

Mini SIDELED®

LS C870, LO C870, LY C870, LG C870, LP C870



Nicht für Neuentwicklungen - wird durch Micro SIDELED® ersetzt werden
Not for new designs - will be replaced by Micro SIDELED®

Besondere Merkmale

- **Gehäusetyyp:** weißes SMT-Gehäuse
- **Besonderheit des Bauteils:** kleine Bauform mit extrem breiter Abstrahlcharakteristik; ideal für 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:** GaAIP (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 2500/Rolle, ø180 mm oder 10000/Rolle, ø330 mm

Anwendungen

- optischer Indikator
- Hinterleuchtung (LCD, Handy, Schalter, Tasten, Displays, Werbebeleuchtung, Allgemeinbeleuchtung)
- Markierungsbeleuchtung (z.B. Stufen, Fluchtwege, u.ä.)
- Innenbeleuchtung im Automobilbereich (z.B. Instrumentenbeleuchtung, u.ä.)
- 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:** 628 nm (super-red), 605 nm (orange), 590 nm (yellow), 570 nm (green), 560 nm (pure green)
- **viewing angle:** Lambertian Emitter (120°)
- **technology:** GaAIP (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 2500/reel, ø180 mm or 10000/reel, ø330 mm

Applications

- optical indicators
- backlighting (LCD, cellular phones, switches, keys, displays, illuminated advertising, general lighting)
- marker lights (e.g. steps, exit ways, etc.)
- Interior automotive lighting (e.g. dashboard backlighting, etc.)
- coupling into light guides

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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 C870-H2J2-1	super-red	colorless clear	3.55 ... 7.10	15 (typ.)	Q62703-Q5079 Q62703-Q5080
LS C870-J2L1-1			5.60 ... 14.00	28 (typ.)	
LS C870-H2			3.55 ... 4.50	12 (typ.)	
LS C870-J1			4.50 ... 5.60	15 (typ.)	
LS C870-J2			5.60 ... 7.10	19 (typ.)	
LS C870-K1			7.10 ... 9.00	24 (typ.)	
LS C870-K2			9.00 ... 11.20	30 (typ.)	
LS C870-L1			11.20 ... 14.00	40 (typ.)	
LO C870-H2J2-1	orange	colorless clear	3.55 ... 7.10	15 (typ.)	Q62703-Q5034 Q62703-Q5035
LO C870-J2L1-1			5.60 ... 14.00	28 (typ.)	
LO C870-H2			3.55 ... 4.50	12 (typ.)	
LO C870-J1			4.50 ... 5.60	15 (typ.)	
LO C870-J2			5.60 ... 7.10	19 (typ.)	
LO C870-K1			7.10 ... 9.00	24 (typ.)	
LO C870-K2			9.00 ... 11.20	30 (typ.)	
LO C870-L1			11.20 ... 14.00	40 (typ.)	
LY C870-H2J2-1	yellow	colorless clear	3.55 ... 7.10	15 (typ.)	Q62703-Q5115 Q62703-Q5116
LY C870-J2L1-1			5.60 ... 14.00	28 (typ.)	
LY C870-H2			3.55 ... 4.50	12 (typ.)	
LY C870-J1			4.50 ... 5.60	15 (typ.)	
LY C870-J2			5.60 ... 7.10	19 (typ.)	
LY C870-K1			7.10 ... 9.00	24 (typ.)	
LY C870-K2			9.00 ... 11.20	30 (typ.)	
LY C870-L1			11.20 ... 14.00	40 (typ.)	
LG C870-J2K2-1	green	colorless clear	5.60 ... 11.20	25 (typ.)	Q62703-Q5004 Q62703-Q5005
LG C870-K2M1-1			9.00 ... 22.40	45 (typ.)	
LG C870-J2			5.60 ... 7.10	19 (typ.)	
LG C870-K1			7.10 ... 9.00	24 (typ.)	
LG C870-K2			9.00 ... 11.20	30 (typ.)	
LG C870-L1			11.20 ... 14.00	40 (typ.)	
LG C870-L2			14.00 ... 18.00	50 (typ.)	
LG C870-M1			18.00... 22.40	60 (typ.)	

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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 C870-F2G2-1	pure green	colorless clear	1.40 ... 2.80	6.0 (typ.)	Q62703-Q5058
LP C870-G2J1-1			2.24 ... 5.60	11.0 (typ.)	Q62703-Q5059
LP C870-F2			1.40 ... 1.80	4.8 (typ.)	
LP C870-G1			1.80 ... 2.24	6.0 (typ.)	
LP C870-G2			2.24 ... 2.80	7.6 (typ.)	
LP C870-H1			2.80 ... 3.55	9.5 (typ.)	
LP C870-H2			3.55 ... 4.50	12.0 (typ.)	
LP C870-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/ambient	$R_{th JA}$	530		K/W
Sperrschicht/Löt看pad Junction/soldering point Montage auf PC-Board FR4 (Padgröße $\geq 16 \text{ mm}^2$) mounted on PC board FR4 (pad size $\geq 16 \text{ mm}^2$)	$R_{th JS}$	250		K/W

Kennwerte ($T_A = 25\text{ °C}$)

Characteristics

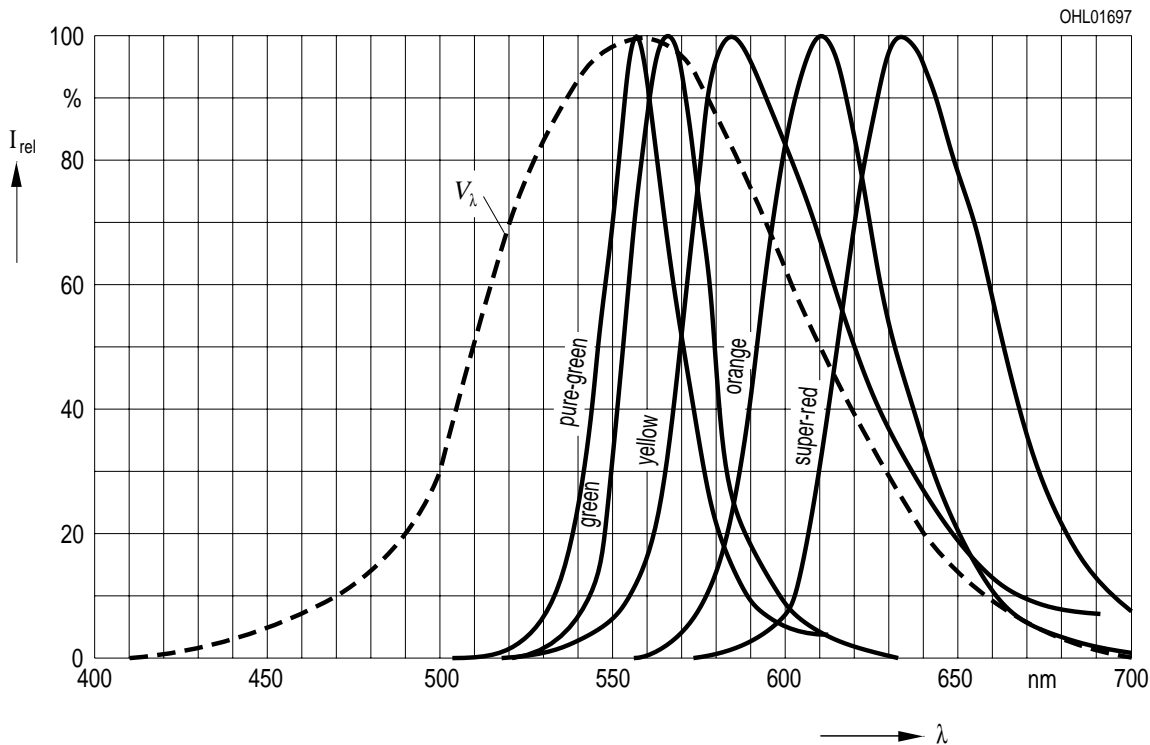
Bezeichnung Parameter	Symbol Symbol	Wert Value					Einheit Unit
		LS	LO	LY	LG	LP	
Wellenlänge des emittierten Lichtes Wavelength at peak emission $I_F = 10\text{ mA}$	(typ.) λ_{peak}	635	610	586	565	557	nm
Dominantwellenlänge Dominant wavelength $I_F = 10\text{ mA}$	(typ.) λ_{dom}	628	605	590	570	560	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

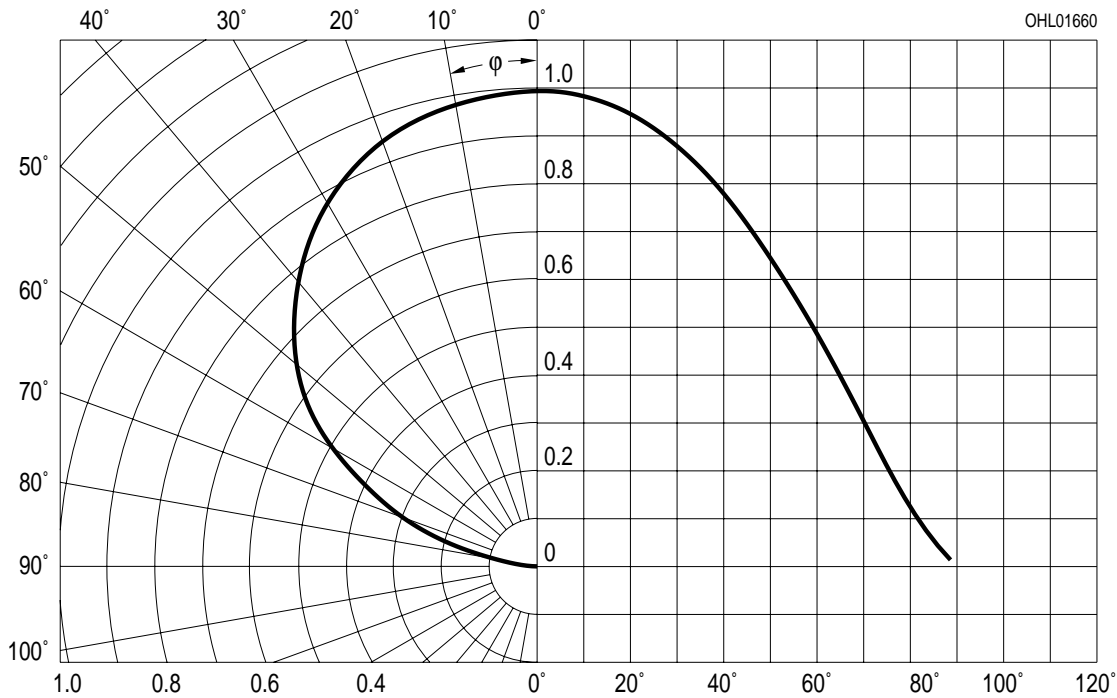
$V(\lambda)$ = spektrale Augenempfindlichkeit

Standard eye response curve



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

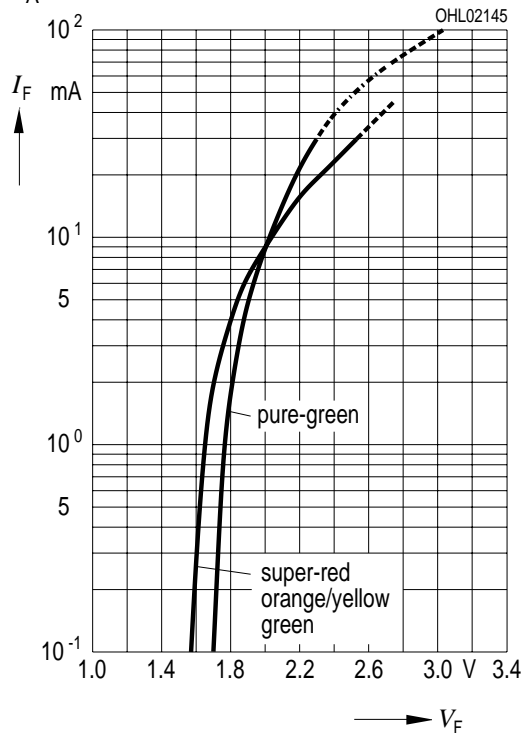
Radiation Characteristic



Durchlassstrom $I_F = f(V_F)$

Forward Current

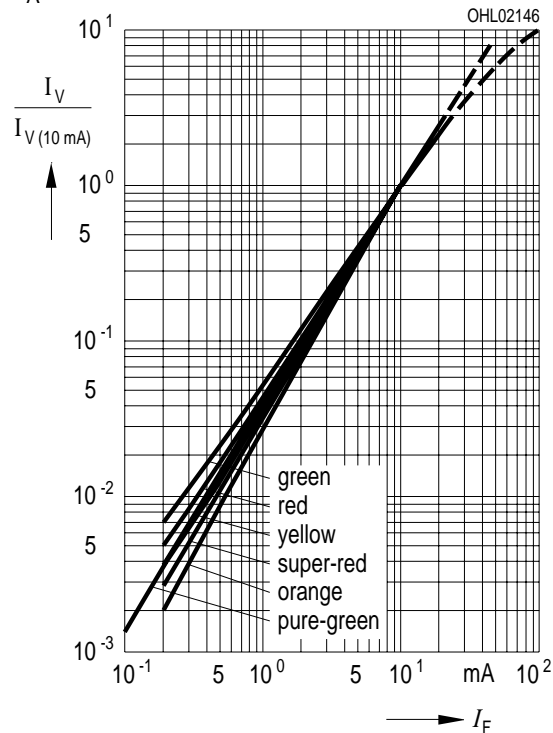
$T_A = 25\text{ °C}$



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

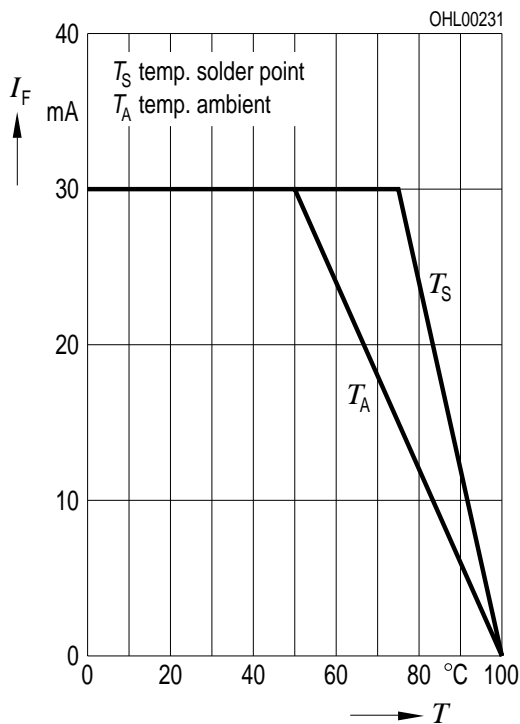
Relative Luminous Intensity

$T_A = 25\text{ °C}$



Maximal zulässiger Durchlassstrom $I_F = f(T)$

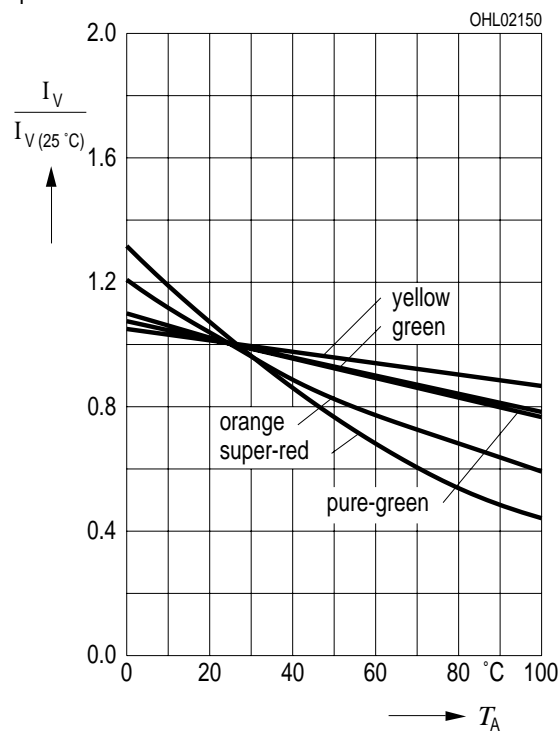
Max. Permissible Forward Current



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

Relative Luminous Intensity

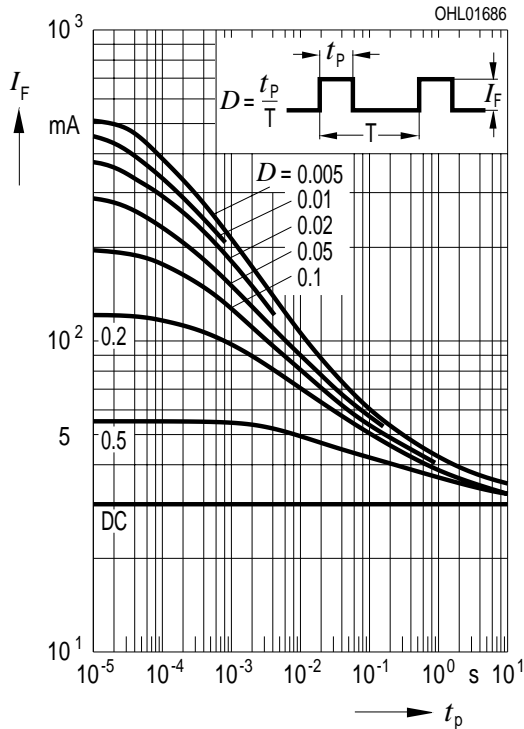
$I_F = 10\text{ mA}$



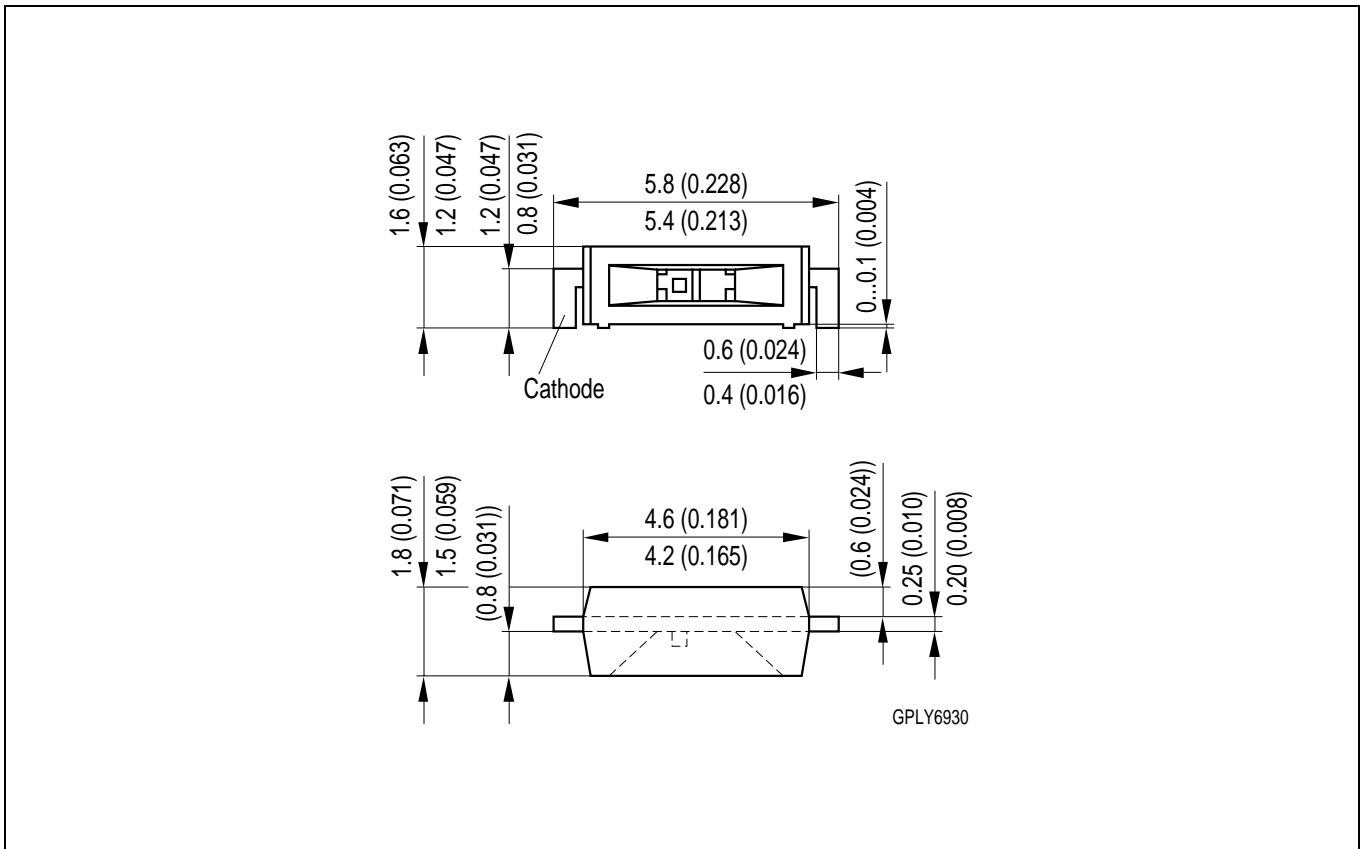
Zulässige Impulsbelastbarkeit $I_F = f(t_p)$

Permissible Pulse Handling Capability

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



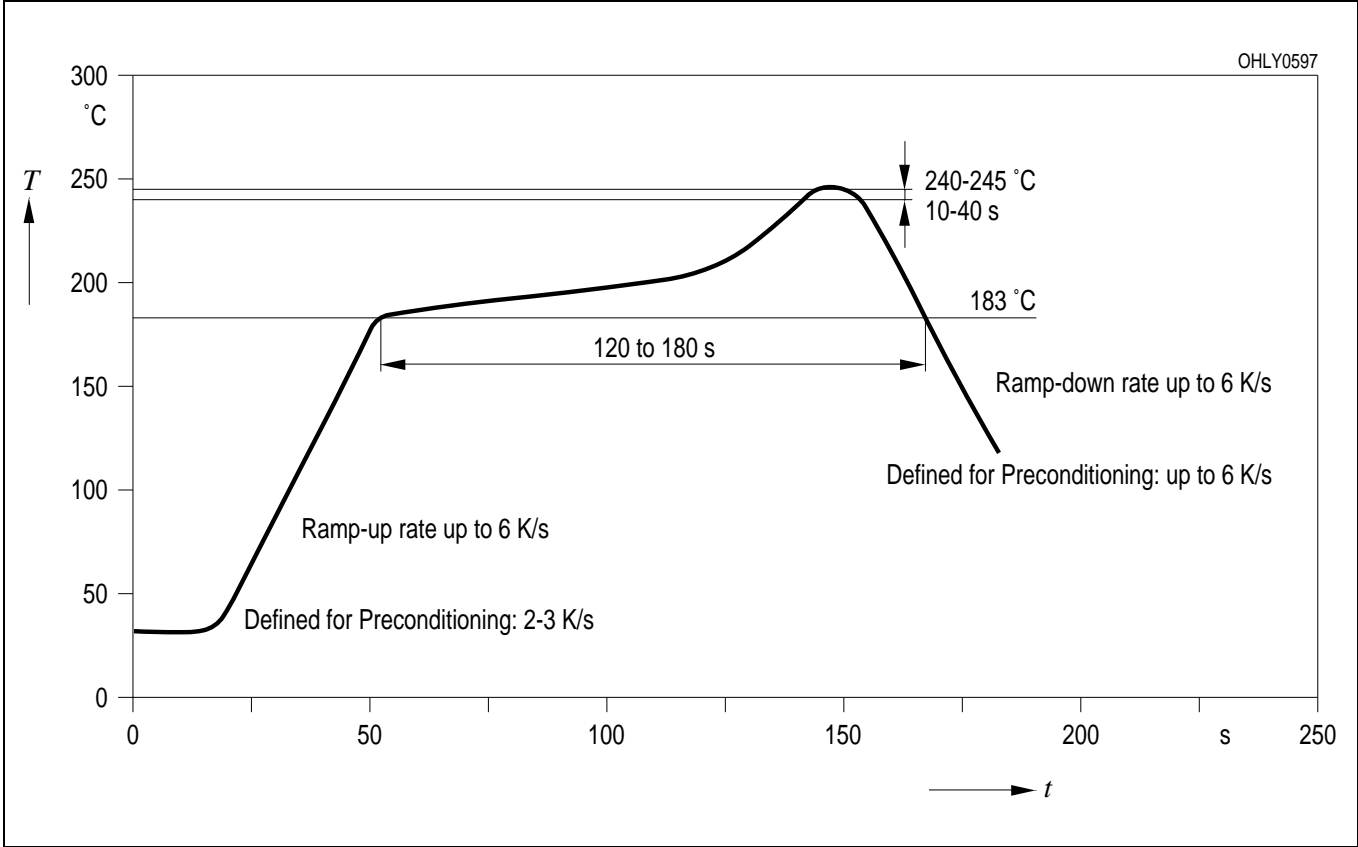
Maßzeichnung
Package Outlines



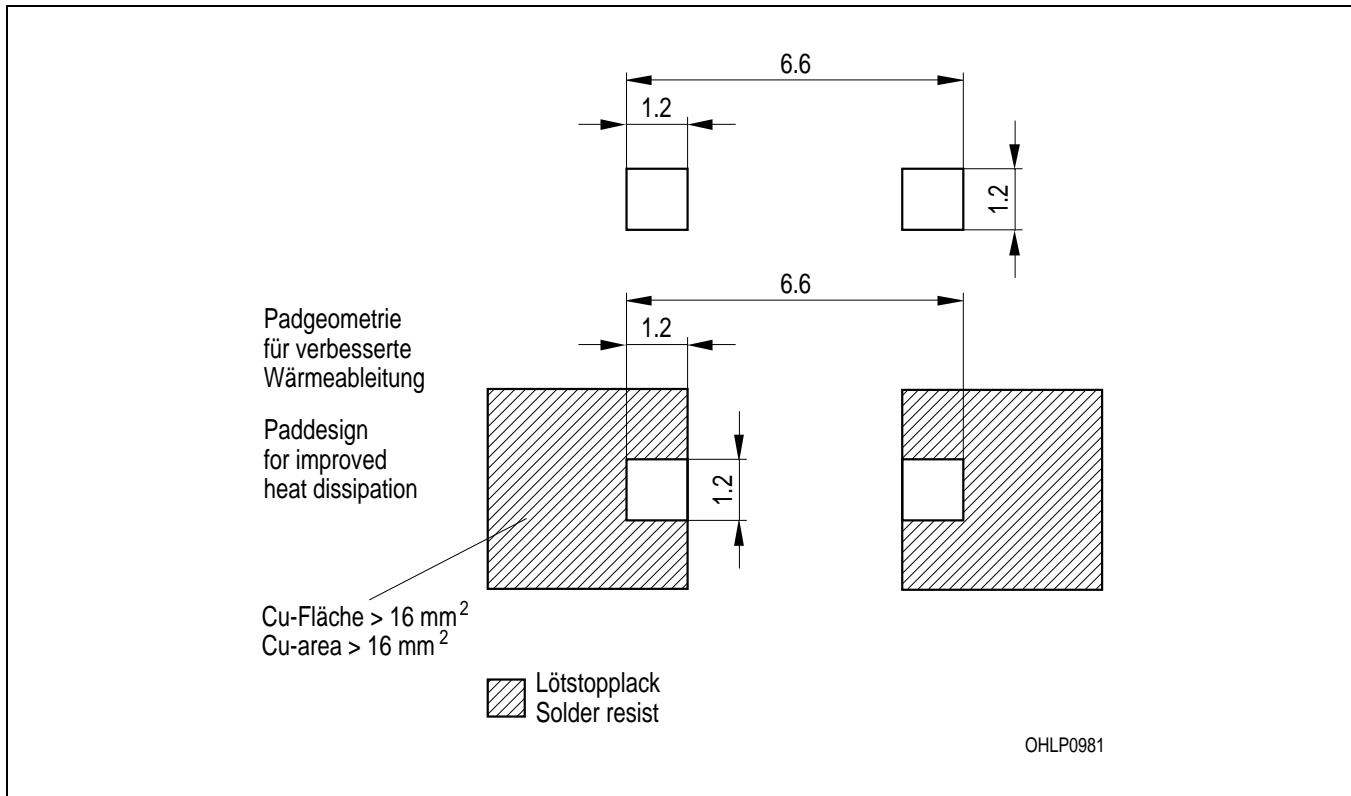
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

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 Lötpaddingesign IR Reflow Lötén
Recommended Solder Pad IR Reflow Soldering



Gurtung / Polarität und Lage Verpackungseinheit 2500/Rolle, ø180 mm oder 10000/Rolle, ø330 mm
Method of Taping / Polarity and Orientation Packing unit 2500/reel, ø180 mm or 10000/reel, ø330 mm

