

Array LED
2 mm LED, Diffused

LR Z18x, LY Z181, LG Z18x



Nicht für Neuentwicklungen / Not for New Designs

Besondere Merkmale

- eingefärbtes, diffuses Gehäuse
- als optischer Indikator einsetzbar
- als Mehrfachzeile verfügbar
- Störimpulsfest nach DIN 40839

Features

- colored, diffused package
- for use as optical indicator
- available as multiple array (LED)
- load dump resistant acc. to DIN 40839

Typ Type	Anzahl der Lichtpunkte Number of Dots	Emissions- farbe Color of Emission	Gehäusefarbe Color of Package	Lichtstärke Luminous Intensity $I_F = 10 \text{ mA}$ $I_V \text{ (mcd)}$	Bestellnummer Ordering Code
LR Z181-CO	1	red	red diffused	≥ 0.25	Q62703-Q1495
LR Z182-CO	2	red	red diffused	≥ 0.25	Q62703-Q1496
LR Z183-CO	3	red	red diffused	≥ 0.25	Q62703-Q1497
LR Z184-CO	4	red	red diffused	≥ 0.25	Q62703-Q1498
LR Z185-CO	5	red	red diffused	≥ 0.25	Q62703-Q1499
LR Z186-CO	6	red	red diffused	≥ 0.25	Q62703-Q1500
LR Z187-CO	7	red	red diffused	≥ 0.25	Q62703-Q1501
LR Z188-CO	8	red	red diffused	≥ 0.25	Q62703-Q1502
LY Z181-CO	1	yellow	yellow diffused	≥ 0.25	Q62703-Q1505
LG Z181-CO	1	green	green diffused	≥ 0.25	Q62703-Q1506
LG Z182-CO	2	green	green diffused	≥ 0.25	Q62703-Q1507
LG Z183-CO	3	green	green diffused	≥ 0.25	Q62703-Q1508
LG Z184-CO	4	green	green diffused	≥ 0.25	Q62703-Q1509
LG Z185-CO	5	green	green diffused	≥ 0.25	Q62703-Q1510
LG Z186-CO	6	green	green diffused	≥ 0.25	Q62703-Q1511
LG Z188-CO	8	green	green diffused	≥ 0.25	Q62703-Q1513

Streuung der Lichtstärke in einer Verpackungseinheit $I_{V \max} / I_{V \min} \leq 2.0$.

Luminous intensity ratio in one packaging unit $I_{V \max} / I_{V \min} \leq 2.0$.

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 untere bzw. eine obere Familiengruppe oder mindestens zwei Einzelgruppen.

In einer Verpackungseinheit / Gurt ist immer nur eine Helligkeitsgruppe enthalten.

Die technologiebedingte Helligkeits-Streuung der heutigen LED-Herstellprozesse über einen längeren Fertigungszeitraum (Halbleitermaterial - Chipherstellung - Montageprozess) erlaubt keine Zusage einer einzelnen Helligkeitsgruppe. Daher müssen mindestens zwei Helligkeitsgruppen vorgesehen werden!

Note: The standard shipping format for serial types includes a lower or upper family group or at least two individual groups.

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

Luminosity variations caused by the technology used in current LED manufacturing processes over a protracted manufacturing period (semiconductor material - chip fabrication - assembly process) mean that it is not possible to assign LEDs to a single luminous intensity group. For this reason at least two luminous intensity groups must be provided!

Grenzwerte
Maximum Ratings

Bezeichnung Parameter	Symbol Symbol	Wert Value		Einheit Unit
		LY, LG	LR	
Betriebstemperatur Operating temperature range	T_{op}	– 40 ... + 100		°C
Lagertemperatur Storage temperature range	T_{stg}	– 40 ... + 80		°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
Verlustleistung Power consumption $T_A \leq 25 \text{ °C}$	P_{tot}	95	65	mW
Wärmewiderstand Thermal resistance Sperrschicht/Umgebung Junction/ambient 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 $\geq 16 \text{ mm}^2$)	$R_{th JA}$ $R_{th JS}$	750 350		K/W K/W

Kennwerte ($T_A = 25\text{ °C}$)

Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value			Einheit Unit
		LR	LY	LG	
Wellenlänge des emittierten Lichtes (typ.) Wavelength at peak emission $I_F = 10\text{ mA}$	λ_{peak}	660	586	572	nm
Dominantwellenlänge ¹⁾ (typ.) Dominant wavelength $I_F = 10\text{ mA}$	λ_{dom}	645	590	570	nm
Spektrale Bandbreite bei 50% von $I_{\text{rel max}}$ (typ.) Spectral bandwidth at 50% of $I_{\text{rel max}}$ $I_F = 10\text{ mA}$	$\Delta\lambda$	35	45	25	nm
Abstrahlwinkel bei 50 % I_V (Vollwinkel) (typ.) Viewing angle at 50 % I_V	2ϕ	100	100	100	Grad deg.
Durchlassspannung ²⁾ (typ.) Forward voltage (max.) $I_F = 10\text{ mA}$	V_F V_F	1.6 1.9	2.0 2.5	2.0 2.5	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
Kapazität (typ.) Capacitance $V_R = 0\text{ V}$, $f = 1\text{ MHz}$	C_0	25	10	15	pF
Schaltzeiten: Switching times: I_V from 10 % to 90 % (typ.) I_V from 90 % to 10 % (typ.) $I_F = 100\text{ mA}$, $t_p = 10\text{ }\mu\text{s}$, $R_L = 50\text{ }\Omega$	t_r t_f	120 50	300 150	450 200	ns ns
Temperaturkoeffizient von λ_{peak} (typ.) Temperature coefficient of λ_{peak} $I_F = 10\text{ mA}$; $-10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC_{\lambda_{\text{peak}}}$	0.03	0.10	0.11	nm/K
Temperaturkoeffizient von λ_{dom} (typ.) Temperature coefficient of λ_{dom} $I_F = 10\text{ mA}$; $-10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC_{\lambda_{\text{dom}}}$	0.06	0.07	0.07	nm/K

Kennwerte ($T_A = 25\text{ °C}$) (cont'd)

Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value			Einheit Unit
		LR	LY	LG	
Temperaturkoeffizient von V_F (typ.) Temperature coefficient of V_F $I_F = 10\text{ mA}$; $-10\text{ °C} \leq T \leq 100\text{ °C}$	TC_V	- 1.4	- 1.9	- 1.4	mV/K
Optischer Wirkungsgrad (typ.) Optical efficiency $I_F = 10\text{ mA}$	η_{opt}	0.4	1.5	2.5	lm/W

¹⁾ 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 $\pm 1\text{ nm}$.

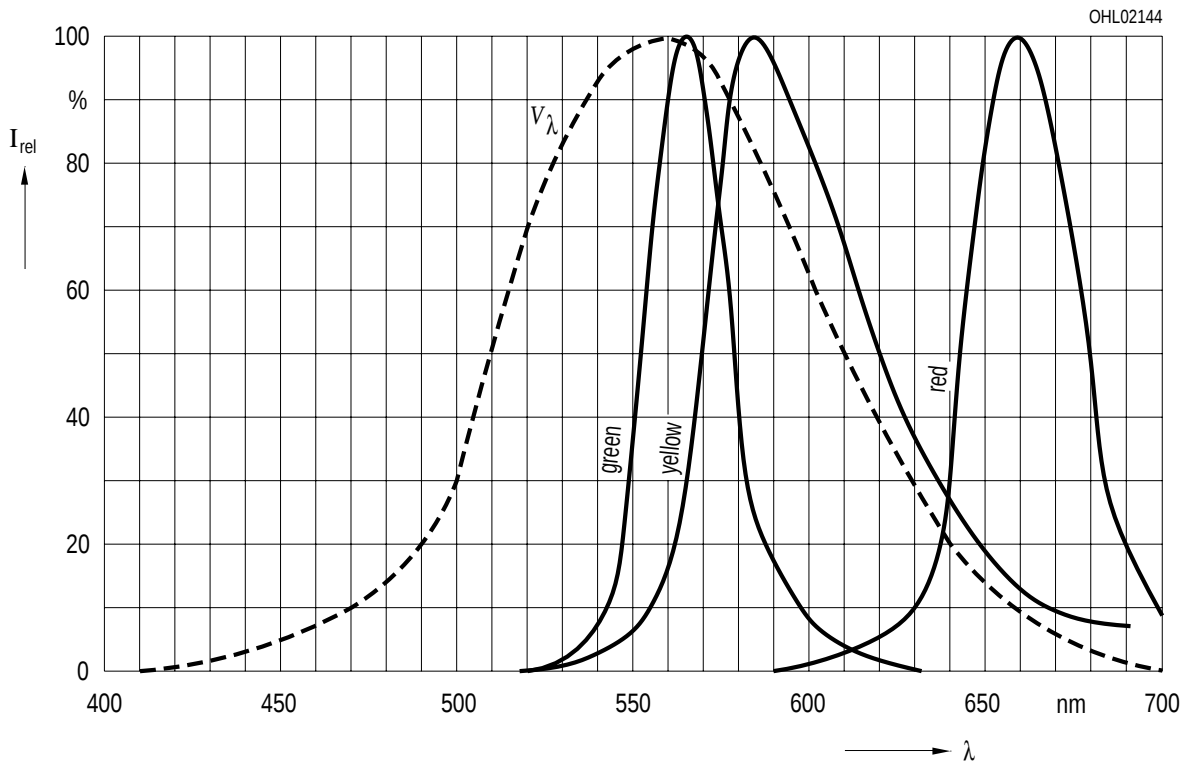
²⁾ Spannungswerte werden mit einer Stromeinprägedauer von 1 ms und einer Genauigkeit von $\pm 0,1\text{ V}$ ermittelt.
Voltages are tested at a current pulse duration of 1 ms and a tolerance of $\pm 0.1\text{ V}$.

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

Relative Spectral Emission

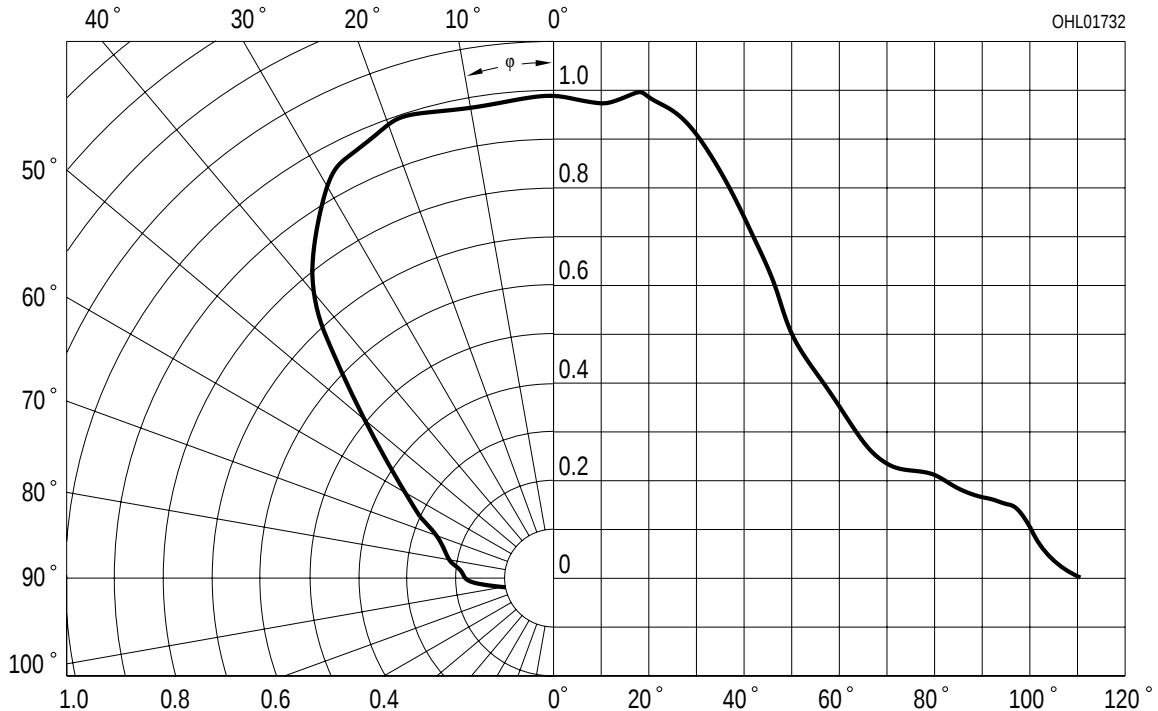
$V(\lambda)$ = spektrale Augenempfindlichkeit

Standard eye response curve



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

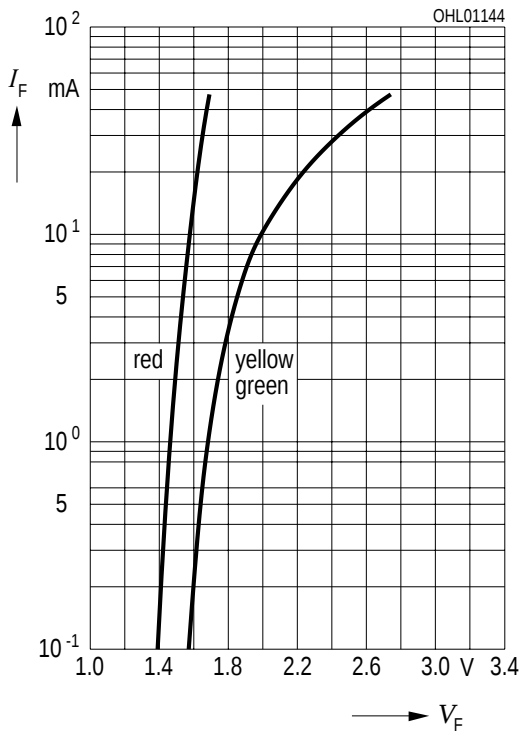
Radiation Characteristic



Durchlassstrom $I_F = f(V_F)$

Forward Current

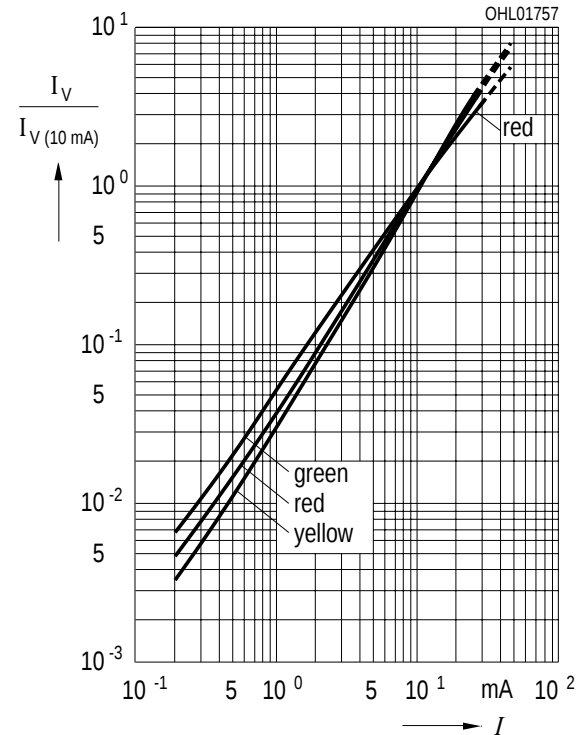
$T_A = 25^\circ\text{C}$



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

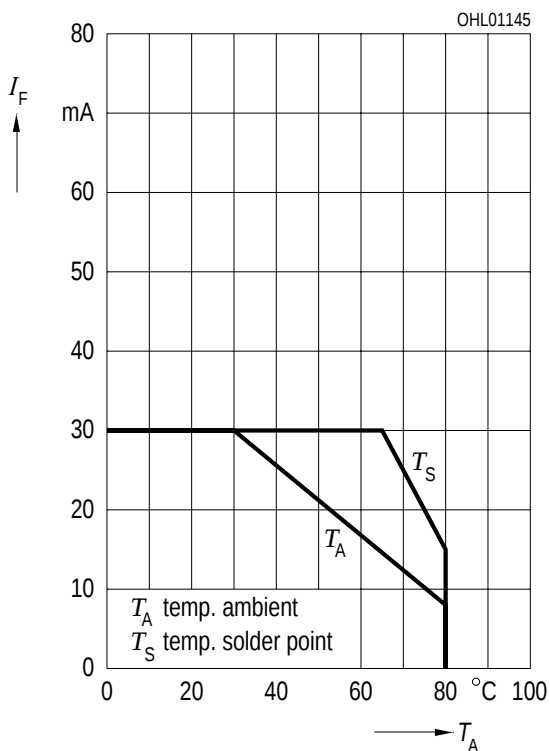
Relative Luminous Intensity

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



Maximal zulässiger Durchlassstrom $I_F = f(T)$

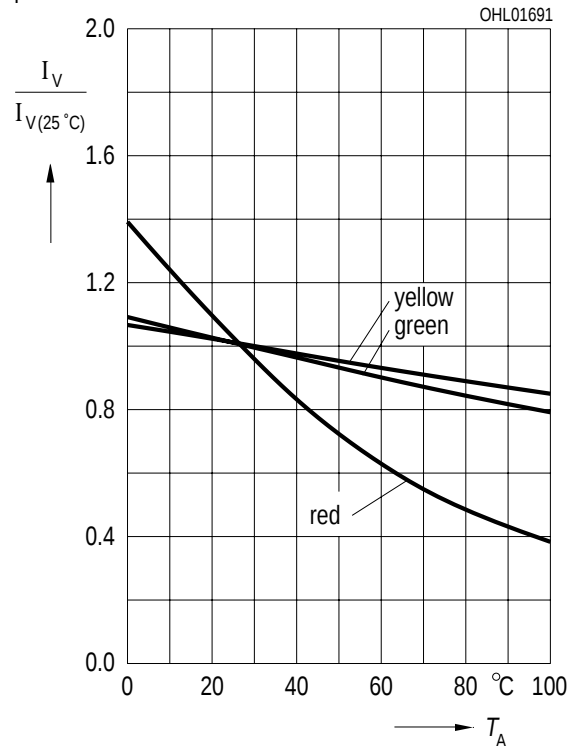
Max. Permissible Forward Current



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

Relative Luminous Intensity

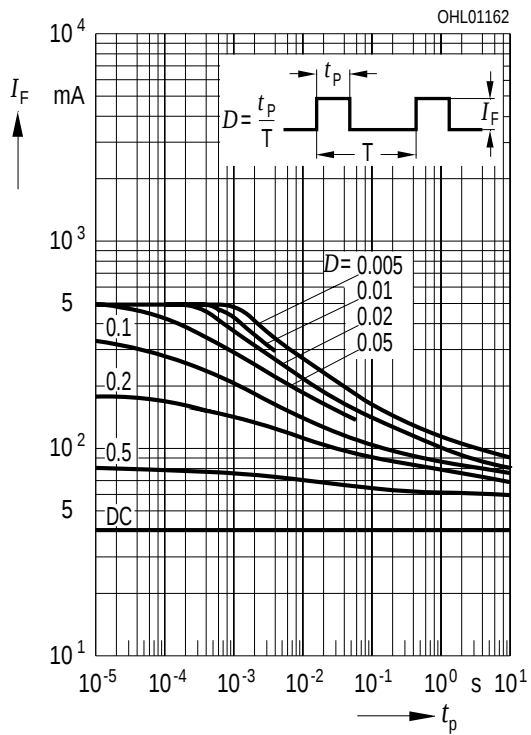
$I_F = 10\text{ mA}$



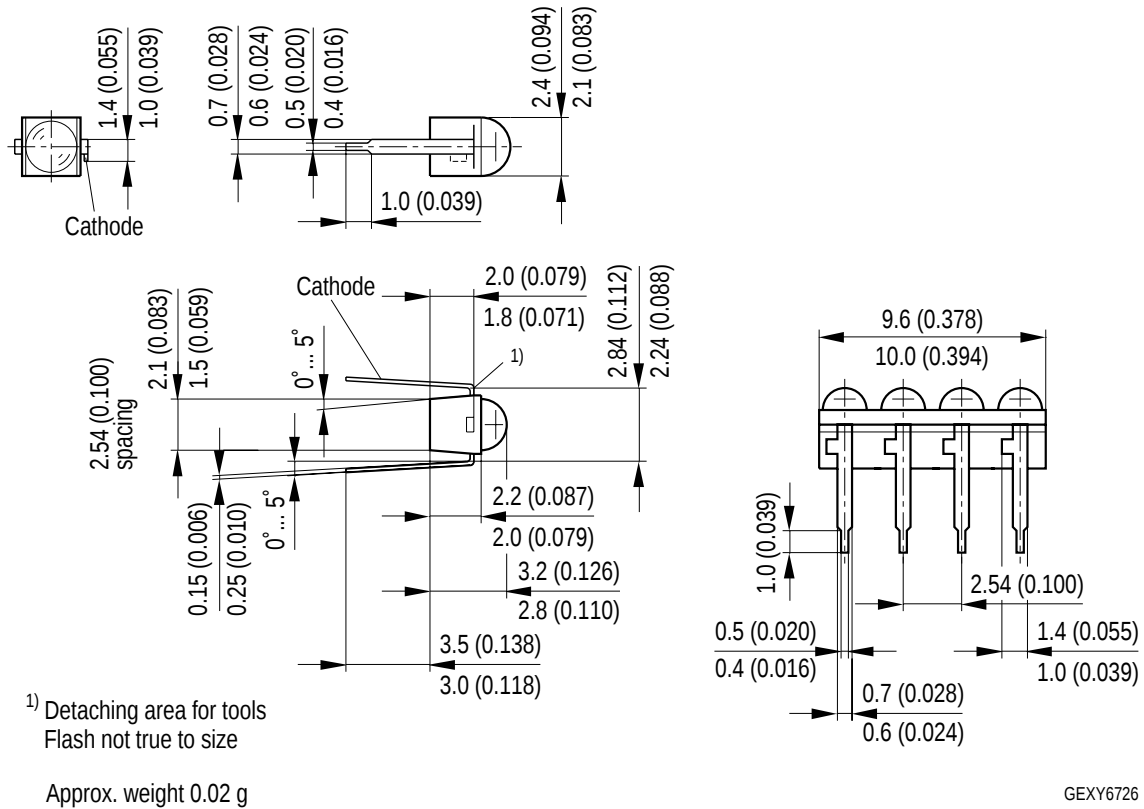
Zulässige Impulsbelastbarkeit $I_F = f(t_p)$

Permissible Pulse Handling Capability

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



Maßzeichnung Package Outlines

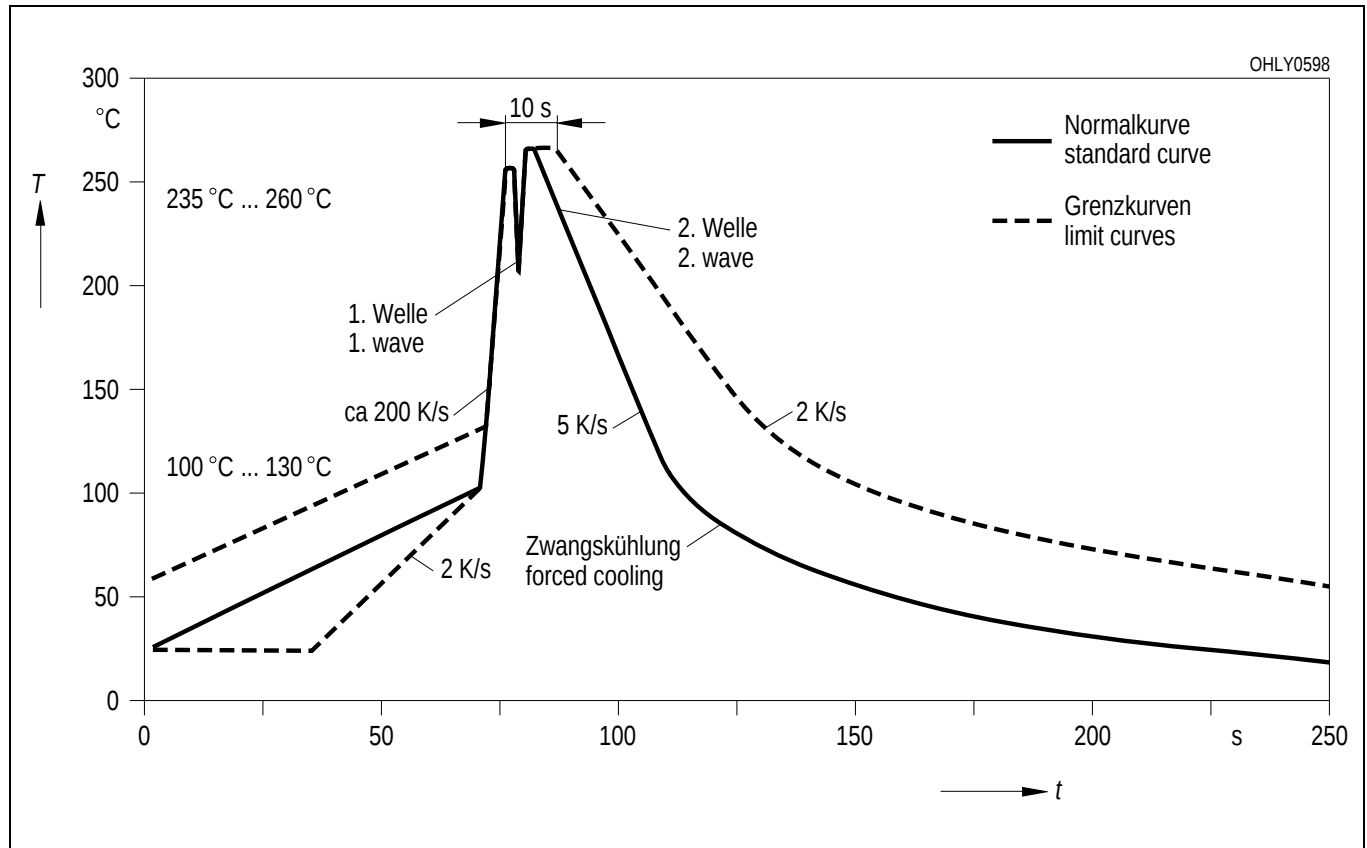


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

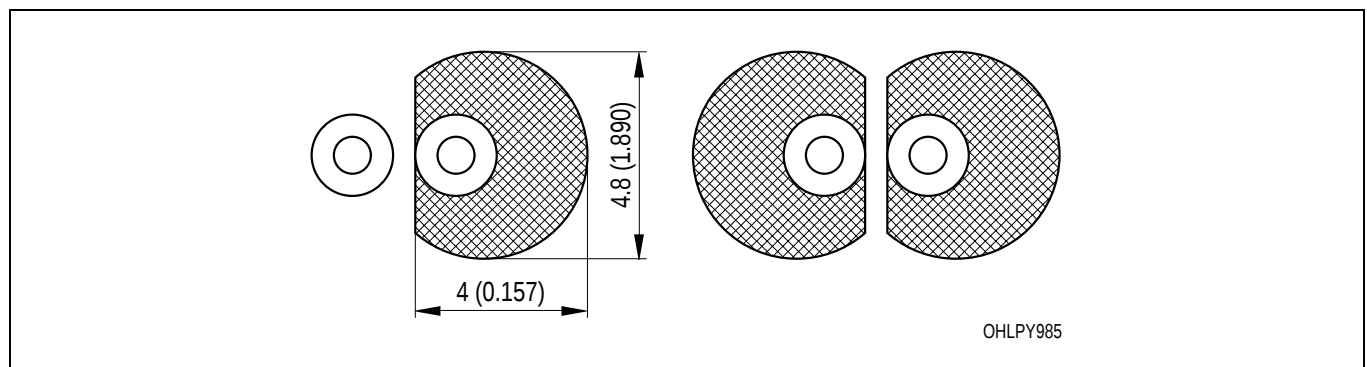
Kathodenkennzeichnung: Breiterer Lötspieß **Zeile mit 4 Dioden** (z. B. LR Z184)
Cathode mark: Broad solder lead **Row with 4 diodes** (e. g. LR Z184)

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

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



Empfohlenes Lötpad design Wellenlöten (TTW)
Recommended Solder Pad TTW Soldering



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

Revision History: 2001-03-14

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Page	Subjects (major changes since last revision)

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