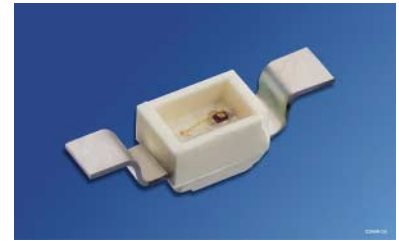


## LC Mini TOPLED® RG Low Current LED

LS M779, LY M779, LG M779



**Abgekündigt nach PD\_078\_02 - werden durch Mini TOPLED Santana® ersetzt werden**  
**Obsolete acc. to PD\_078\_02 - will be replaced by Mini TOPLED Santana®**

### Besondere Merkmale

- **Gehäusotyp:** weißes SMT Gehäuse
- **Besonderheit des Bauteils:** kleine Bauform für Anwendungen mit wenig Platzbedarf; Bauteil wird top-down montiert und strahlt durch das PCB
- **Wellenlänge:** 628 nm (super-rot), 587 nm (gelb), 570 nm (grün)
- **Abstrahlwinkel:** Lambertscher Strahler (120°)
- **Technologie:** GaAsP
- **optischer Wirkungsgrad:** 2 lm/W
- **Gruppierungsparameter:** Lichtstärke
- **Verarbeitungsmethode:** für alle SMT-Bestücktechniken geeignet
- **Lötmethode:** IR Reflow Löten
- **Vorbehandlung:** nach JEDEC Level 2
- **Gurtung:** 12 mm Gurt mit 3000/Rolle, ø180 mm oder 11800/Rolle, ø330 mm

### Anwendungen

- optischer Indikator
- Einkopplung in Lichtleiter
- Hinterleuchtung (LCD, Handy, Schalter, Tasten, Displays, Werbebeleuchtung, Allgemeinbeleuchtung)
- Innenbeleuchtung im Automobilbereich (z.B. Instrumentenbeleuchtung, u.ä.)

### Features

- **package:** white SMT package
- **feature of the device:** small package for applications where small space is required; LED is mounted top down and emits through the PCB
- **wavelength:** 628 nm (super-red), 587 nm (yellow), 570 nm (green)
- **viewing angle:** Lambertian Emitter (120°)
- **technology:** GaAsP
- **optical efficiency:** 2 lm/W
- **grouping parameter:** luminous intensity
- **assembly methods:** suitable for all SMT assembly methods
- **soldering methods:** IR reflow soldering
- **preconditioning:** acc. to JEDEC Level 2
- **taping:** 12 mm tape with 3000/reel, ø180 mm or 11800/reel, ø330 mm

### Applications

- optical indicators
- coupling into light guides
- backlighting (LCD, cellular phones, switches, keys, displays, illuminated advertising, general lighting)
- interior automotive lighting. (e.g. dashboard backlighting, etc.)

Typ	Emissions- farbe	Farbe der Lichtaustritts- fläche	Lichtstärke	Lichtstrom	Bestellnumm er
Type	Color of Emission	Color of the Light Emitting Area	Luminous Intensity $I_F = 2 \text{ mA}$ $I_V (\text{mcd})$	Luminous Flux $I_F = 2 \text{ mA}$ $\Phi_V (\text{lm})$	Ordering Code
■LS M779-D1E1-1	super-red	colorless clear	0.45 ... 0.90	2.0 (typ.)	Q62703Q5091
■LS M779-E1F1-1			0.71 ... 1.40	3.1 (typ.)	Q62703Q5092
■LS M779-F1G2-1			1.12 ... 2.80	5.5 (typ.)	Q62703Q5093
■LY M779-D1E1-1	yellow	colorless clear	0.45 ... 0.90	2.0 (typ.)	Q62703Q5129
■LY M779-E1F1-1			0.71 ... 1.40	3.1 (typ.)	Q62703Q5130
■LY M779-F1G1-1			1.12 ... 2.24	4.9 (typ.)	Q62703Q5131
■LG M779-C1F2-1	green	colorless clear	$\geq 0.28$ (1.0 typ.)	$\geq 1.0$ (typ.)	Q62703Q3049

■Abgekündigt nach PD\_078\_02 - werden durch Mini TOPLED Santana<sup>®</sup> ersetzt werden  
 Obsolete acc. to PD\_078\_02 - will be replaced by Mini TOPLED Santana<sup>®</sup>  
 Letzte Bestellung / Last Order: 30.09.2003  
 Letzte Lieferung / Last Delivery: 31.03.2004

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.*

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	$T_j$	+ 100	°C
Durchlassstrom Forward current	$I_F$	7.5	mA
Stoßstrom Surge current $t \leq 10 \mu s, D = 0.005$	$I_{FM}$	0.15	A
Sperrspannung <sup>1)</sup> Reverse voltage	$V_R$	12	V
Leistungsaufnahme Power consumption	$P_{tot}$	20	mW
Wärmewiderstand Thermal resistance Sperrschicht/Umgebung Junction/ambient	$R_{th JA}$	480	K/W
Sperrschicht/Lötpad Junction/solder point Montage auf PC-Board FR 4 (Padgröße $\geq 5 \text{ mm}^2$ ) mounted on PC board FR 4 (pad size $\geq 5 \text{ mm}^2$ )	$R_{th JS}$	230	K/W

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

Bezeichnung Parameter	Symbol Symbol	Werte Values			Einheit Unit
		LS	LY	LG	
Wellenlänge des emittierten Lichtes (typ.) Wavelength at peak emission $I_F = 2 \text{ mA}$	$\lambda_{\text{peak}}$	635	586	572	nm
Dominantwellenlänge <sup>1)</sup> (typ.) Dominant wavelength $I_F = 2 \text{ mA}$	$\lambda_{\text{dom}}$	628 $\pm 6$	587 -7/+8	570 $\pm 6$	nm
Spektrale Bandbreite bei 50 % $I_{\text{rel max}}$ (typ.) Spectral bandwidth at 50 % $I_{\text{rel max}}$ $I_F = 2 \text{ mA}$	$\Delta\lambda$	45	45	25	nm
Abstrahlwinkel bei 50 % $I_V$ (Vollwinkel) (typ.) Viewing angle at 50 % $I_V$	$2\phi$	120	120	120	Grad deg.
Durchlassspannung <sup>2)</sup> (typ.) Forward voltage (max.) $I_F = 2 \text{ mA}$	$V_F$ $V_F$	1.8 2.5	2.0 2.6	1.9 2.5	V V
Sperrstrom (typ.) Reverse current (max.) $V_R = 12 \text{ V}$	$I_R$ $I_R$	0.01 10	0.01 10	0.01 10	$\mu\text{A}$ $\mu\text{A}$
Temperaturkoeffizient von $\lambda_{\text{peak}}$ (typ.) Temperature coefficient of $\lambda_{\text{peak}}$ $I_F = 2 \text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC_{\lambda_{\text{peak}}}$	0.11	0.10	0.11	nm/K
Temperaturkoeffizient von $\lambda_{\text{dom}}$ (typ.) Temperature coefficient of $\lambda_{\text{dom}}$ $I_F = 2 \text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC_{\lambda_{\text{dom}}}$	0.07	0.07	0.07	nm/K
Temperaturkoeffizient von $V_F$ (typ.) Temperature coefficient of $V_F$ $I_F = 2 \text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC_V$	- 2.0	- 1.6	- 1.9	mV/K
Optischer Wirkungsgrad (typ.) Optical efficiency $I_F = 2 \text{ mA}$	$\eta_{\text{opt}}$	2	2	2	lm/W

<sup>1)</sup> Wellenlängen 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  $\pm 1 \text{ nm}$ .

<sup>2)</sup> Spannungswerte werden mit einer Stromeinprägedauer von 1 ms und einer Genauigkeit von  $\pm 0,1 \text{ V}$  ermittelt.  
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 $\Phi_v$ (lm)
D1	0.45 ... 0.56	1.5 (typ.)
D2	0.56 ... 0.71	2.0 (typ.)
E1	0.71 ... 0.90	2.5 (typ.)
E2	0.90 ... 1.12	3.0 (typ.)
F1	1.12 ... 1.40	3.8 (typ.)
F2	1.40 ... 1.80	4.8 (typ.)
G1	1.80 ... 2.24	6.0 (typ.)
G2	2.24 ... 2.80	7.6 (typ.)

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  $\pm 11\%$ .

**Gruppenbezeichnung auf Etikett**  
**Group Name on Label**

Beispiel: F2

Example: F2

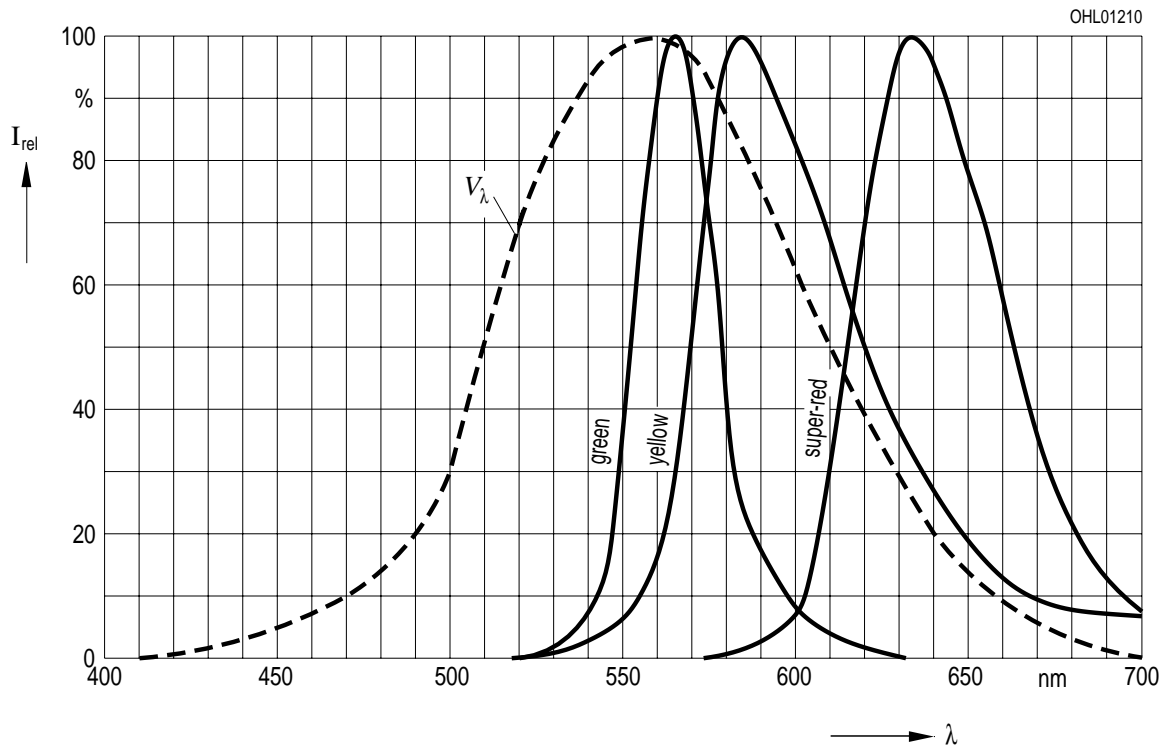
Lichtgruppe Luminous Intensity Group	Halbgruppe Half Group
F	2

Relative spektrale Emission  $I_{\text{rel}} = f(\lambda)$ ,  $T_A = 25^\circ\text{C}$ ,  $I_F = 2\text{ mA}$

Relative Spectral Emission

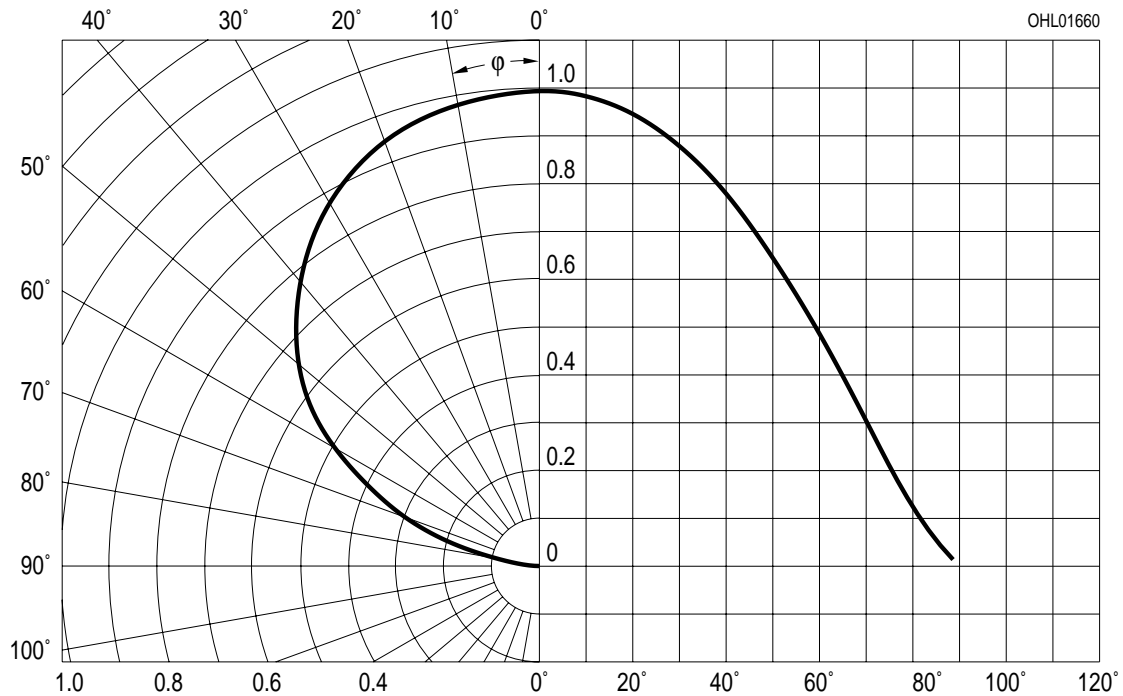
$V(\lambda)$  = spektrale Augenempfindlichkeit

Standard eye response curve



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

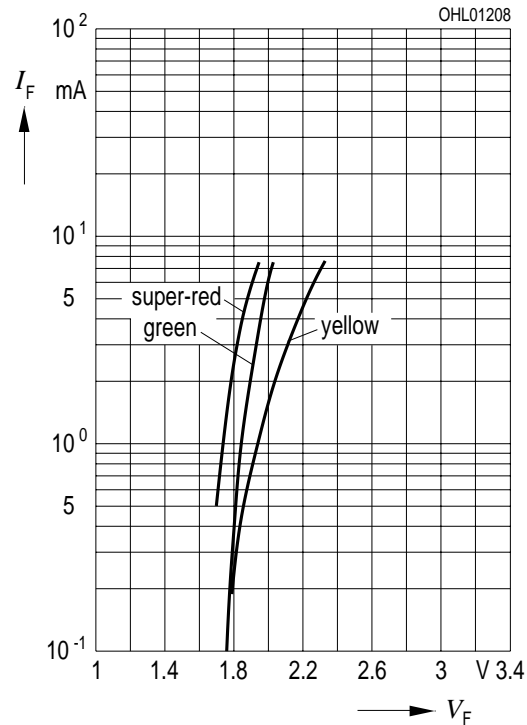
Radiation Characteristic



Durchlassstrom  $I_F = f(V_F)$

Forward Current

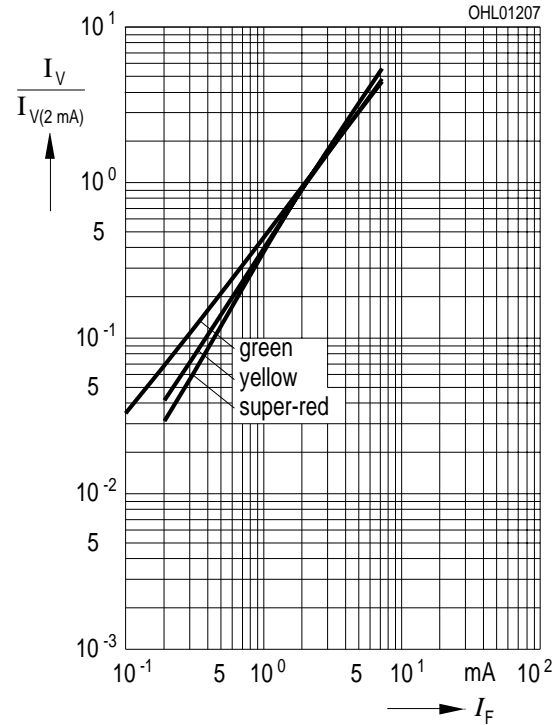
$T_A = 25^\circ\text{C}$



Relative Lichtstärke  $I_V/I_{V(2\text{ mA})} = f(I_F)$

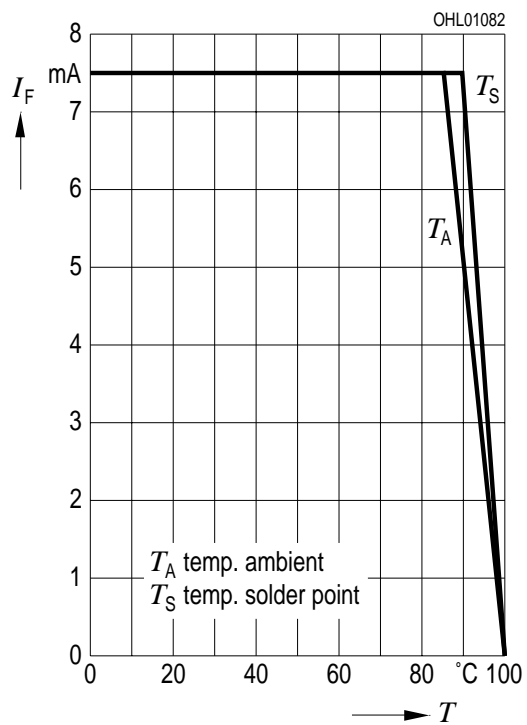
Relative Luminous Intensity

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



Maximal zulässiger Durchlassstrom  $I_F = f(T)$

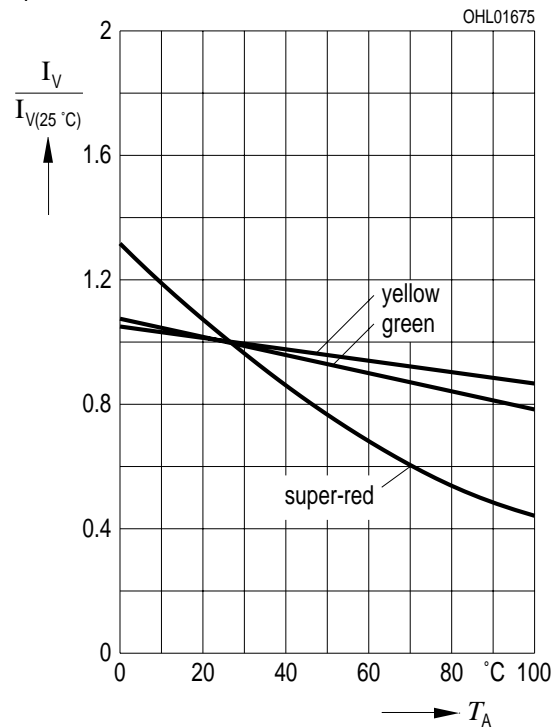
Max. Permissible Forward Current

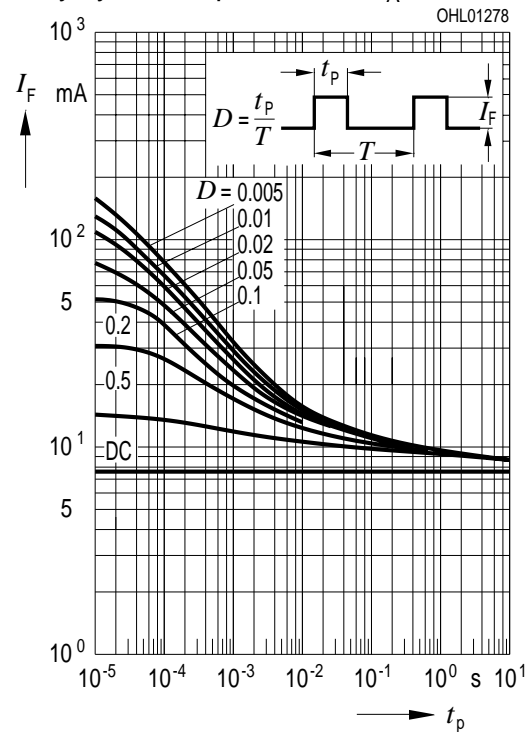


Relative Lichtstärke  $I_V/I_{V(25^\circ\text{C})} = f(T_A)$

Relative Luminous Intensity

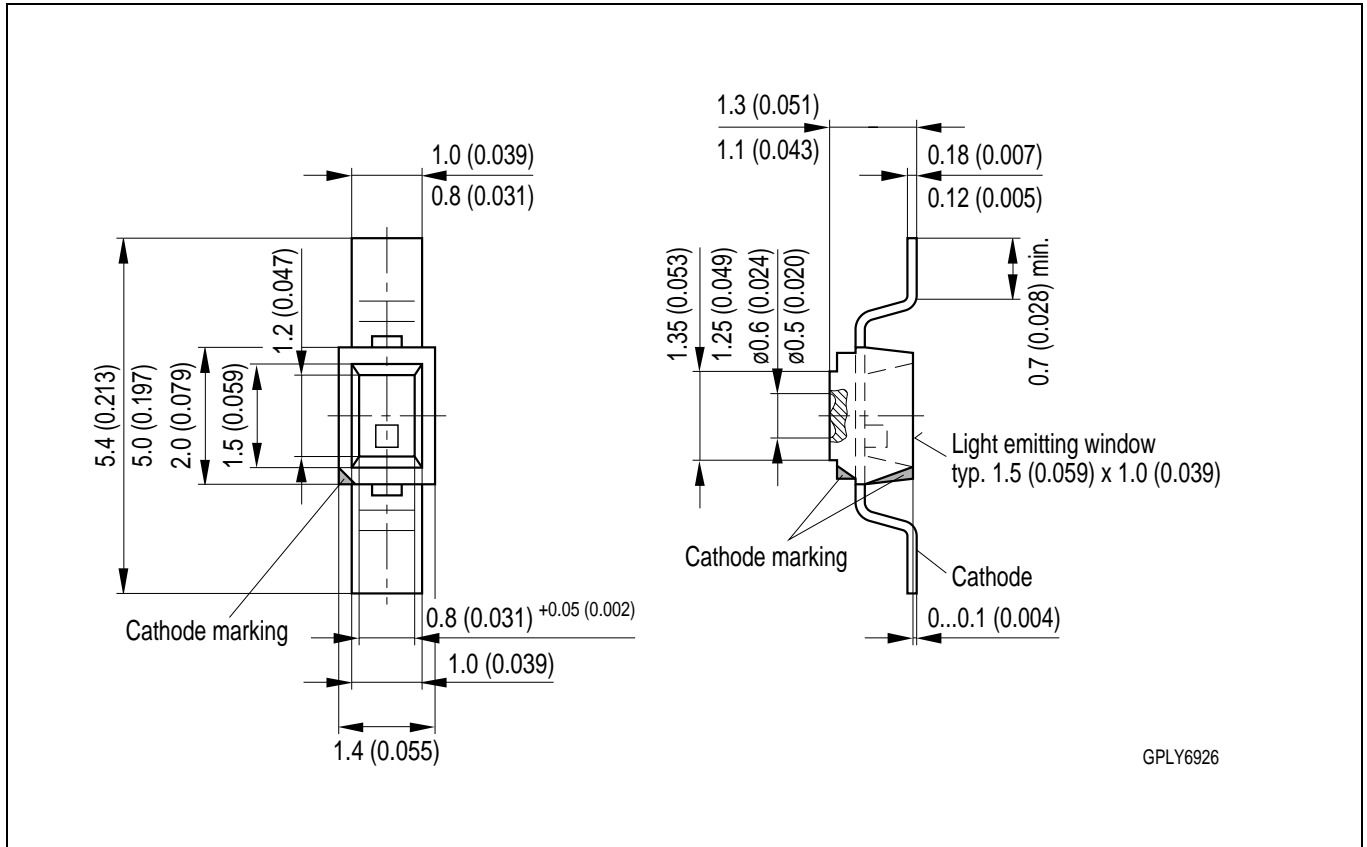
$I_F = 2\text{ mA}$



**Zulässige Impulsbelastbarkeit  $I_F = f(t_p)$** **Permissible Pulse Handling Capability**Duty cycle  $D = \text{parameter}$ ,  $T_A = 25\text{ °C}$ 



**Maßzeichnung  
Package Outlines**

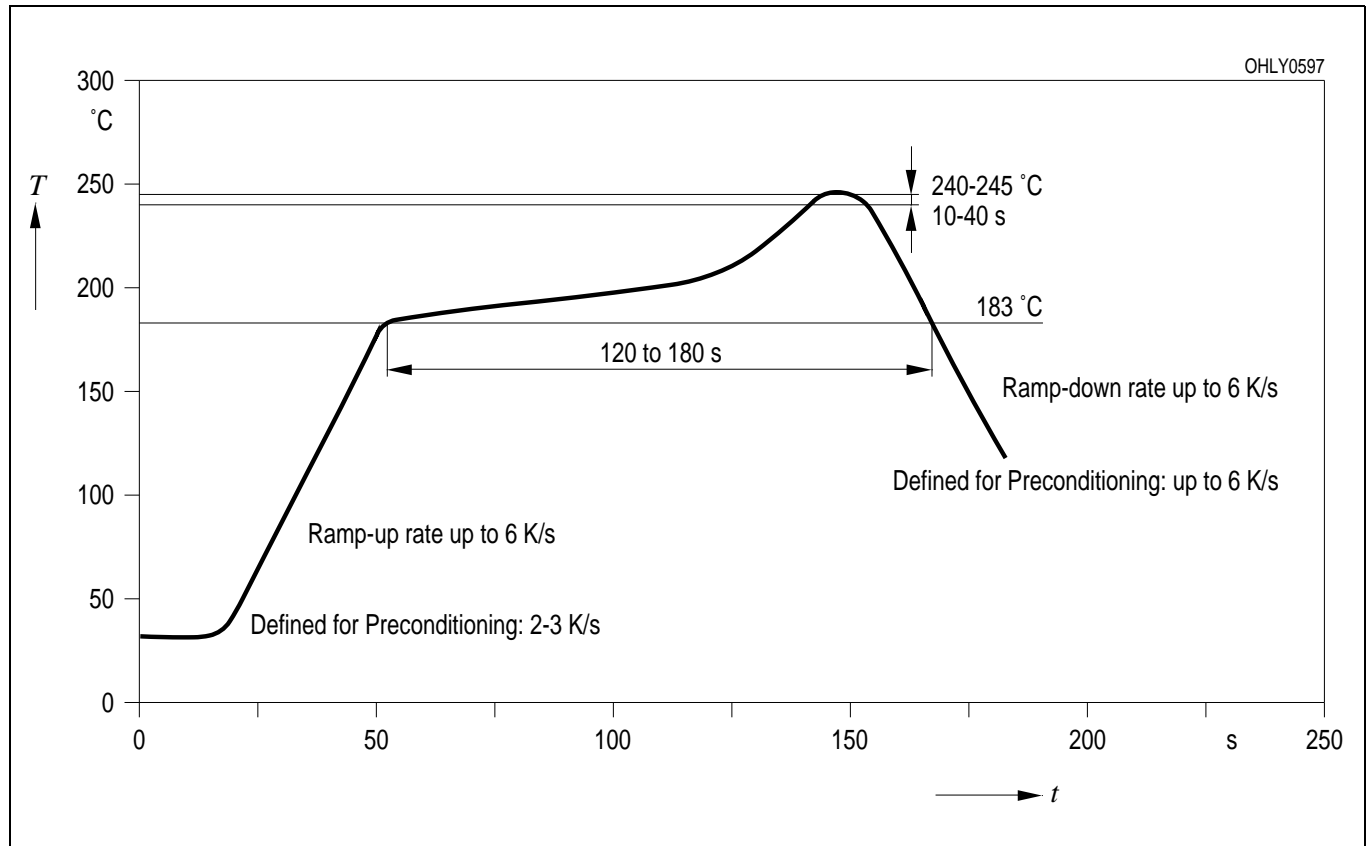


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

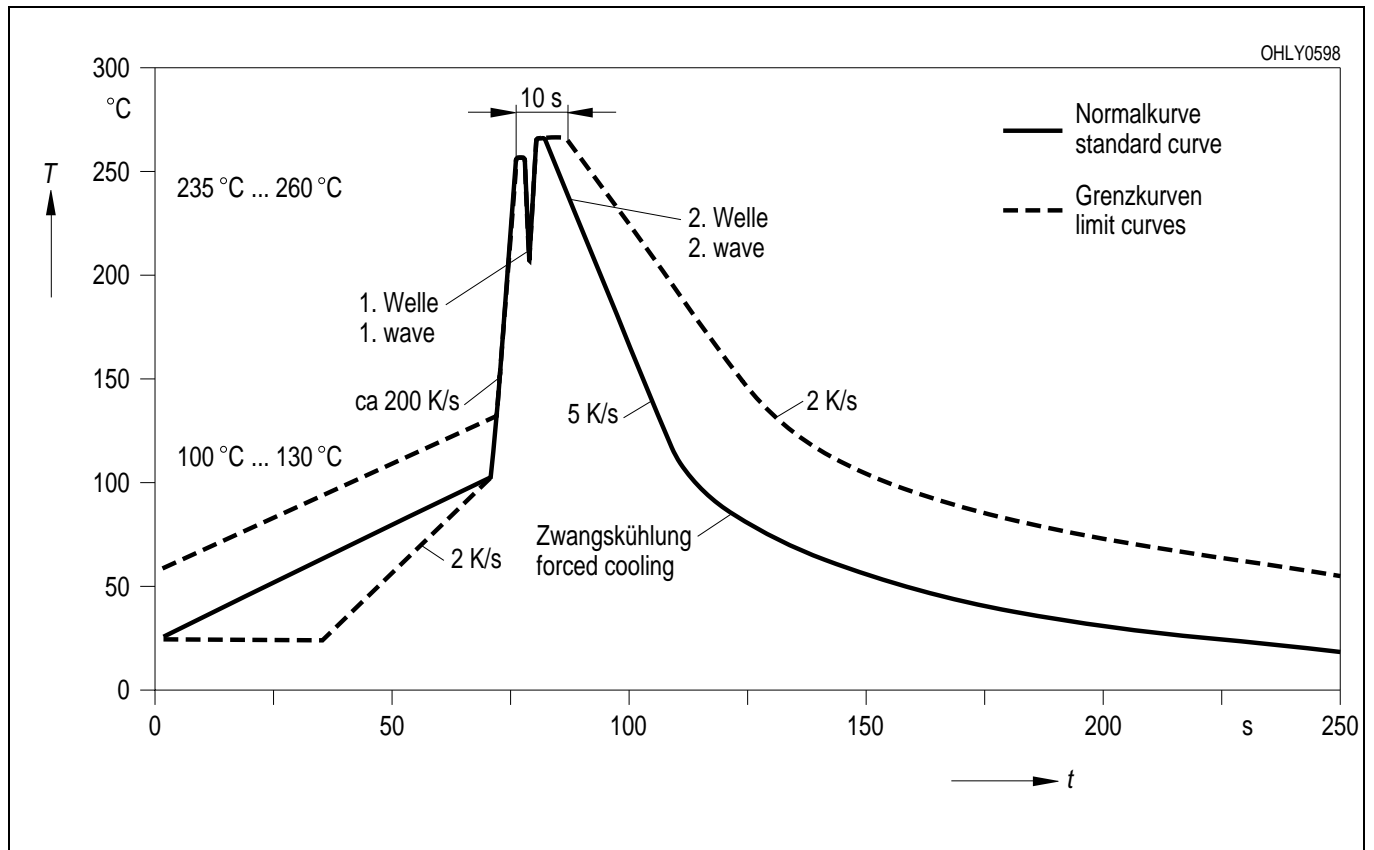
**Kathodenkennung:** abgeschrägte Ecke  
**Cathode mark:** bevelled edge  
**Gewicht / Approx. weight:** 10 mg

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

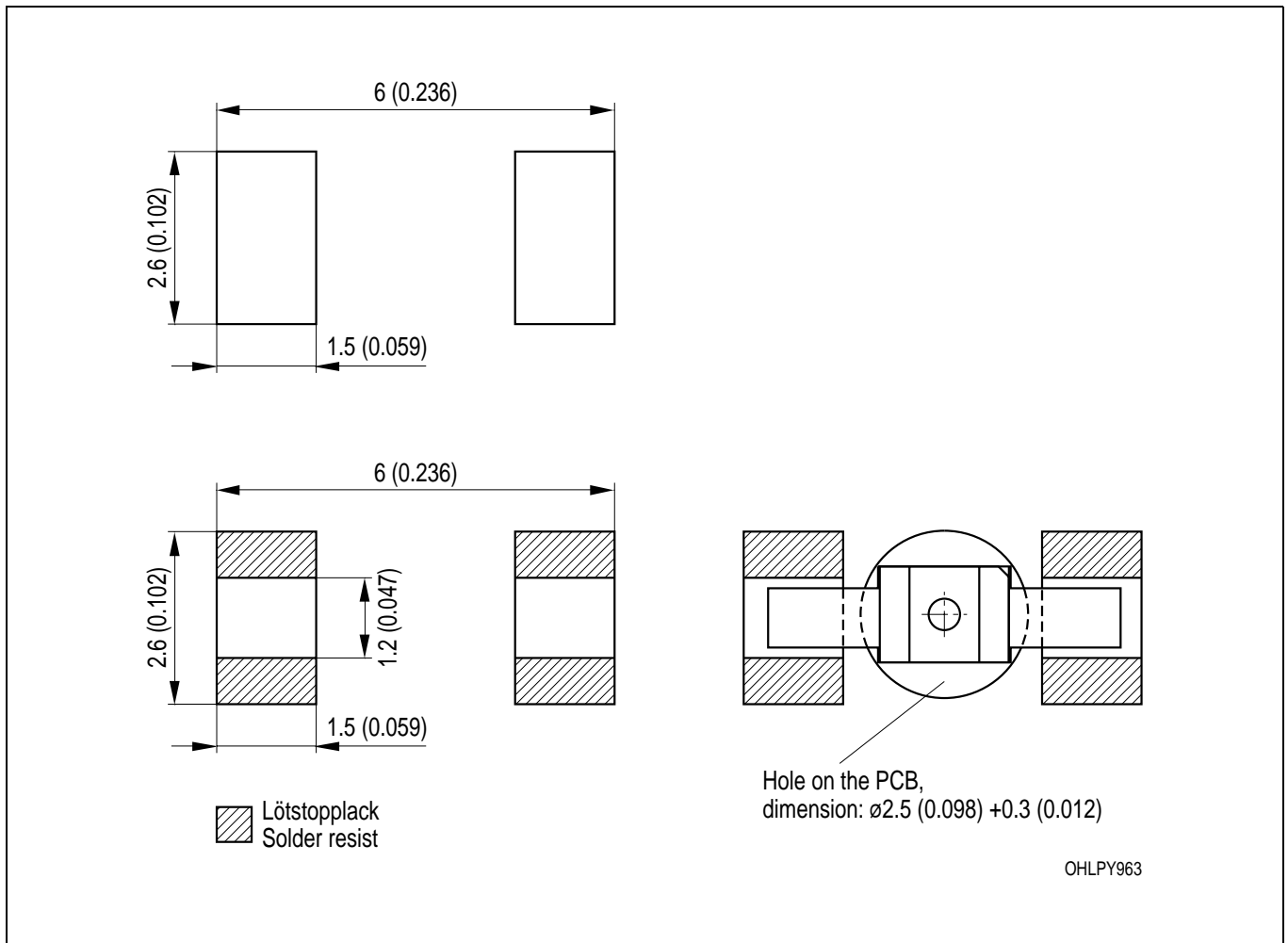
**IR-Reflow Lötprofil** (nach IPC 9501)  
**IR Reflow Soldering Profile** (acc. to IPC 9501)



**Wellenlöten (TTW)**  
**TTW Soldering**

 (nach CECC 00802)  
 (acc. to CECC 00802)


**Empfohlenes Lötpaddesign** IR Reflow Löten  
**Recommended Solder Pad** IR reflow soldering



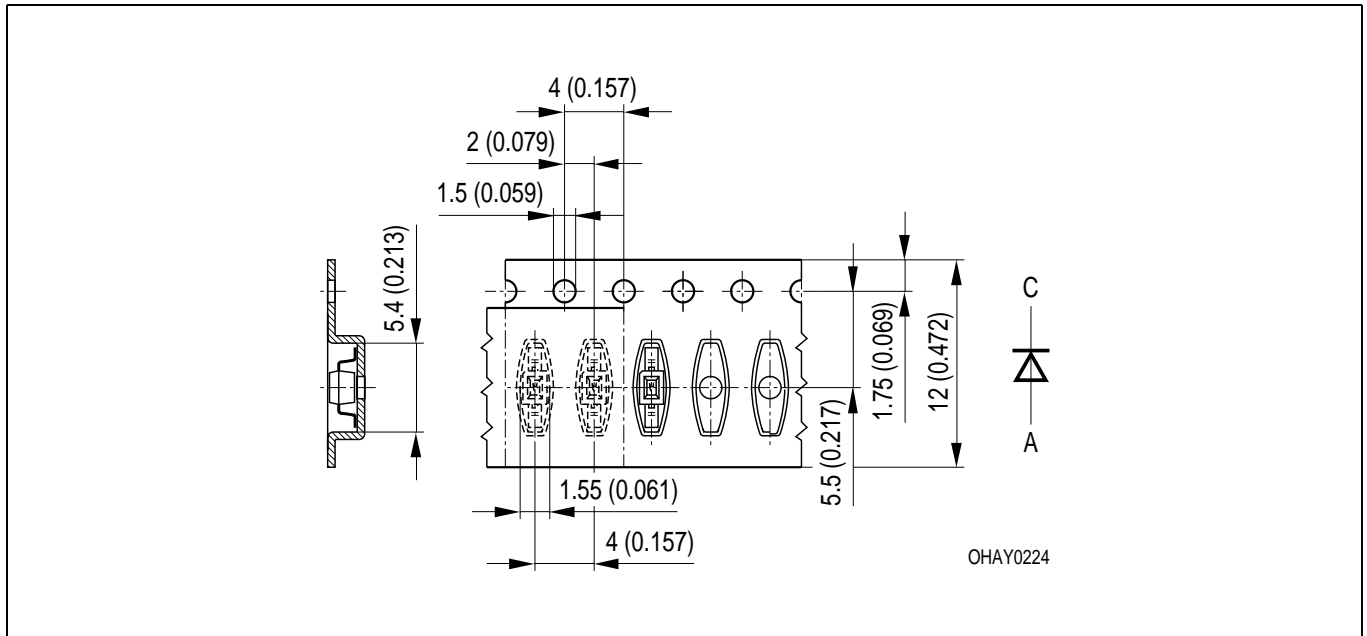
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).  
 Gehäuse für Wellenlöten (TTW) geeignet / Package suitable for TTW-soldering

**Gurtung / Polarität und Lage**

Verpackungseinheit 3000/Rolle,  $\varnothing 180$  mm  
oder 11800/Rolle,  $\varnothing 330$  mm

**Method of Taping / Polarity and Orientation**

Packing unit 3000/reel,  $\varnothing 180$  mm  
or 11800/reel,  $\varnothing 330$  mm



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

Revision History: 2003-08-04		Date of change
Previous Version: 2002-09-30		
Page	Subjects (major changes since last revision)	
3	pad size from 16 mm <sup>2</sup> to 5 mm <sup>2</sup>	
1	insertion of "Not for new designs..."	2002-06-14
13	annotations	2002-07-23
3, 4	value (reverse voltage from 5 V to 12 V)	2002-09-18
2	Not for new design	2002-09-16
2	Ordering Code	2002-09-16
1,12	removal: pad for TTW soldering	2002-09-30
1, 2	Obsolete	2003-08-04

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Attention please!

The information describes the type of component and shall not be considered as assured characteristics.

All typical data and graphs are basing on representative samples, but don't represent the production range. If requested, e.g. because of technical improvements, these typ. data will be changed without any further notice.

Terms of delivery and rights to change design reserved. Due to technical requirements components may contain dangerous substances. For information on the types in question please contact our Sales Organization.

If printed or downloaded, please find the latest version in the Internet.

#### 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 <sup>1</sup> may only be used in life-support devices or systems <sup>2</sup> with the express written approval of OSRAM OS.

<sup>1</sup> 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.

<sup>2</sup> 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.