\text{ mA}$	TC_V	- 2.9	- 3.2	- 3.6	mV/K
Optischer Wirkungsgrad (typ.) Optical efficiency $I_F = 20\text{ mA}$	η_{opt}	2	6	8	lm/W

1) Wellenlängengruppen / Wavelength groups

Gruppe Group	blue		verde		true green	
	min.	max.	min.	max.	min.	max.
3	464	468	498	503	519	525
4	468	472	503	507	525	531
5	472	476	507	512	531	537

Wellenlängengruppen werden mit einer Stromeinprägungsdauer von 25 ms und einer Genauigkeit von $\pm 1\text{ nm}$ ermittelt.

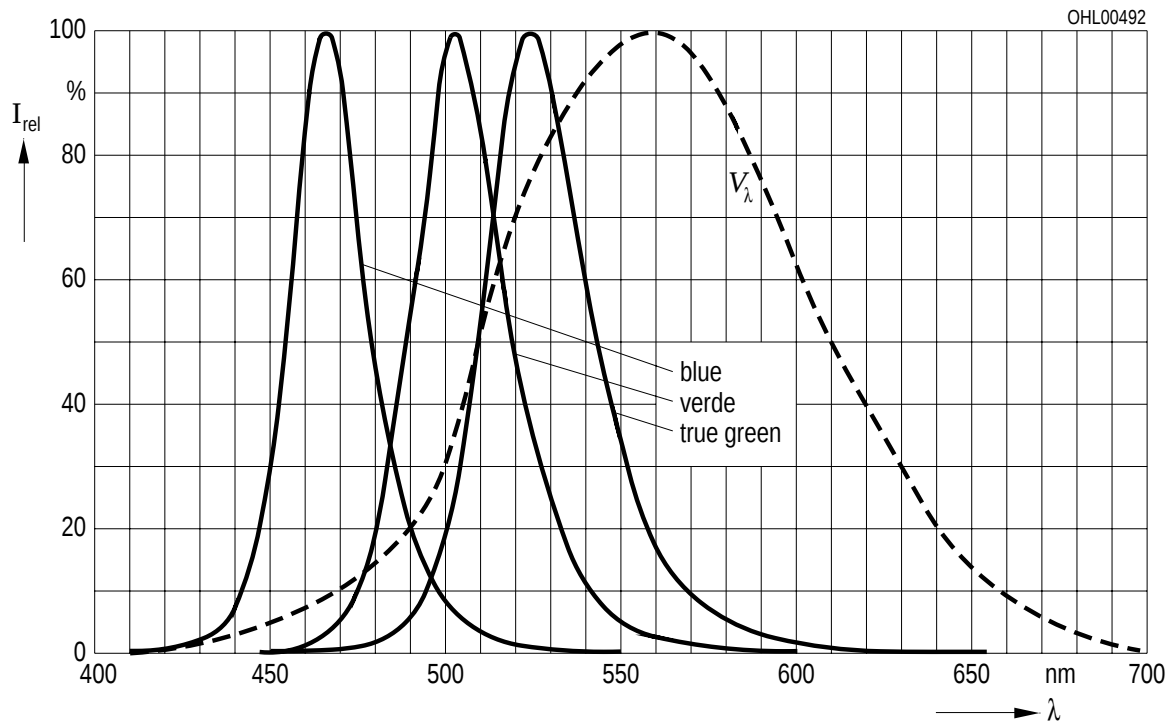
Wavelength groups are tested at a current pulse duration of 25 ms and an accuracy of $\pm 1\text{ nm}$.

Relative spektrale Emission $I_{\text{rel}} = f(\lambda)$, $T_A = 25^\circ\text{C}$, $I_F = 20\text{ mA}$

Relative Spectral Emission

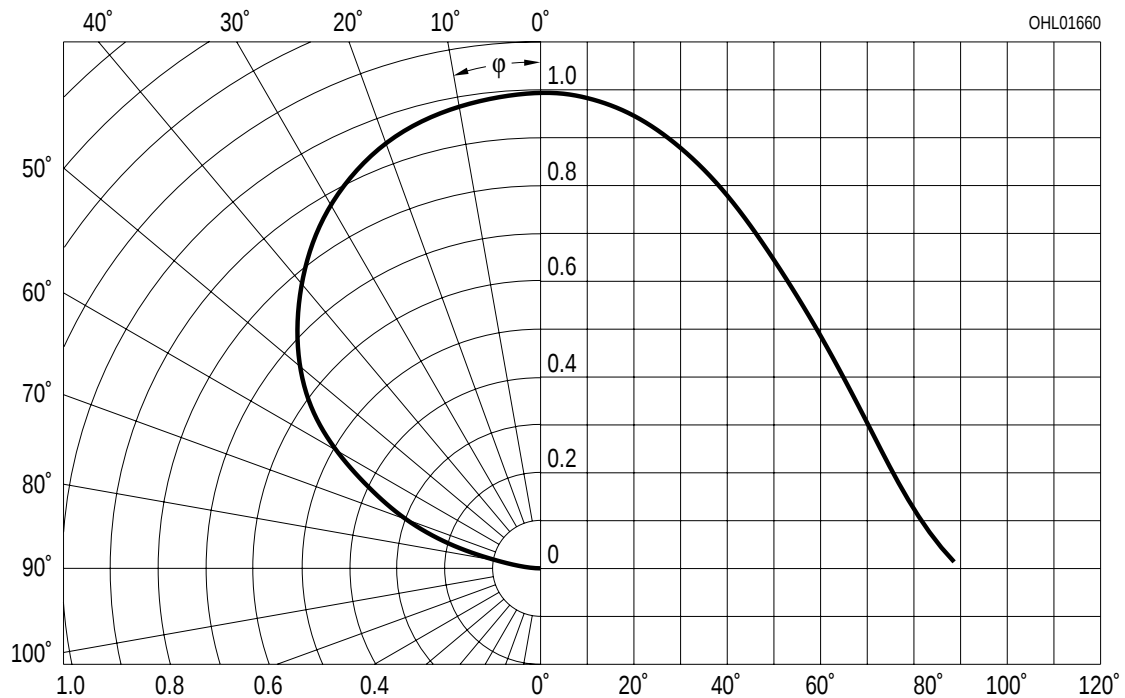
$V(\lambda)$ = spektrale Augenempfindlichkeit

Standard eye response curve



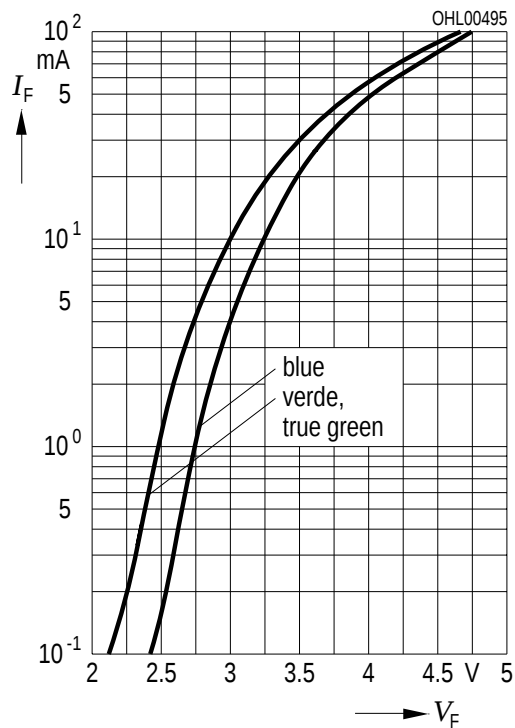
Abstrahlcharakteristik $I_{\text{rel}} = f(\varphi)$

Radiation Characteristic

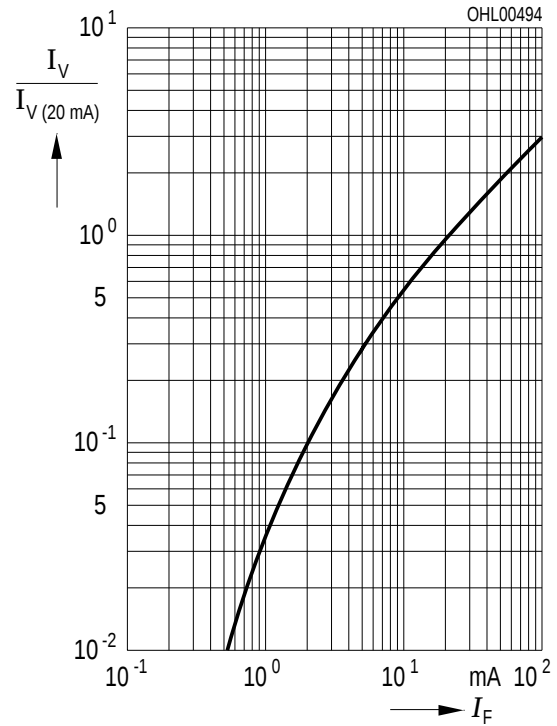


Durchlaßstrom $I_F = f(V_F)$

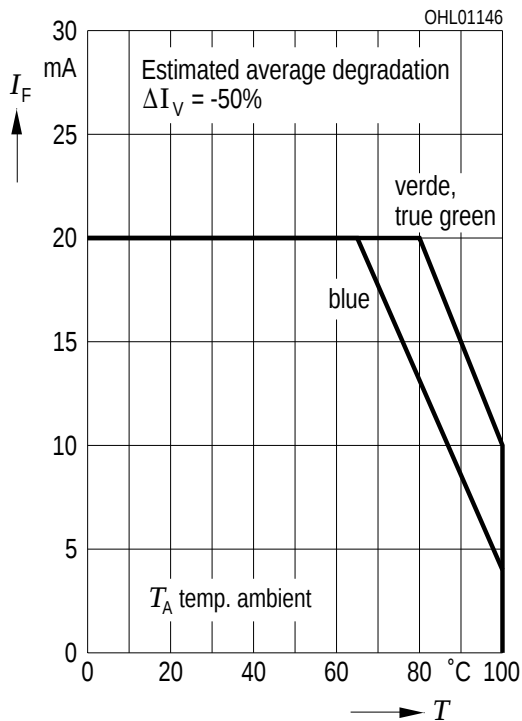
Forward Current

 $T_A = 25^\circ\text{C}$ Relative Lichtstärke $I_V/I_{V(20\text{ mA})} = f(I_F)$

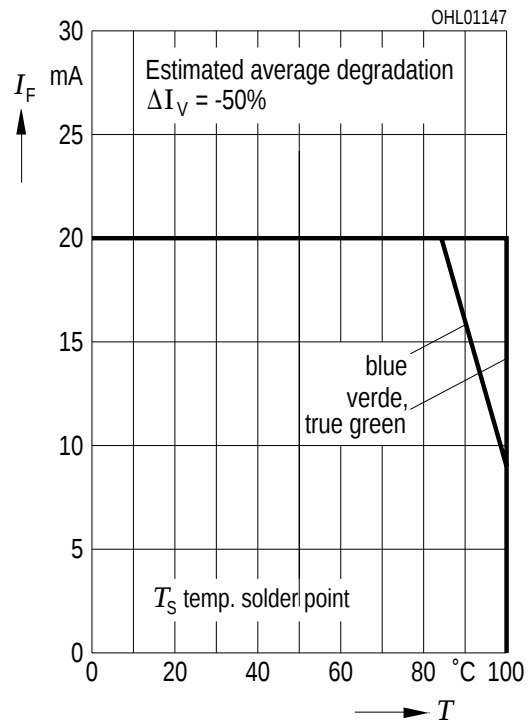
Relative Luminous Intensity

 $T_A = 25^\circ\text{C}$ Maximal zulässiger Durchlaßstrom $I_F = f(T)$

Max. Permissible Forward Current

Maximal zulässiger Durchlaßstrom $I_F = f(T)$

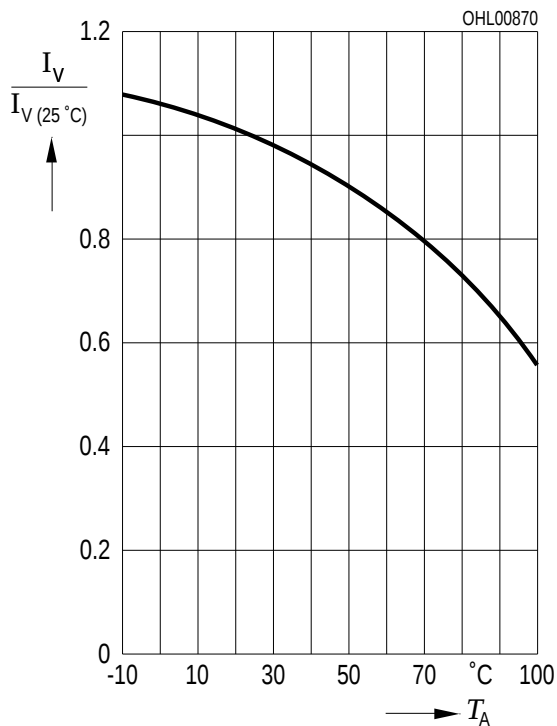
Max. Permissible Forward Current



Relative Lichtstärke $I_V/I_{V(25^\circ\text{C})} = f(T_A)$

Relative Luminous Intensity

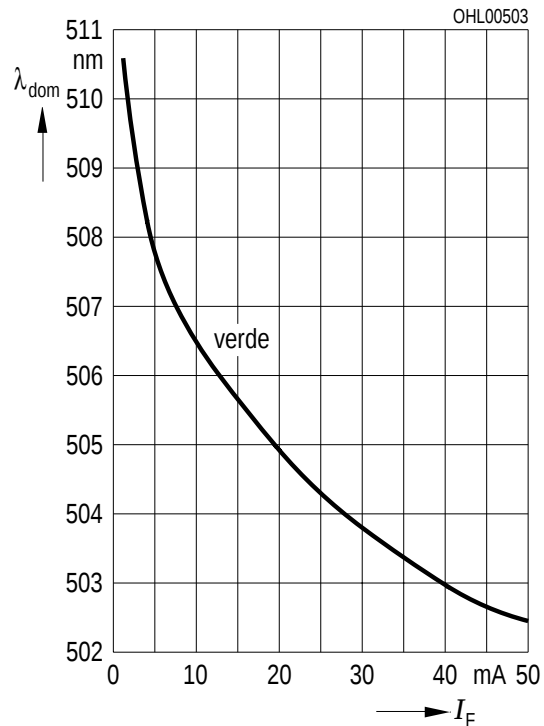
$I_F = 20 \text{ mA}$



Dominante Wellenlänge $\lambda_{\text{dom}} = f(I_F)$

Dominant Wavelength

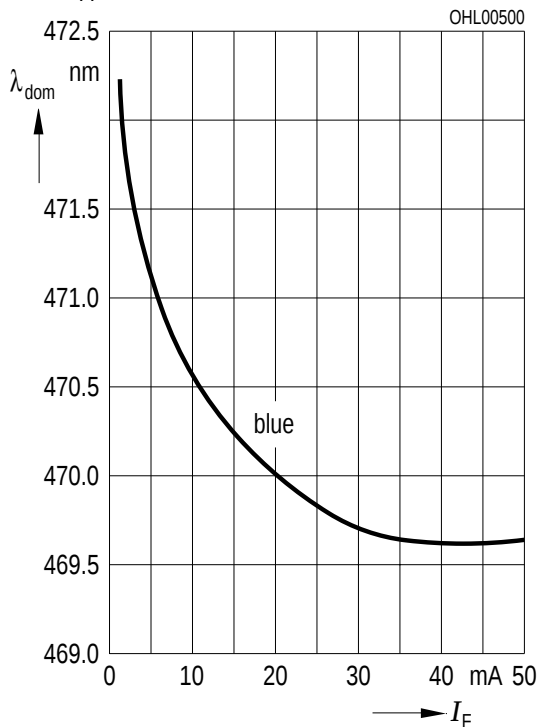
LV, $T_A = 25^\circ\text{C}$



Dominante Wellenlänge $\lambda_{\text{dom}} = f(I_F)$

Dominant Wavelength

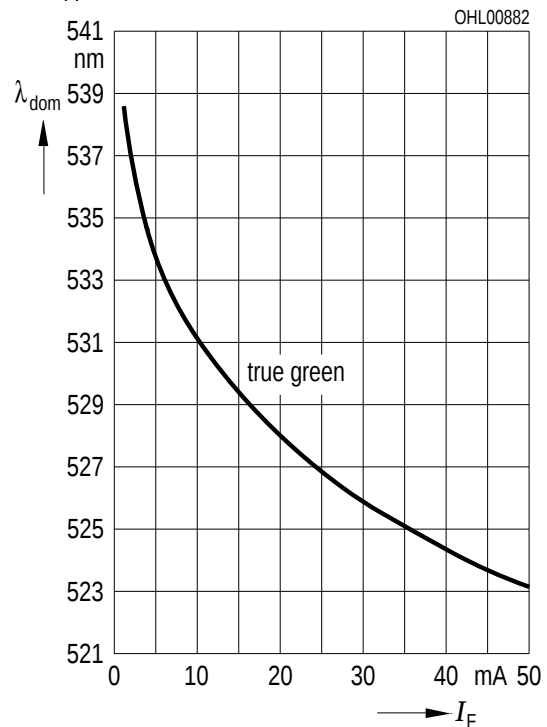
LB, $T_A = 25^\circ\text{C}$



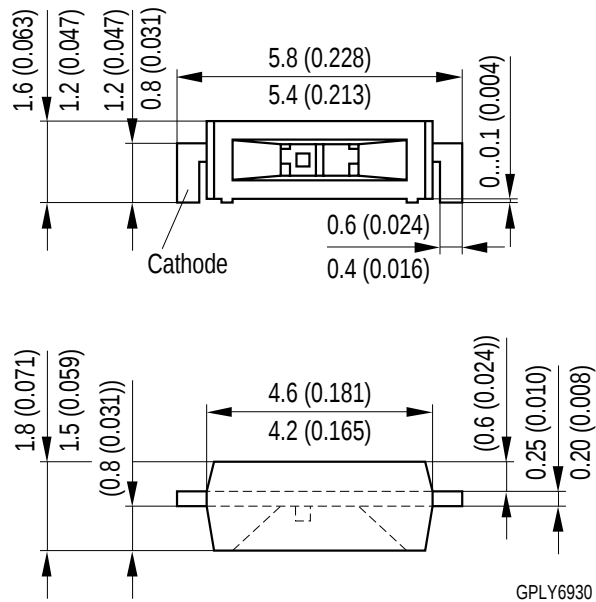
Dominante Wellenlänge $\lambda_{\text{dom}} = f(I_F)$

Dominant Wavelength

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



Maßzeichnung Package Outlines

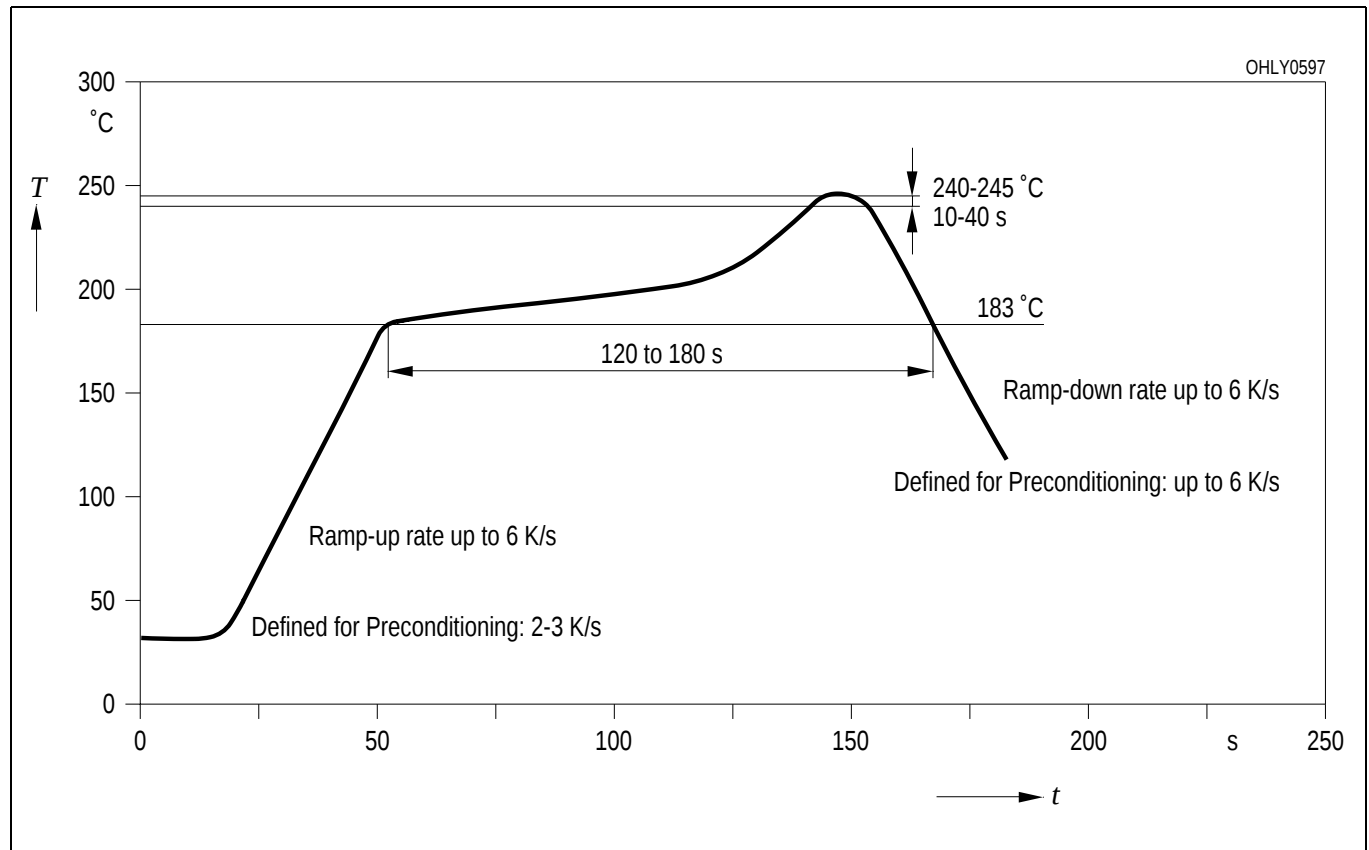


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

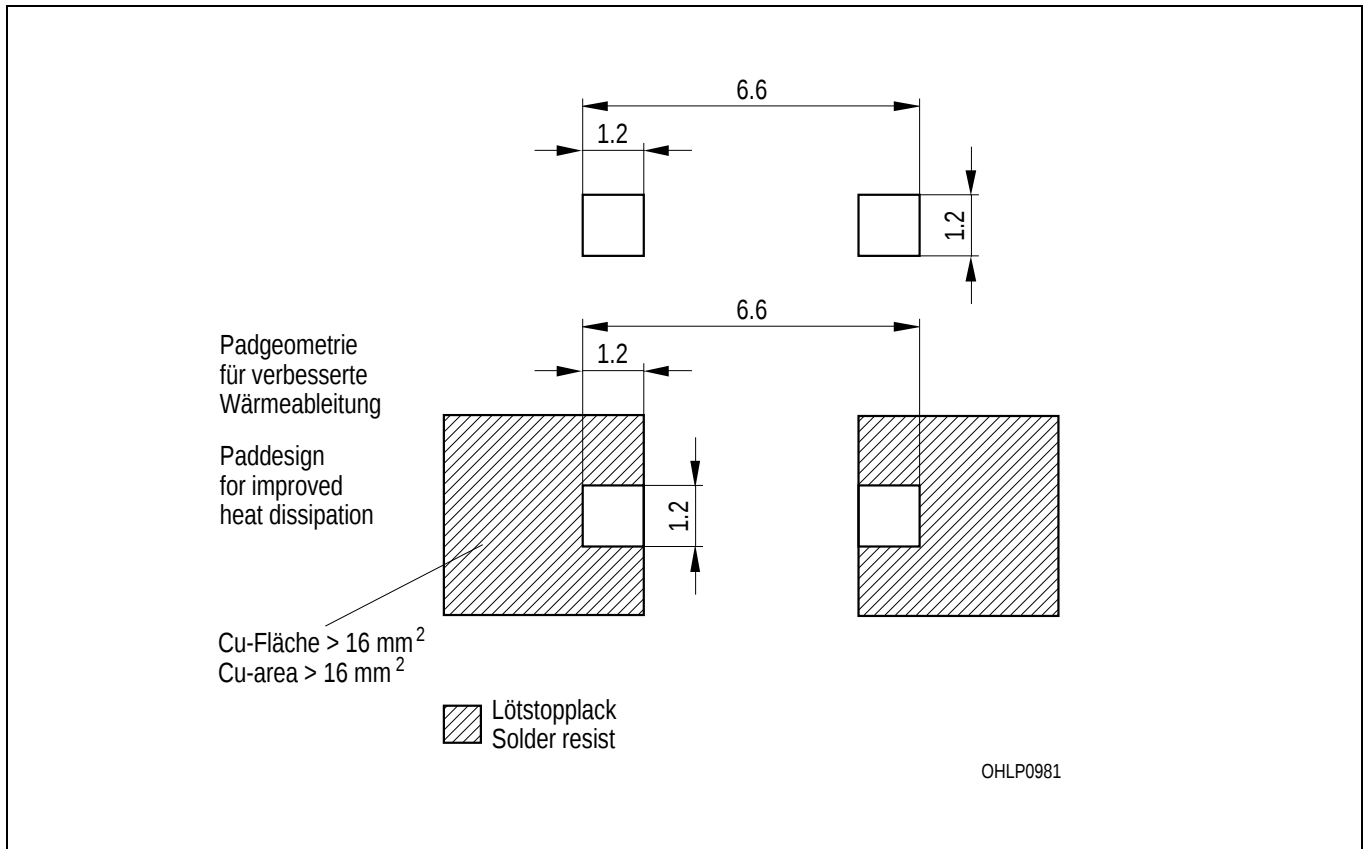
Kathodenkennung: abgeschrägte Ecke
Cathode mark: bevelled edge

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)



Empfohlenes Lötpad design IR Reflow Löten
Recommended Solder Pad IR Reflow Soldering



Gurtung / Polarität und Lage

Verpackungseinheit 2000/Rolle, ø180 mm
oder 8000/Rolle, ø330 mm

Method of Taping / Polarity and Orientation

Packing unit 2000/reel, ø180 mm
or 8000/reel, ø330 mm

