

Hyper Multi TOPLED® High-optical Power LED (HOP)

LSY T675



Vorläufige Daten / Preliminary Data

Besondere Merkmale

- **Gehäusotyp:** weißes P-LCC-4 Gehäuse
- **Besonderheit des Bauteils:** mehr Licht durch erhöhten optischen Wirkungsgrad
- **Wellenlänge:** 633 nm (super-rot), 587 nm (gelb)
- **Abstrahlwinkel:** Lambertscher Strahler (120°)
- **Technologie:** InGaAlP
- **optischer Wirkungsgrad:** 10 lm/W (super-rot), 13 lm/W (gelb)
- **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 2000/Rolle, ø180 mm oder 8000/Rolle, ø330 mm
- **ESD-Festigkeit:** ESD-sicher bis 2 kV nach EOS/ESD-5.1-1993

Anwendungen

- optischer Indikator
- Hinterleuchtung (LCD, Schalter, Tasten, Displays, Werbebeleuchtung, Allgemeinbeleuchtung)

Features

- **package:** white P-LCC-4 package
- **feature of the device:** more light due to higher optical efficiency
- **wavelength:** 633 nm (super-red), 587 nm (yellow)
- **viewing angle:** Lambertian Emitter (120°)
- **technology:** InGaAlP
- **optical efficiency:** 10 lm/W (super-red), 13 lm/W (yellow)
- **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 2000/reel, ø180 mm or 8000/reel, ø330 mm
- **ESD-withstand voltage:** up to 2 kV acc. to EOS/ESD-5.1-1993

Applications

- optical indicators
- backlighting (LCD, switches, keys, displays, illuminated advertising, general lighting)

Typ	Emissions- farbe	Farbe der Lichtaustritts- fläche	Lichtstärke		Bestellnummer
Type	Color of Emission	Color of the Light Emitting Area	Luminous Intensity $I_F = 30 \text{ mA}$ $I_V \text{ (mcd)}$		Ordering Code
			super-red	yellow	
LSY T675- R1S2-1+S1T2-1	super-red / yellow	colorless clear	112 ... 280	180... 450	Q62703Q6350

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 a tolerance of $\pm 11 \%$.

Anm.: Die Standardlieferform von Serientypen beinhaltet eine Familiengruppe. Einzelne Gruppen sind nicht erhältlich.

In einer Verpackungseinheit / Gurt ist immer nur eine Gruppe pro Farbe enthalten.

Note: The standard shipping format for serial types includes a family group. Individual groups are not available.

No packing unit / tape ever contains more than one luminous intensity group per color.

Grenzwerte
Maximum Ratings

Bezeichnung Parameter	Symbol Symbol	Werte Values	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	50	mA
Stoßstrom Surge current $t \leq 10 \mu s, D = 0.005$	I_{FM}	0.1	A
Sperrspannung ¹⁾ Reverse voltage	V_R	12	V
Leistungsaufnahme Power consumption	P_{tot}	130	mW
Wärmewiderstand Thermal resistance			
Sperrschicht / Umgebung Junction / air	1 chip on $R_{th JA}$	480	K/W
	2 chips on $R_{th JA}$	650	K/W
Sperrschicht / Löt看 Junction / solder point	1 chip on $R_{th JS}$	260	K/W
	2 chips on $R_{th JS}$	360	K/W
Montage auf PC-Board FR 4 (Padgröße $\geq 16 \text{ mm}^2$) mounted on PC board FR 4 (pad size $\geq 16 \text{ mm}^2$)			

¹⁾ für kurzzeitigen Betrieb geeignet / suitable for short term application

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

Bezeichnung Parameter	Symbol Symbol	Werte Values		Einheit Unit
		LS	LY	
Wellenlänge des emittierten Lichtes (typ.) Wavelength at peak emission $I_F = 30\text{ mA}$	λ_{peak}	645	594	nm
Dominantwellenlänge ¹⁾ (typ.) Dominant wavelength $I_F = 30\text{ mA}$	λ_{dom}	633	587	nm
Spektrale Bandbreite bei 50 % $I_{\text{rel max}}$ (typ.) Spectral bandwidth at 50 % $I_{\text{rel max}}$ $I_F = 30\text{ mA}$	$\Delta\lambda$	16	15	nm
Abstrahlwinkel bei 50 % I_V (Vollwinkel) (typ.) Viewing angle at 50 % I_V	2ϕ	120	120	Grad deg.
Durchlassspannung ²⁾ (min.) Forward voltage (typ.) $I_F = 30\text{ mA}$ (max.)	V_F	1.9	1.9	V
	V_F	2.0	2.0	V
	V_F	2.4	2.4	V
Sperrstrom (typ.) Reverse current (max.) $V_R = 12\text{ V}$	I_R	0.01	0.01	μA
	I_R	10	10	μA
Temperaturkoeffizient von λ_{peak} (typ.) Temperature coefficient of λ_{peak} $I_F = 30\text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC_{\lambda_{\text{peak}}}$	0.15	0.13	nm/K
Temperaturkoeffizient von λ_{dom} (typ.) Temperature coefficient of λ_{dom} $I_F = 30\text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC_{\lambda_{\text{dom}}}$	0.05	0.10	nm/K
Temperaturkoeffizient von V_F (typ.) Temperature coefficient of V_F $I_F = 30\text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	TC_V	- 3.4	- 1.8	mV/K
Optischer Wirkungsgrad (typ.) Optical efficiency $I_F = 30\text{ mA}$	η_{opt}	10	13	lm/W

¹⁾ Wellenlängengruppen werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von $\pm 1\text{ nm}$ ermittelt.
Wavelengths are tested at a current pulse duration of 25 ms and a tolerance of $\pm 1\text{ nm}$.

²⁾ Durchlassspannungsgruppen werden mit einer Stromeinprägedauer von 1 ms und einer Genauigkeit von $\pm 0,1\text{ V}$ ermittelt.
Forward voltages are tested at a current pulse duration of 1 ms and a tolerance of $\pm 0.1\text{ V}$.

Helligkeits-Gruppierungsschema Luminous Intensity Groups

Lichtgruppe Luminous Intensity Group	Lichtstärke Luminous Intensity I_v (mcd)	Lichtstrom Luminous Flux Φ_v (lm)
R1	112 ... 140	380 (typ.)
R2	140 ... 180	480 (typ.)
S1	180 ... 224	600 (typ.)
S2	224 ... 280	760 (typ.)
T1	280 ... 355	950 (typ.)
T2	355 ... 450	1200 (typ.)

Gruppenbezeichnung auf Etikett Group Name on Label

Beispiel: R2S2

Example: R2S2

Lichtgruppe Luminous Intensity Group

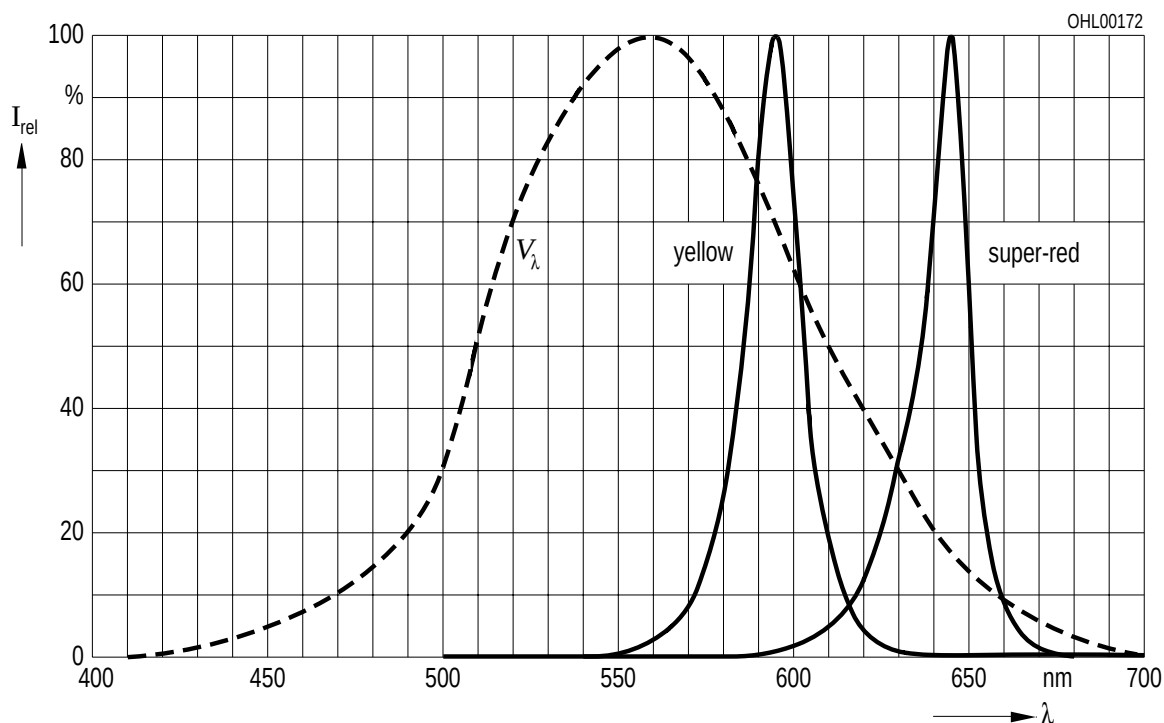
super-red	yellow
R2	S2

Relative spektrale Emission $I_{\text{rel}} = f(\lambda)$, $T_A = 25^\circ\text{C}$, $I_F = 30\text{ mA}$

Relative Spectral Emission

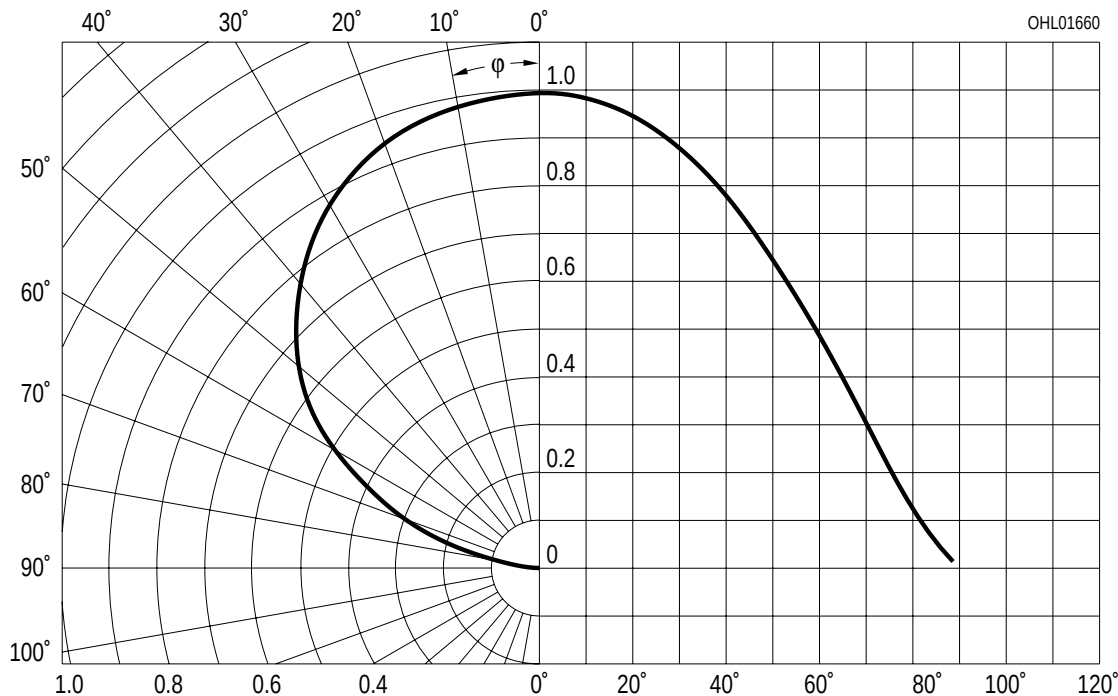
$V(\lambda)$ = spektrale Augenempfindlichkeit

Standard eye response curve



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

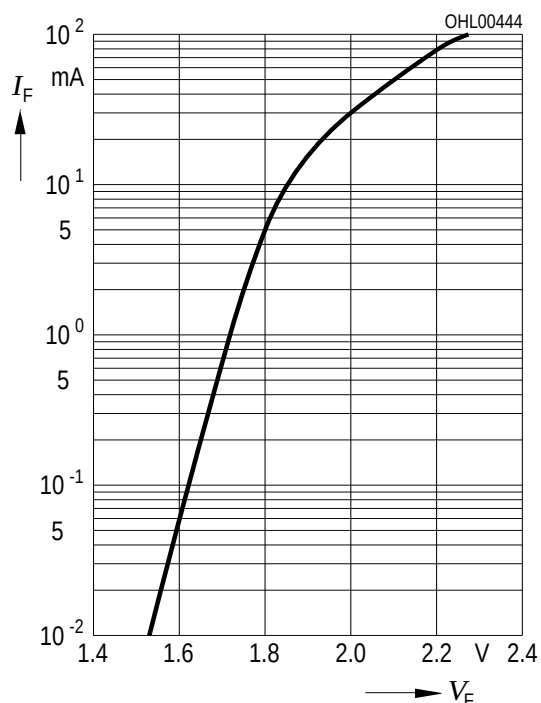
Radiation Characteristic



Durchlassstrom $I_F = f(V_F)$

Forward Current

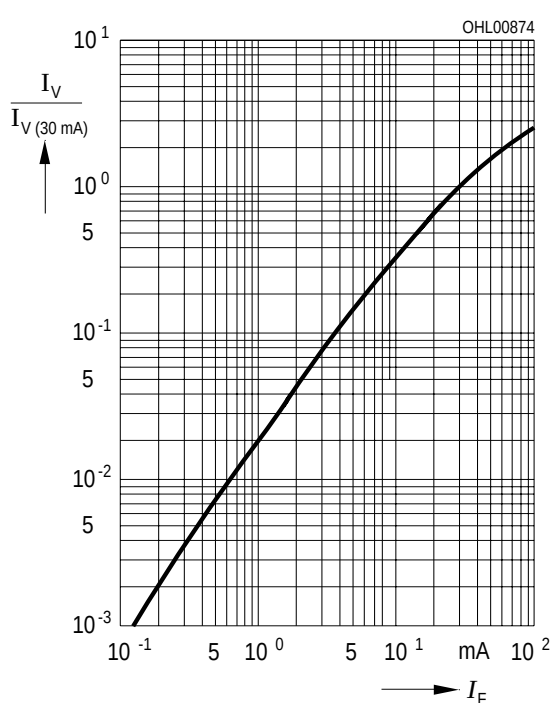
$T_A = 25\text{ °C}$



Relative Lichtstärke $I_V/I_{V(30\text{ mA})} = f(I_F)$

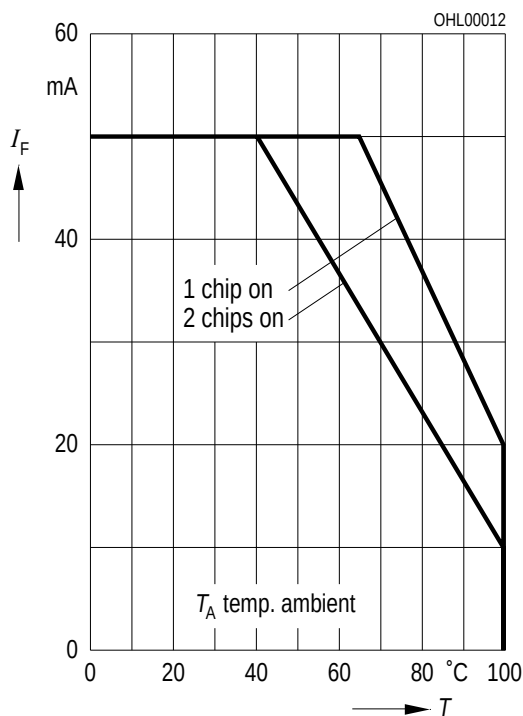
Relative Luminous Intensity

$T_A = 25\text{ °C}$



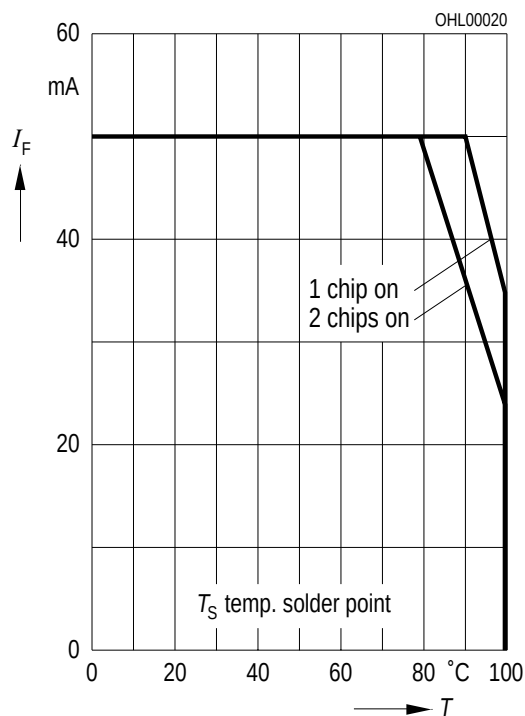
Maximal zulässiger Durchlassstrom $I_F = f(T)$

Max. Permissible Forward Current



Maximal zulässiger Durchlassstrom $I_F = f(T)$

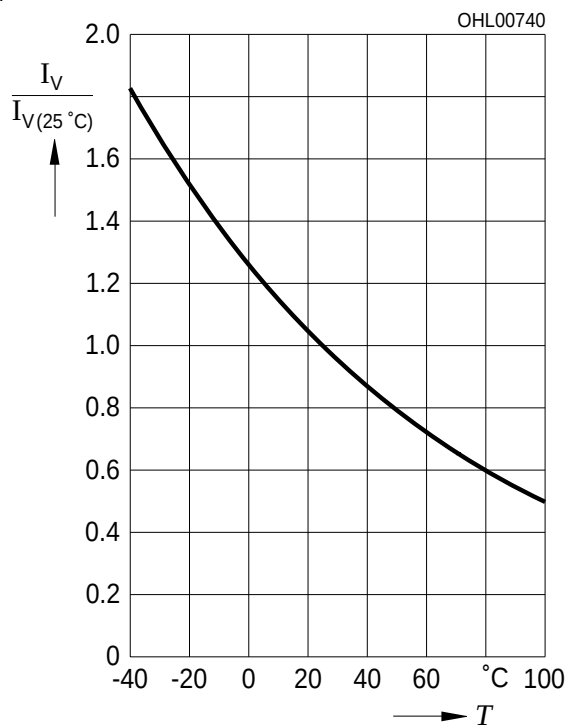
Max. Permissible Forward Current



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

Relative Luminous Intensity

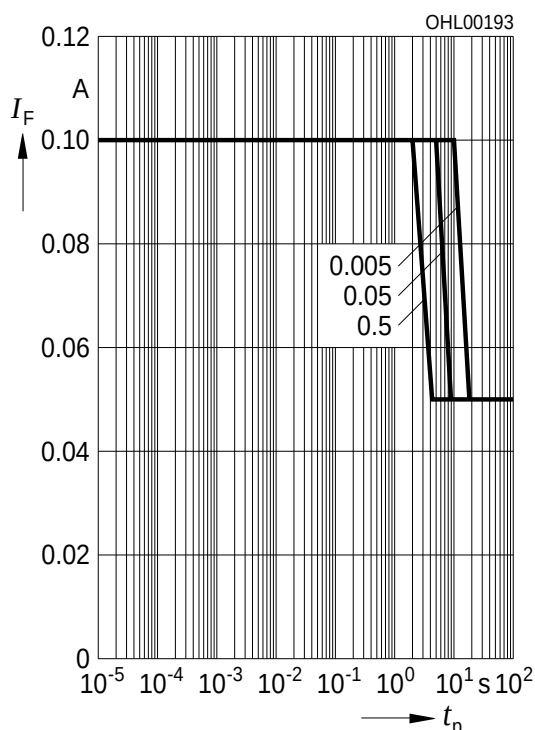
$I_F = 30 \text{ mA}$



Zulässige Impulsbelastbarkeit $I_F = f(t_p)$

Permissible Pulse Handling Capability

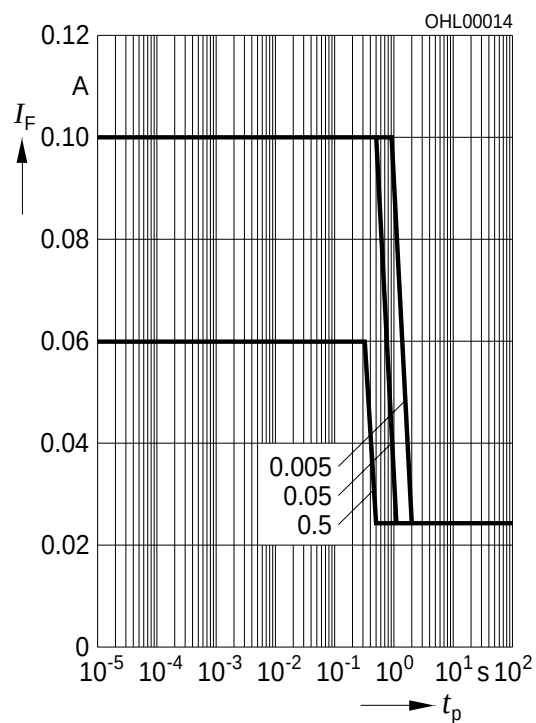
Duty cycle D = parameter, $T_A = 25^\circ\text{C}$



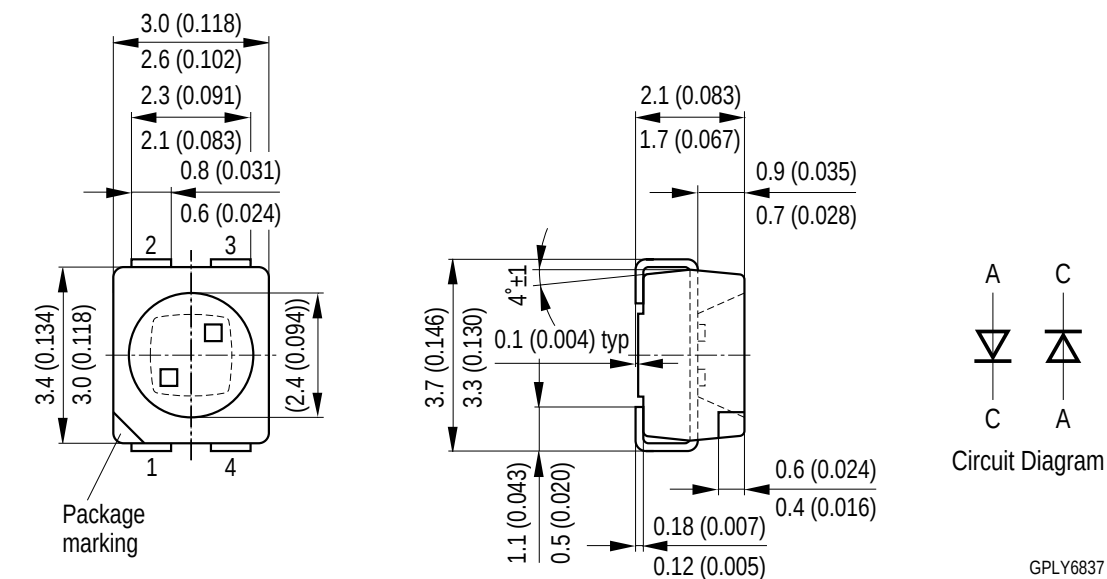
Zulässige Impulsbelastbarkeit $I_F = f(t_p)$

Permissible Pulse Handling Capability

Duty cycle D = parameter, $T_A = 85^\circ\text{C}$



Maßzeichnung
Package Outlines



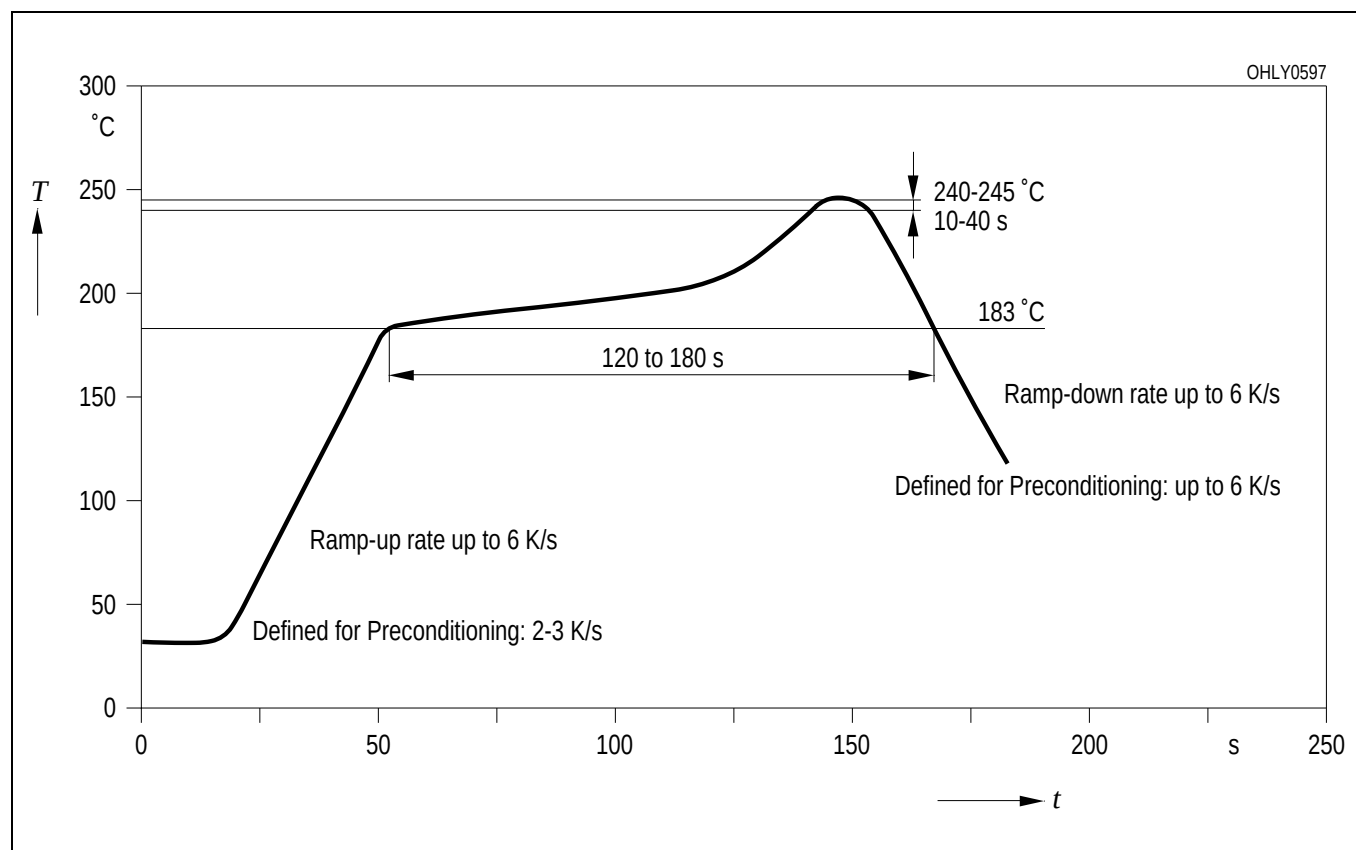
L	S	Y	T675
LED	Emission color 1	Emission color 2	Package
	Cathode: pin 1	Cathode: pin 3	

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

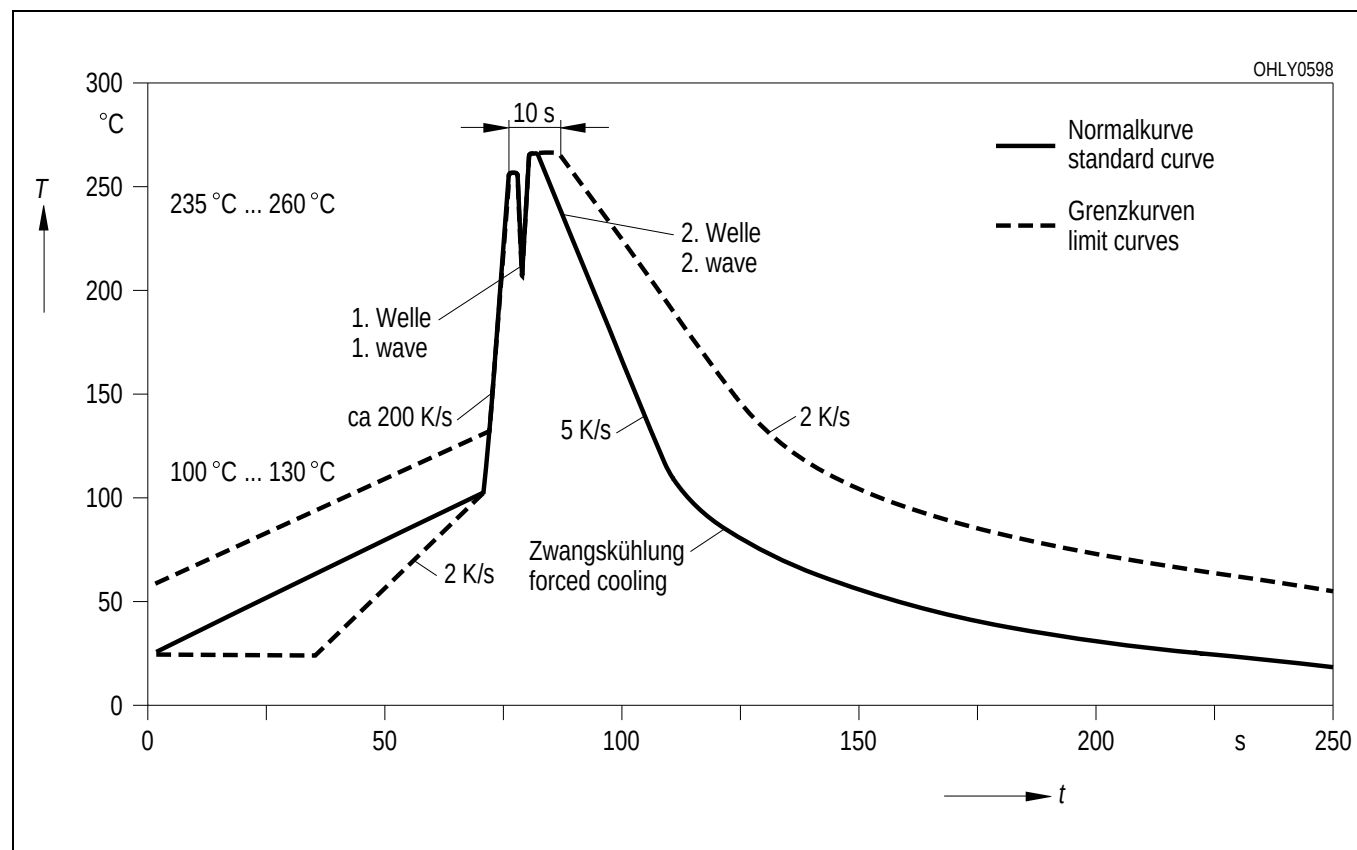
Gewicht / Approx. weight: 35 mg

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

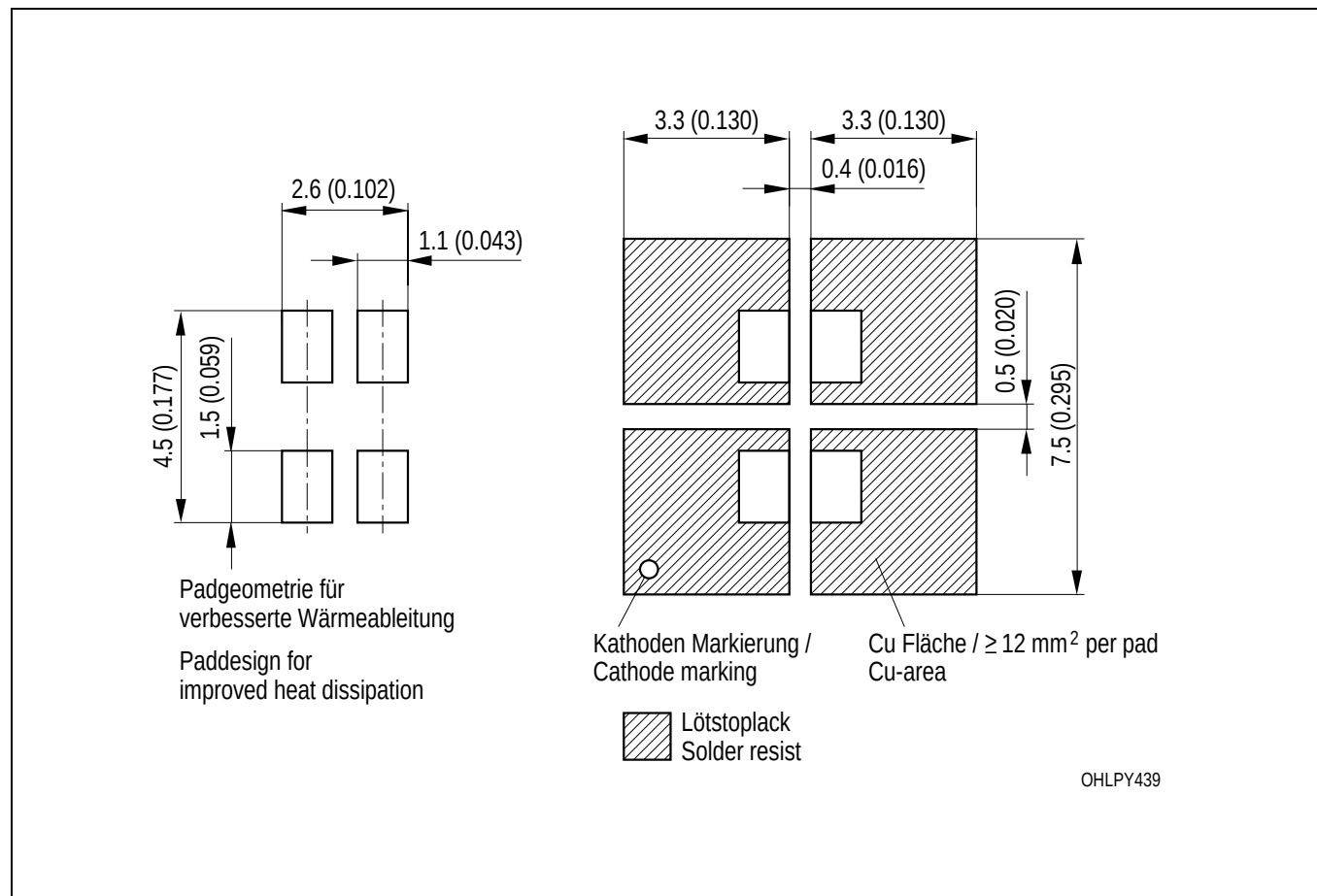
IR-Reflow Lötprofil (nach IPC 9501)
IR Reflow Soldering Profile (acc. to IPC 9501)



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

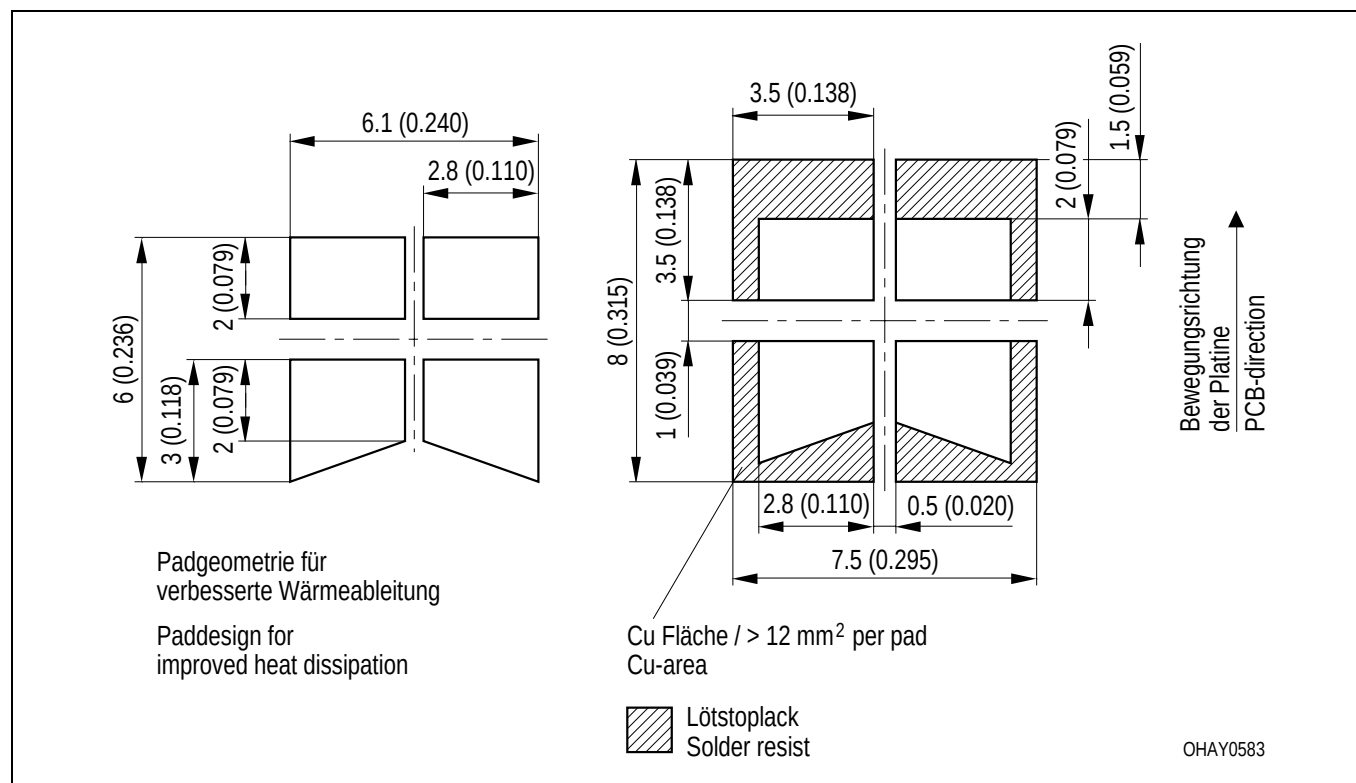


Empfohlenes Lötpaddesign IR Reflow Löten
Recommended Solder Pad IR Reflow Soldering



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

Empfohlenes Lötpaddesign Wellenlöten (TTW)
Recommended Solder Pad TTW Soldering



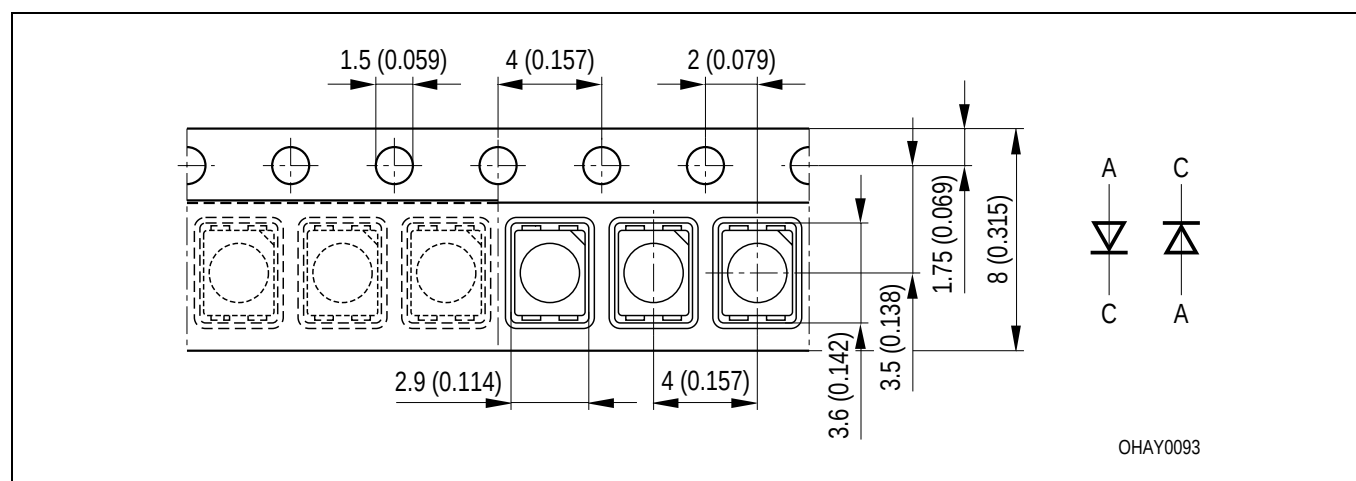
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

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



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

Revision History: 2003-03-04		Date of change
Previous Version: 2002-09-18		
Page	Subjects (major changes since last revision)	
8	pulse derating at 25°C changed from OHL01504 to OHL00193	
4	value (forward voltage, min.)	
2	Q-No. inserted	
8	change of diagram rel. lum. intensity (T_A) from OHL00173 to OHL00740	
14	annotations	2002-07-25
4	value ($TC_{\lambda_{dom}}$ from 0.04 to 0.05 nm/K)	2002-07-25
3, 4	value (reverse voltage from 5 V to 12 V)	2002-09-18

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Attention please!

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Packing

Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

Components used in life-support devices or systems must be expressly authorized for such purpose! Critical components ¹ may only be used in life-support devices or systems ² with the express written approval of OSRAM OS.

¹ A critical component is a component used in a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or the effectiveness of that device or system.

² Life support devices or systems are intended (a) to be implanted in the human body, or (b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health of the user may be endangered.