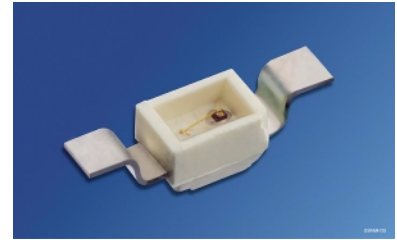


Mini TOPLED® RG

LS M770, LO M770, LY M770, LG M770, LP M770



Besondere Merkmale

- **Gehäusetyp:** weißes SMT-Gehäuse
- **Besonderheit des Bauteils:** extrem breite Abstrahlcharakteristik; Bauteil wird top-down montiert und strahlt durch das PCB; ideal für Hinterleuchtungen und Einkopplungen in Lichtleiter
- **Wellenlänge:** 628 nm (super-rot), 605 nm (orange), 590 nm (gelb), 570 nm (grün), 560 nm (pure green)
- **Abstrahlwinkel:** Lambertscher Strahler (120°)
- **Technologie:** GaAlP (super-rot, orange, gelb, grün), GaP (pure green)
- **optischer Wirkungsgrad:** 1,5 lm/W (super-rot, orange, gelb), 2,5 lm/W (grün), 0,6 lm/W (pure green)
- **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:** extremely wide viewing angle; LED is mounted top down and emits through the PCB; ideal for backlighting and coupling in light guides
- **wavelength:** 628 nm (super-red), 605 nm (orange), 590 nm (yellow), 570 nm (green), 560 nm (pure green)
- **viewing angle:** Lambertian Emitter (120°)
- **technology:** GaAlP (super-red, orange, yellow, green), GaP (pure green)
- **optical efficiency:** 1.5 lm/W (super-red, orange, yellow), 2.5 lm/W (green), 0.6 lm/W (pure 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:** 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.)

LS M770, LO M770, LY M770, LG M770, LP M770

Typ	Emissions- farbe	Farbe der Lichtaustritts- fläche	Lichtstärke	Lichtstrom	Bestellnummer
Type	Color of Emission	Color of the Light Emitting Area	Luminous Intensity $I_F = 10 \text{ mA}$ $I_V \text{ (mcd)}$	Luminous Flux $I_F = 10 \text{ mA}$ $\Phi_V \text{ (lm)}$	Ordering Code
LS M770-H2J2-1 LS M770-J2L1-1 LS M770-H2 LS M770-J1 LS M770-J2 LS M770-K1 LS M770-K2 LS M770-L1	super-red	colorless clear	3.55 ... 7.10 5.60 ... 14.00 3.55 ... 4.50 4.50 ... 5.60 5.60 ... 7.10 7.10 ... 9.00 9.00 ... 11.20 11.20 ... 14.00	15 (typ.) 28 (typ.) 12 (typ.) 15 (typ.) 19 (typ.) 24 (typ.) 30 (typ.) 40 (typ.)	Q62703-Q5087 Q62703-Q5088
LO M770-H2J2-1 LO M770-J2L1-1 LO M770-H2 LO M770-J1 LO M770-J2 LO M770-K1 LO M770-K2 LO M770-L1	orange	colorless clear	3.55 ... 7.10 5.60 ... 14.00 3.55 ... 4.50 4.50 ... 5.60 5.60 ... 7.10 7.10 ... 9.00 9.00 ... 11.20 11.20 ... 14.00	15 (typ.) 28 (typ.) 12 (typ.) 15 (typ.) 19 (typ.) 24 (typ.) 30 (typ.) 40 (typ.)	Q62703-Q5042 Q62703-Q5043
LY M770-J1K1-1 LY M770-K1L2-1 LY M770-J1 LY M770-J2 LY M770-K1 LY M770-K2 LY M770-L1 LY M770-L2	yellow	colorless clear	4.5 ... 9.0 7.1 ... 18.0 4.5 ... 5.6 5.6 ... 7.1 7.1 ... 9.0 9.0 ... 11.2 11.2 ... 14.0 14.0 ... 18.0	20 (typ.) 36 (typ.) 15 (typ.) 19 (typ.) 24 (typ.) 30 (typ.) 40 (typ.) 50 (typ.)	Q62703-Q5125 Q62703-Q5126
LG M770-J2K2-1 LG M770-K2M1-1 LG M770-J2 LG M770-K1 LG M770-K2 LG M770-L1 LG M770-L2 LG M770-M1	green	colorless clear	5.6 ... 11.2 9.0 ... 22.4 5.6 ... 7.1 7.1 ... 9.0 9.0 ... 11.2 11.2 ... 14.0 14.0 ... 18.0 18.0 ... 22.4	25 (typ.) 45 (typ.) 19 (typ.) 24 (typ.) 30 (typ.) 40 (typ.) 50 (typ.) 60 (typ.)	Q62703-Q5008 Q62703-Q5009

LS M770, LO M770, LY M770, LG M770, LP M770

Typ	Emissions- farbe	Farbe der Lichtaustritts- fläche	Lichtstärke	Lichtstrom	Bestellnummer
Type	Color of Emission	Color of the Light Emitting Area	Luminous Intensity $I_F = 10 \text{ mA}$ $I_V \text{ (mcd)}$	Luminous Flux $I_F = 10 \text{ mA}$ $\Phi_V \text{ (mlm)}$	Ordering Code
LP M770-F2G2-1	pure green	colorless clear	1.40 ... 2.80	6.1 (typ.)	Q62703-Q5062
LP M770-G2J1-1			2.24 ... 5.60	11.0 (typ.)	Q62703-Q5063
LP M770-F2			1.40 ... 1.80	4.8 (typ.)	
LP M770-G1			1.80 ... 2.24	6.0 (typ.)	
LP M770-G2			2.24 ... 2.80	7.6 (typ.)	
LP M770-H1			2.80 ... 3.55	9.5 (typ.)	
LP M770-H2			3.55 ... 4.50	12.0 (typ.)	
LP M770-J1			4.50 ... 5.60	15.0 (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 an accuracy of $\pm 11 \%$.

Grenzwerte
Maximum Ratings

Bezeichnung Parameter	Symbol Symbol	Wert Value		Einheit Unit
		LS, LO, LY, LG	LP	
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	30		mA
Stoßstrom Surge current $t \leq 10 \mu s, D = 0.005$	I_{FM}	0.5		A
Sperrspannung Reverse voltage	V_R	5		V
Leistungsaufnahme Power dissipation	P_{tot}	95	90	mW
Wärmewiderstand Thermal resistance Sperrschicht/Umgebung Junction/air	$R_{th JA}$	480		K/W
Sperrschicht/Lötpad Junction/soldering point Montage auf PC-Board FR 4 (Padgröße $\geq 16 \text{ mm}^2$) mounted on PC board FR 4 (pad size $\geq 16 \text{ mm}^2$)	$R_{th JS}$	230		K/W

Kennwerte ($T_A = 25\text{ °C}$)

Characteristics

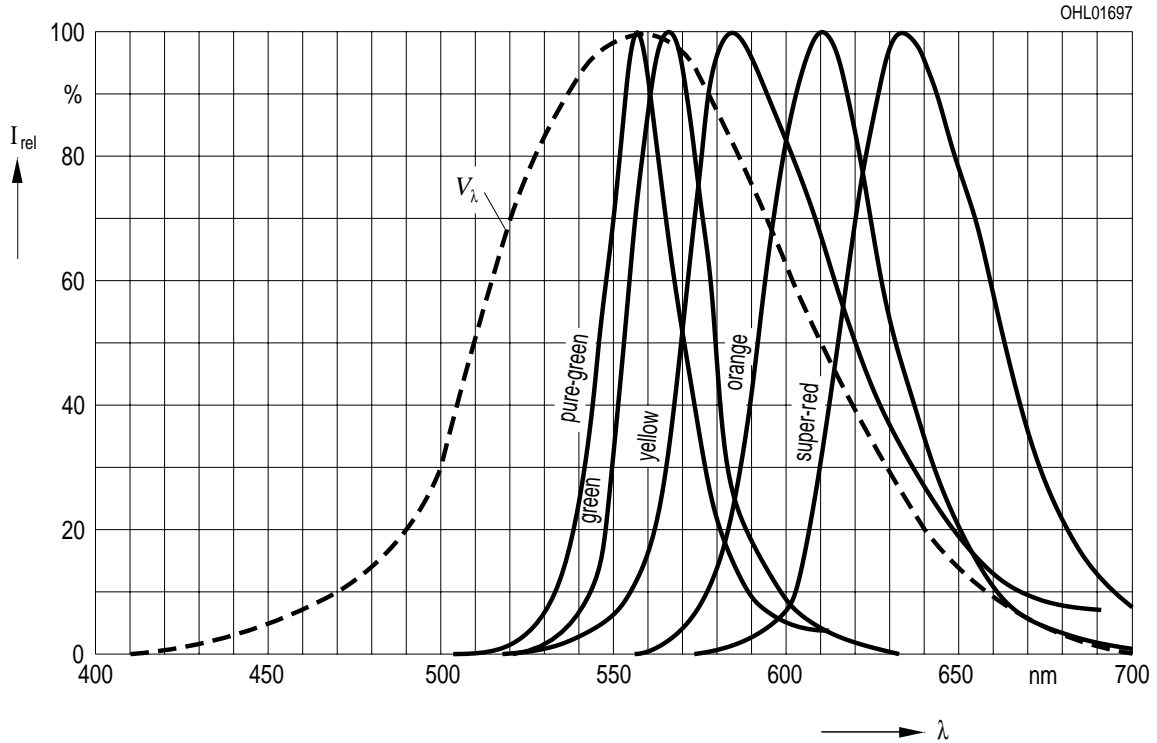
Bezeichnung Parameter	Symbol Symbol	Wert Value					Einheit Unit
		LS	LO	LY	LG	LP	
Wellenlänge des emittierten Lichtes Wavelength at peak emission $I_F = 10\text{ mA}$	(typ.) λ_{peak}	635	610	586	565	557	nm
Dominantwellenlänge Dominant wavelength $I_F = 10\text{ mA}$	(typ.) λ_{dom}	628	605	590	570	560	nm
Spektrale Bandbreite bei 50 % $I_{\text{rel max}}$ Spectral bandwidth at 50 % $I_{\text{rel max}}$ $I_F = 10\text{ mA}$	(typ.) $\Delta\lambda$	45	40	45	25	22	nm
Abstrahlwinkel bei 50 % I_V (Vollwinkel) Viewing angle at 50 % I_V	(typ.) 2ϕ	120	120	120	120	120	Grad deg.
Durchlaßspannung Forward voltage $I_F = 10\text{ mA}$	(typ.) V_F (max.) V_F	2.0 2.6	2.0 2.6	2.0 2.6	2.0 2.6	2.0 2.6	V V
Sperrstrom Reverse current $V_R = 5\text{ V}$	(typ.) I_R (max.) I_R	0.01 10	0.01 10	0.01 10	0.01 10	0.01 10	μA μA
Temperaturkoeffizient von λ_{peak} Temperature coefficient of λ_{peak} $I_F = 10\text{ mA}$	(typ.) $TC_{\lambda_{\text{peak}}}$	0.11	0.12	0.10	0.11	0.11	nm/K
Temperaturkoeffizient von λ_{dom} Temperature coefficient of λ_{dom} $I_F = 10\text{ mA}$	(typ.) $TC_{\lambda_{\text{dom}}}$	0.07	0.07	0.07	0.07	0.05	nm/K
Temperaturkoeffizient von V_F Temperature coefficient of V_F $I_F = 10\text{ mA}$	(typ.) TC_V	-1.9	-1.9	-1.9	-1.4	-2.1	mV/K
Optischer Wirkungsgrad Optical efficiency $I_F = 10\text{ mA}$	(typ.) η_{opt}	1.5	1.5	1.5	2.5	0.6	lm/W

Relative spektrale Emission $I_{rel} = f(\lambda)$, $T_A = 25\text{ }^\circ\text{C}$, $I_F = 10\text{ mA}$

Relative Spectral Emission

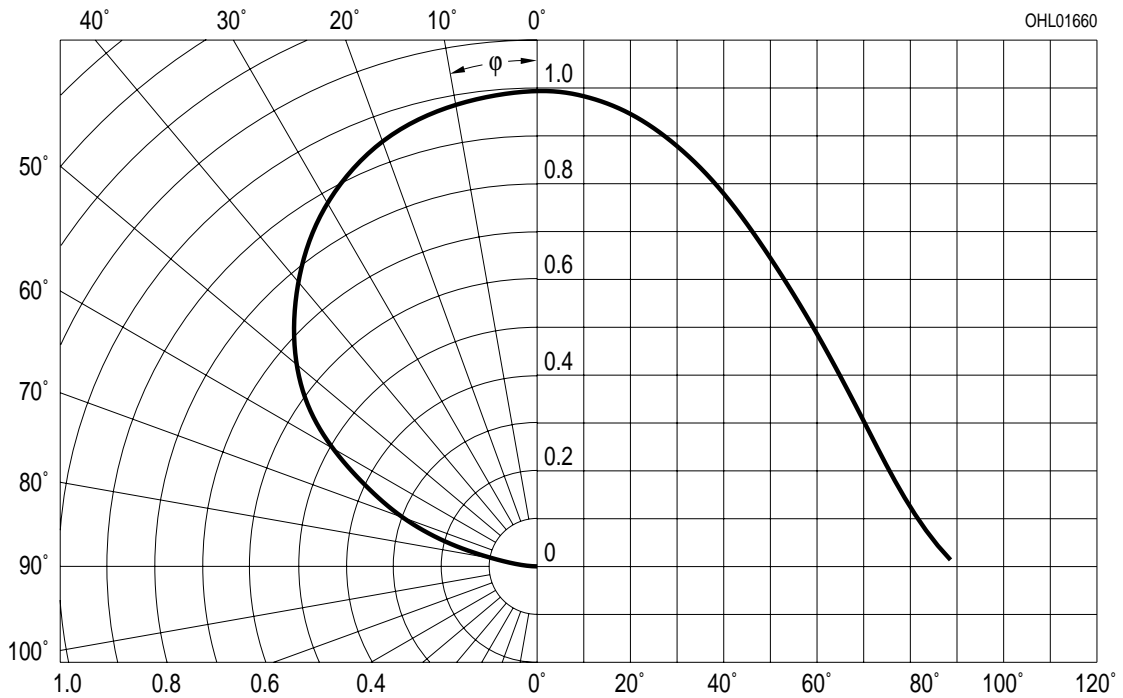
$V(\lambda)$ = spektrale Augenempfindlichkeit

Standard eye response curve



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

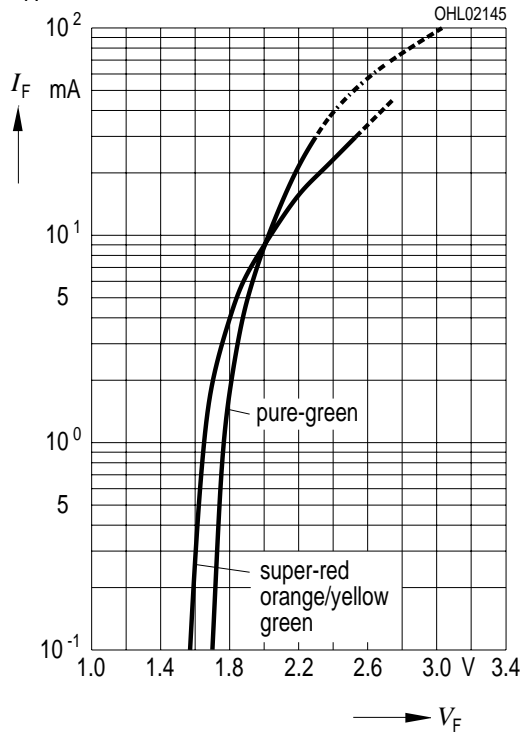
Radiation Characteristic



Durchlaßstrom $I_F = f(V_F)$

Forward Current

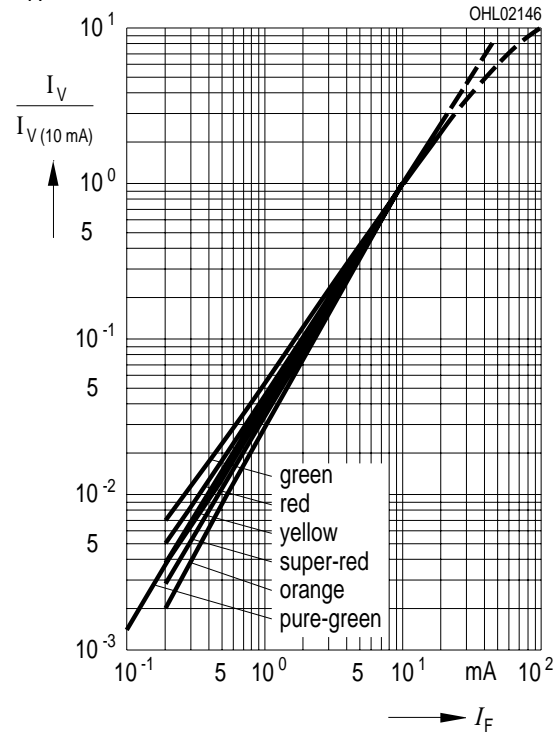
$T_A = 25\text{ °C}$



Relative Lichtstärke $I_V / I_{V(10\text{ mA})} = f(I_F)$

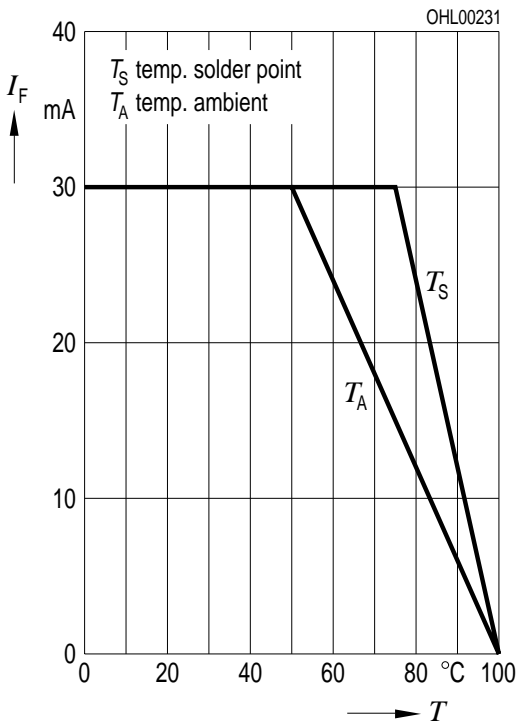
Relative Luminous Intensity

$T_A = 25\text{ °C}$



Maximal zulässiger Durchlaßstrom $I_F = f(T_A)$

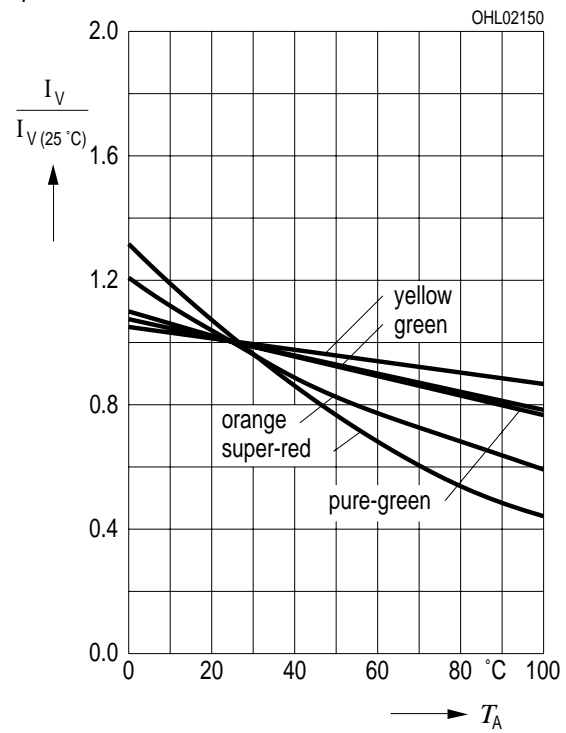
Max. Permissible Forward Current



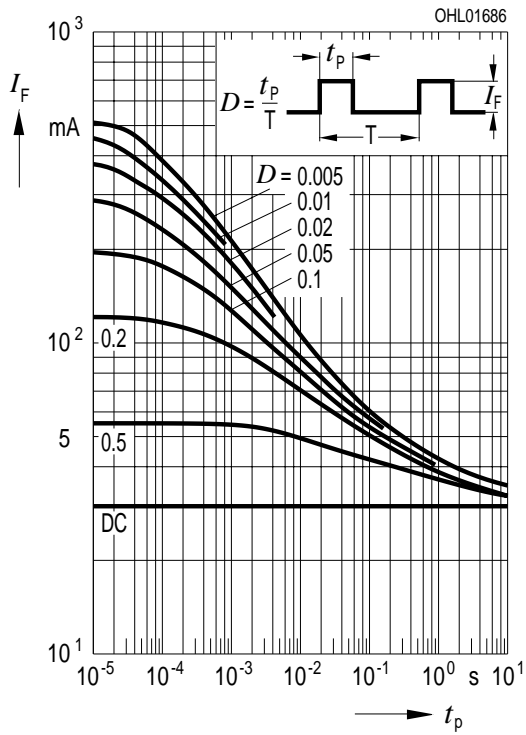
Relative Lichtstärke $I_V / I_{V(25\text{ °C})} = f(T_A)$

Relative Luminous Intensity

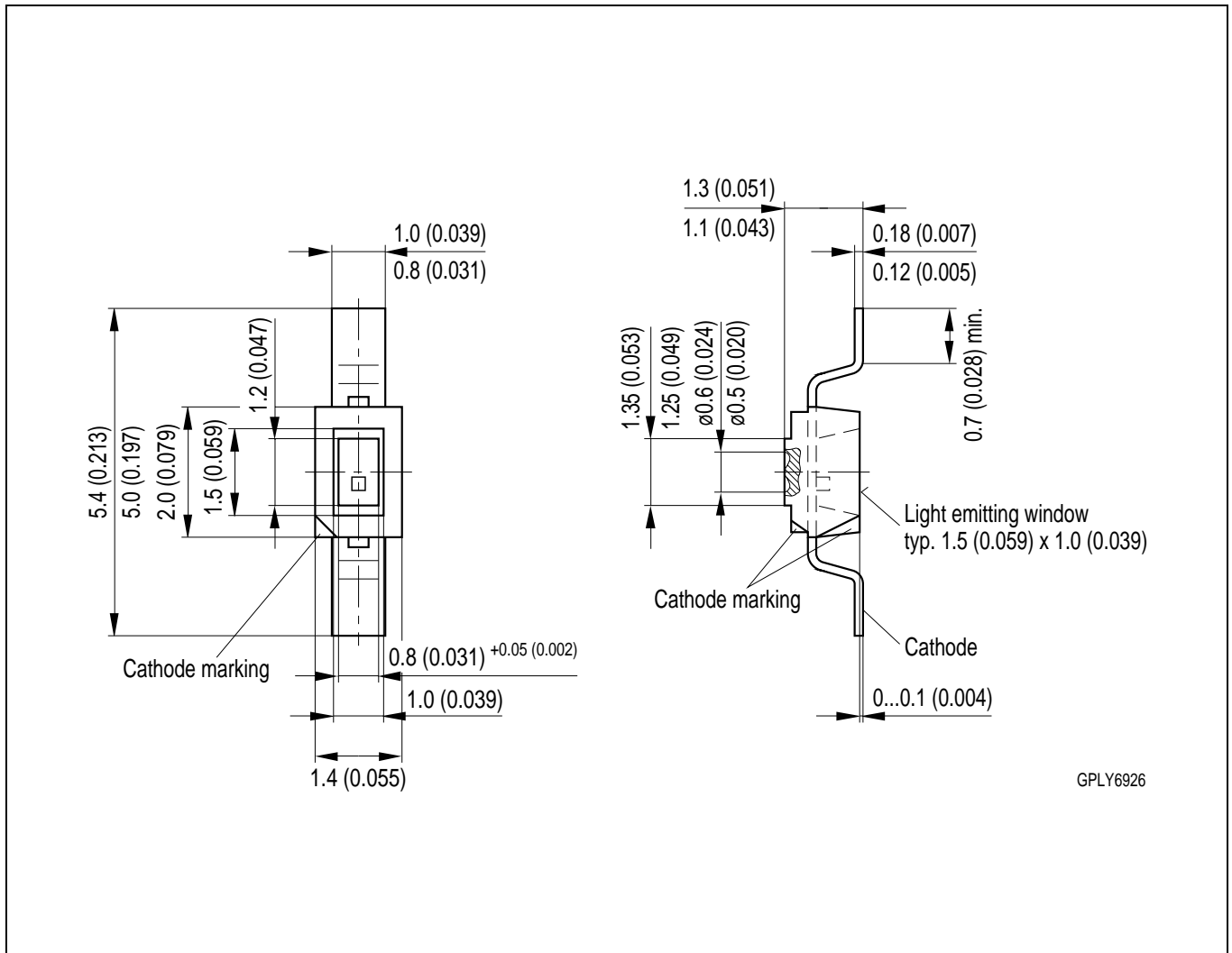
$I_F = 10\text{ mA}$



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



Maßzeichnung
Package Outlines



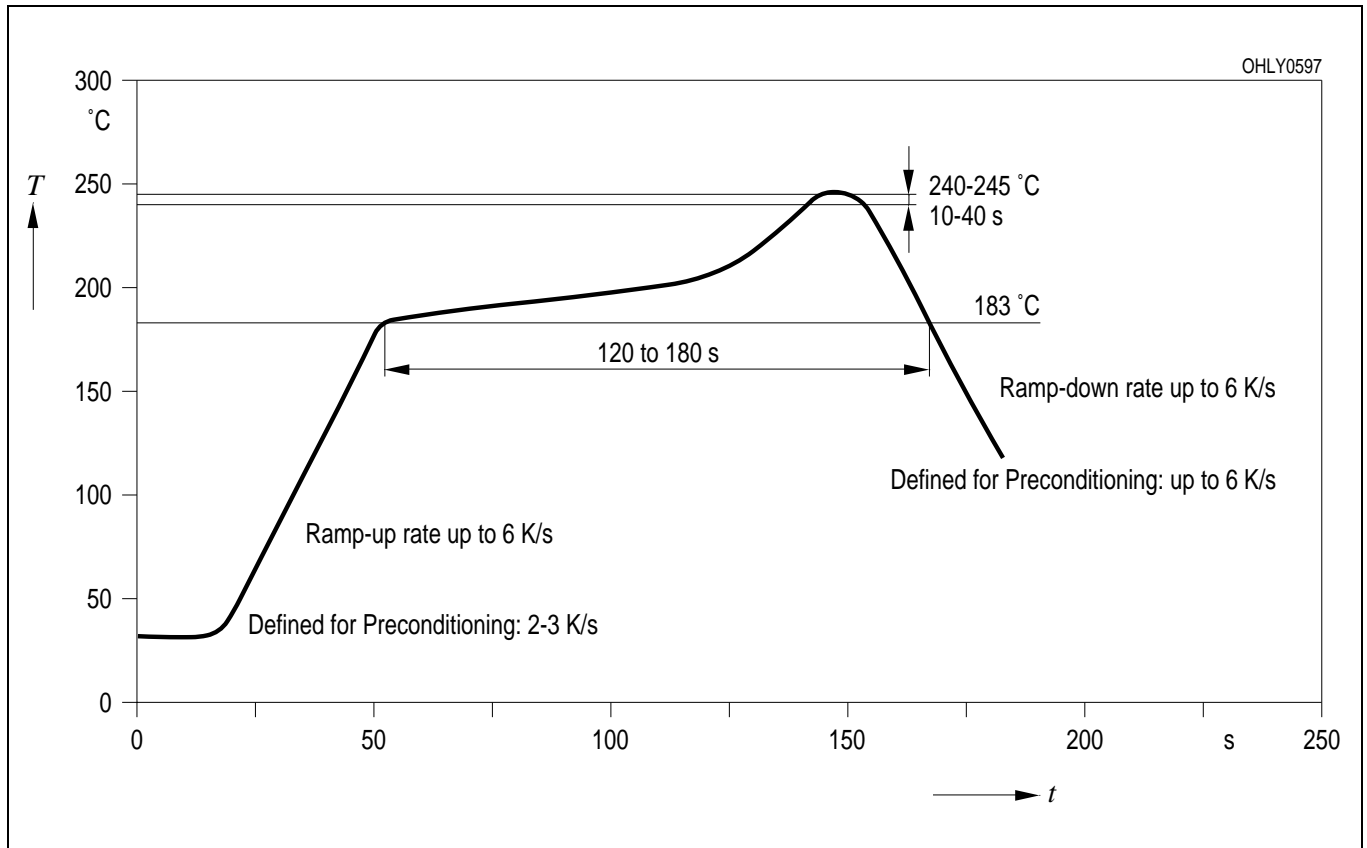
GPLY6926

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

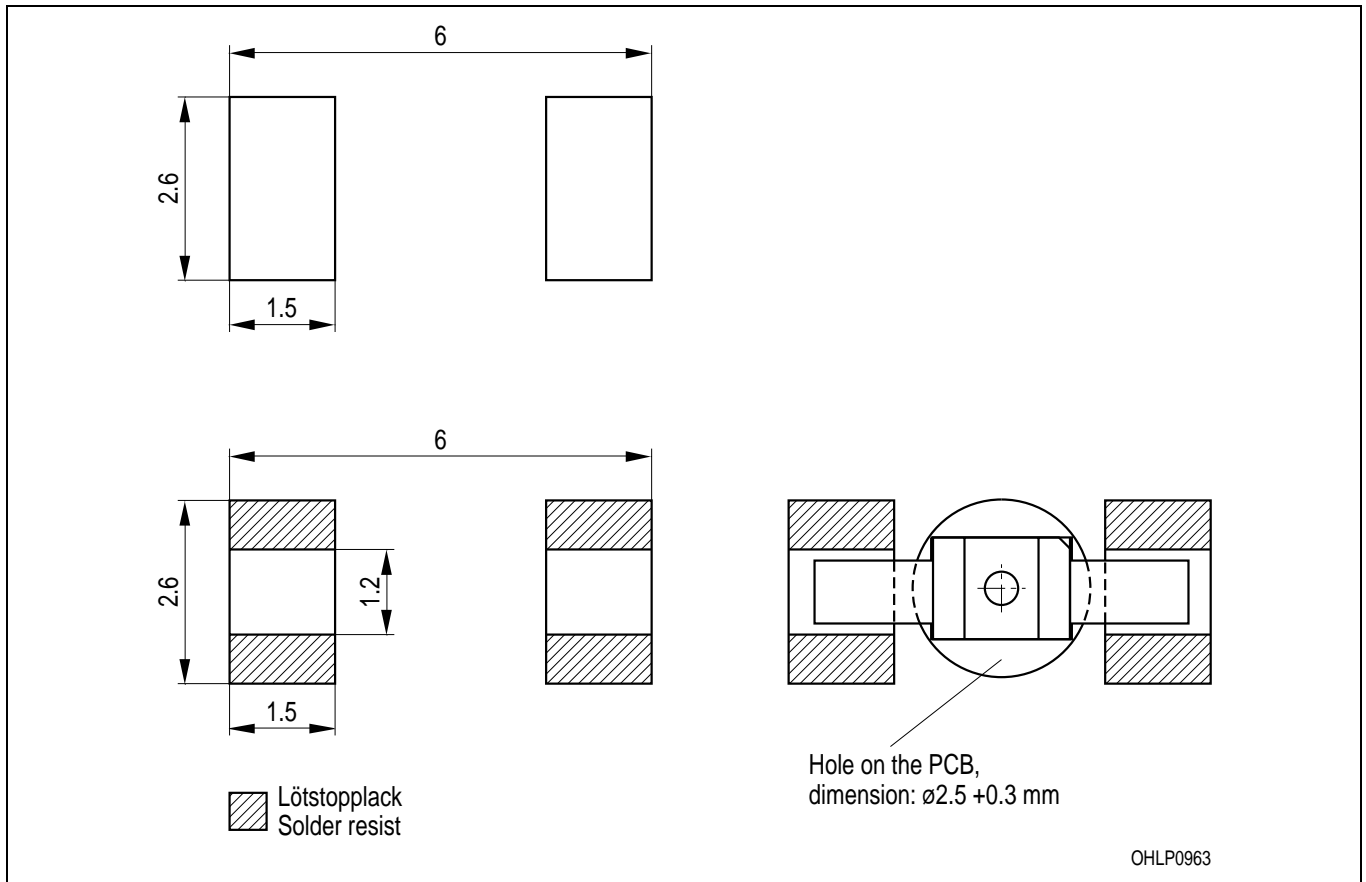
Kathodenkennung: abgeschrägte Ecke
Cathode mark: bevelled edge

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 Lötpaddesign IR Reflow Löten
Recommended Solder Pad IR Reflow 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

