

# IR-Lumineszenzdiode Infrared Emitter

- LD 271
- LD 271 H
- LD 271 L
- LD 271 LH



## Wesentliche Merkmale

- GaAs-LED in 5mm radial-Gehäuse
- Typische Peakwellenlänge 950nm
- Hohe Zuverlässigkeit
- Mit verschiedenen Beinchenlängen lieferbar
- Variante mit "stand-off" lieferbar
- TTW Löten geeignet

## Anwendungen

- IR-Fernsteuerung von Fernseh- und Rundfunkgeräten, Videorecordern, Lichtdimmern
- Gerätefernsteuerungen für Gleich- und Wechsellichtbetrieb
- Sensorik
- Diskrete Lichtschranken

## Features

- GaAs-LED in 5mm radial package (T 1<sup>3/4</sup>)
- Typical peak wavelength 950nm
- High reliability
- Available with two different lead lengths
- Version with stand-off available
- Suitable for TTW soldering

## Applications

- IR remote control of hi-fi and TV-sets, video tape recorders, dimmers
- Remote control for steady and varying intensity
- Sensor technology
- Discrete interrupters

Typ Type	Bestellnummer Ordering Code	Strahlstärkegruppierung <sup>1)</sup> ( $I_F = 100\text{mA}$ , $t_p = 20\text{ ms}$ ) Radiant intensity grouping <sup>1)</sup> $I_e$ (mW/sr)
LD 271	Q62703-Q148	15 (>10)
LD 271 L	Q62703-Q833	
LD 271 H	Q62703-Q256	>16
LD 271 LH	Q62703-Q838	

<sup>1)</sup> gemessen bei einem Raumwinkel  $\Omega = 0.01\text{ sr}$   
measured at a solid angle of  $\Omega = 0.01\text{ sr}$

**Grenzwerte**  
**Maximum Ratings**

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Betriebs- und Lagertemperatur Operating and storage temperature range	$T_{op}; T_{stg}$	- 40 ... + 100	°C
Sperrspannung Reverse voltage	$V_R$	5	V
Durchlaßstrom Forward current	$I_F$	130	mA
Stoßstrom, $t_p = 10 \mu s$ , $D = 0$ Surge current	$I_{FSM}$	3.5	A
Verlustleistung Power dissipation	$P_{tot}$	220	mW
Wärmewiderstand Thermal resistance	$R_{thJA}$	330	K/W

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

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der Strahlung Wavelength at peak emission $I_F = 100 \text{ mA}$ , $t_p = 20 \text{ ms}$	$\lambda_{peak}$	950	nm
Spektrale Bandbreite bei 50% von $I_{max}$ Spectral bandwidth at 50% of $I_{max}$ $I_F = 100 \text{ mA}$	$\Delta\lambda$	55	nm
Abstrahlwinkel Half angle	$\varphi$	$\pm 25$	Grad deg.
Aktive Chipfläche Active chip area	$A$	0.25	mm <sup>2</sup>
Abmessungen der aktiven Chipfläche Dimensions of the active chip area	$L \times B$ $L \times W$	$0.5 \times 0.5$	mm
Abstand Chipoberfläche bis Linsenscheitel Distance chip front to lens top	$H$	4.0 ... 4.6	mm
Schaltzeiten, $I_e$ von 10% auf 90% und von 90% auf 10%, bei $I_F = 100 \text{ mA}$ , $R_L = 50 \Omega$ Switching times, $I_e$ from 10% to 90% and from 90% to 10%, $I_F = 100 \text{ mA}$ , $R_L = 50 \Omega$	$t_r, t_f$	1	$\mu s$

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

**Characteristics** (cont'd)

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Kapazität, $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$ Capacitance	$C_o$	40	pF
Durchlaßspannung Forward voltage $I_F = 100\text{ mA}$ , $t_p = 20\text{ ms}$ $I_F = 1\text{ A}$ , $t_p = 100\text{ }\mu\text{s}$	$V_F$ $V_F$	1.30 ( $\leq 1.5$ ) 1.90 ( $\leq 2.5$ )	V V
Sperrstrom, $V_R = 5\text{ V}$ Reverse current	$I_R$	0.01 ( $\leq 1$ )	$\mu\text{A}$
Gesamtstrahlungsfluß Total radiant flux $I_F = 100\text{ mA}$ , $t_p = 20\text{ ms}$	$\Phi_e$	18	mW
Temperaturkoeffizient von $I_e$ bzw. $\Phi_e$ , $I_F = 100\text{ mA}$ Temperature coefficient of $I_e$ or $\Phi_e$ , $I_F = 100\text{ mA}$	$TC_I$	- 0.55	%/K
Temperaturkoeffizient von $V_F$ , $I_F = 100\text{ mA}$ Temperature coefficient of $V_F$ , $I_F = 100\text{ mA}$	$TC_V$	- 1.5	mV/K
Temperaturkoeffizient von $\lambda$ , $I_F = 100\text{ mA}$ Temperature coefficient of $\lambda$ , $I_F = 100\text{ mA}$	$TC_\lambda$	0.3	nm/K

**Gruppierung der Strahlstärke  $I_e$  in Achsrichtung**

gemessen bei einem Raumwinkel  $\Omega = 0.01\text{ sr}$

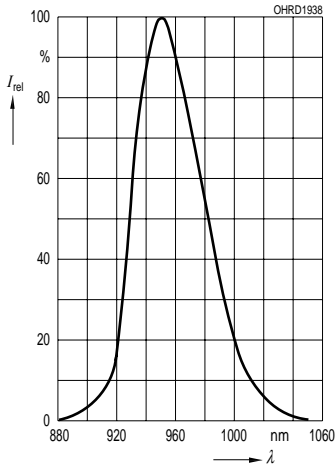
**Grouping of Radiant Intensity  $I_e$  in Axial Direction**

at a solid angle of  $\Omega = 0.01\text{ sr}$

Bezeichnung Parameter	Symbol Symbol	Wert Value		Einheit Unit
		LD 271 LD 271 L	LD 271 H LD 271 LH	
Strahlstärke Radiant intensity $I_F = 100\text{ mA}$ , $t_p = 20\text{ ms}$ $I_F = 1\text{ A}$ , $t_p = 100\text{ }\mu\text{s}$	$I_e$ $I_{e\text{ typ.}}$	15 (> 10) 120	> 16	mW/sr mW/sr

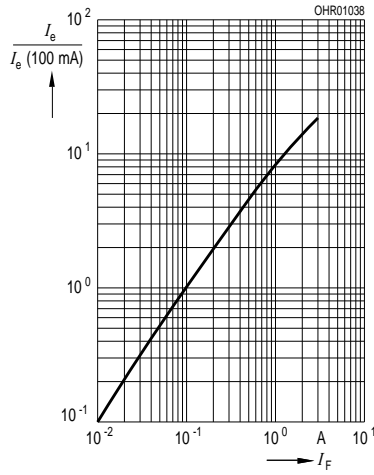
**Relative Spectral emission**

$I_{rel} = f(\lambda)$



**Radiant Intensity**  $\frac{I_e}{I_e 100 \text{ mA}} = f(I_F)$

Single pulse,  $t_p = 20 \mu\text{s}$



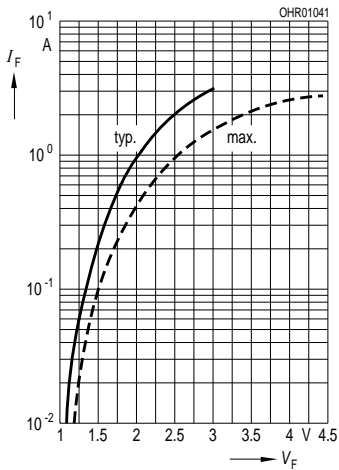
**Max. Permissible Forward Current**

$I_F = f(T_A)$



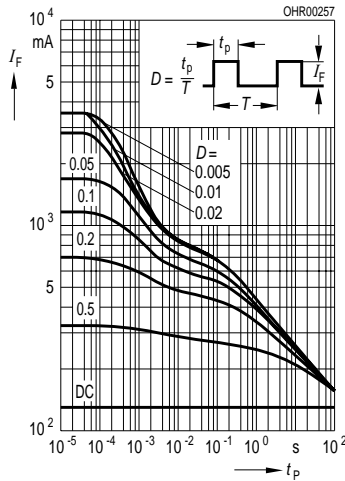
**Forward Current**

$I_F = f(V_F)$ , single pulse,  $t_p = 20 \mu\text{s}$

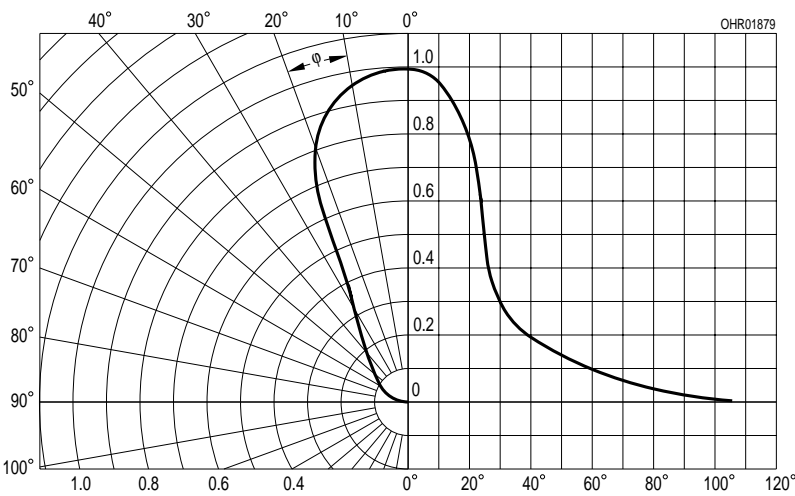


**Permissible Pulse Handling Capability**

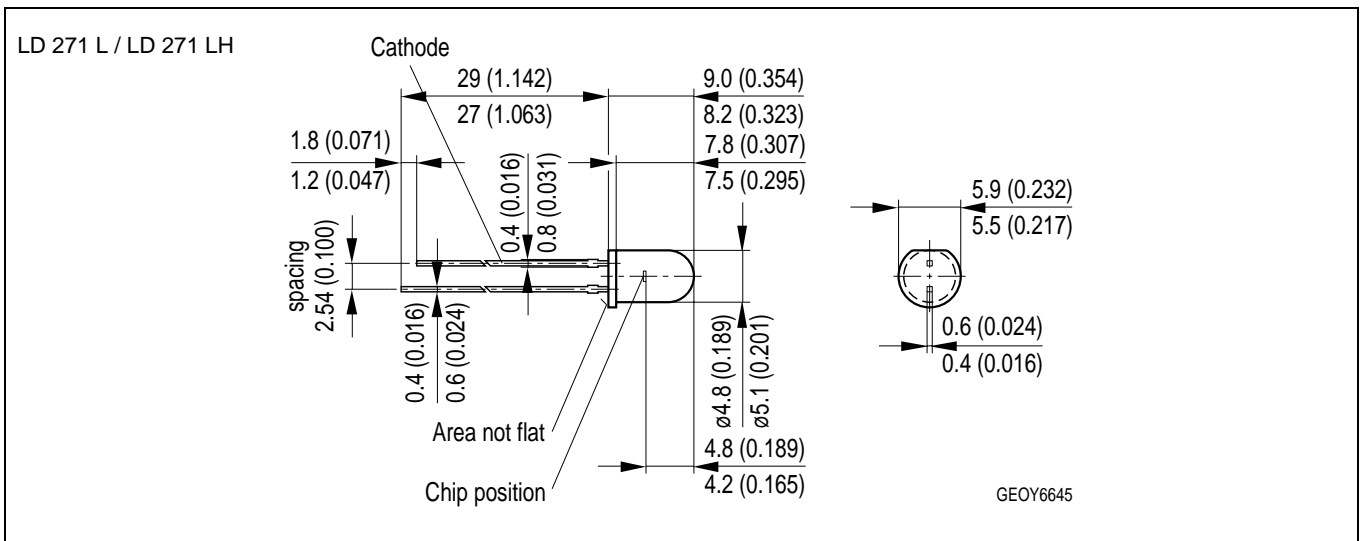
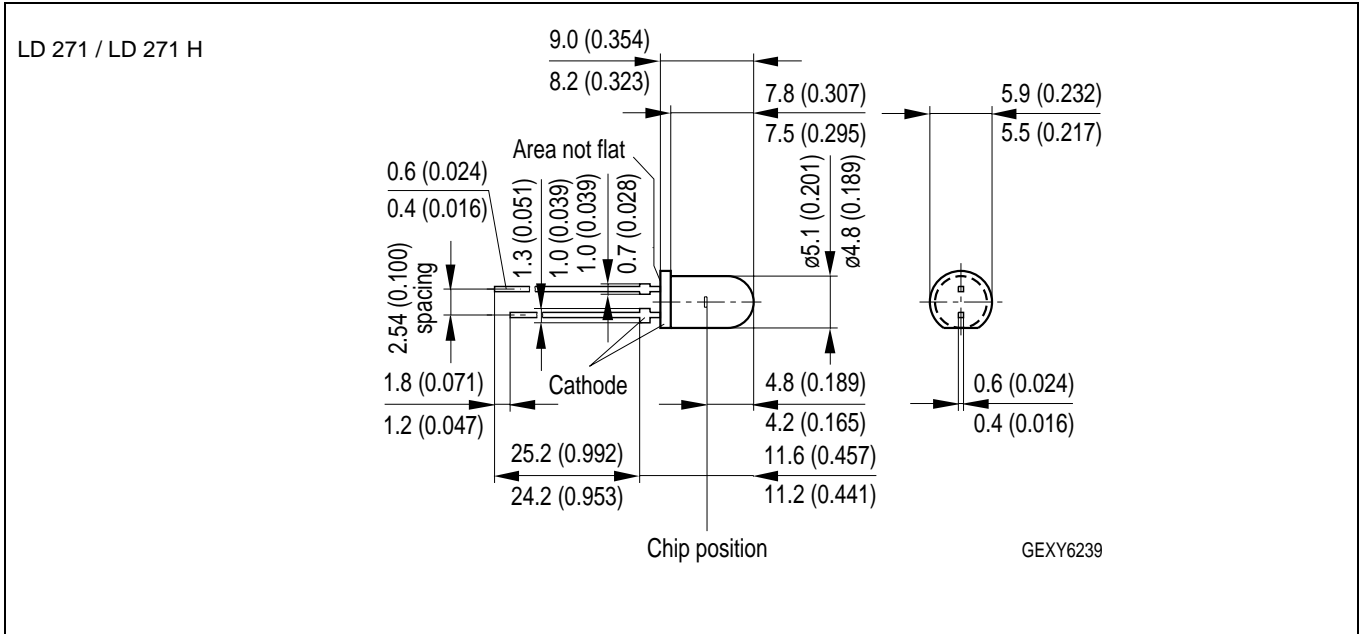
$I_F = f(\tau)$ ,  $T_C = 25 \text{ }^\circ\text{C}$ , duty cycle  $D = \text{parameter}$



**Radiation Characteristics**  $I_{rel} = f(\varphi)$



Maßzeichnung  
Package Outlines



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

Gehäusefarbe: grau

Brechungsindex Verguss: 1.53

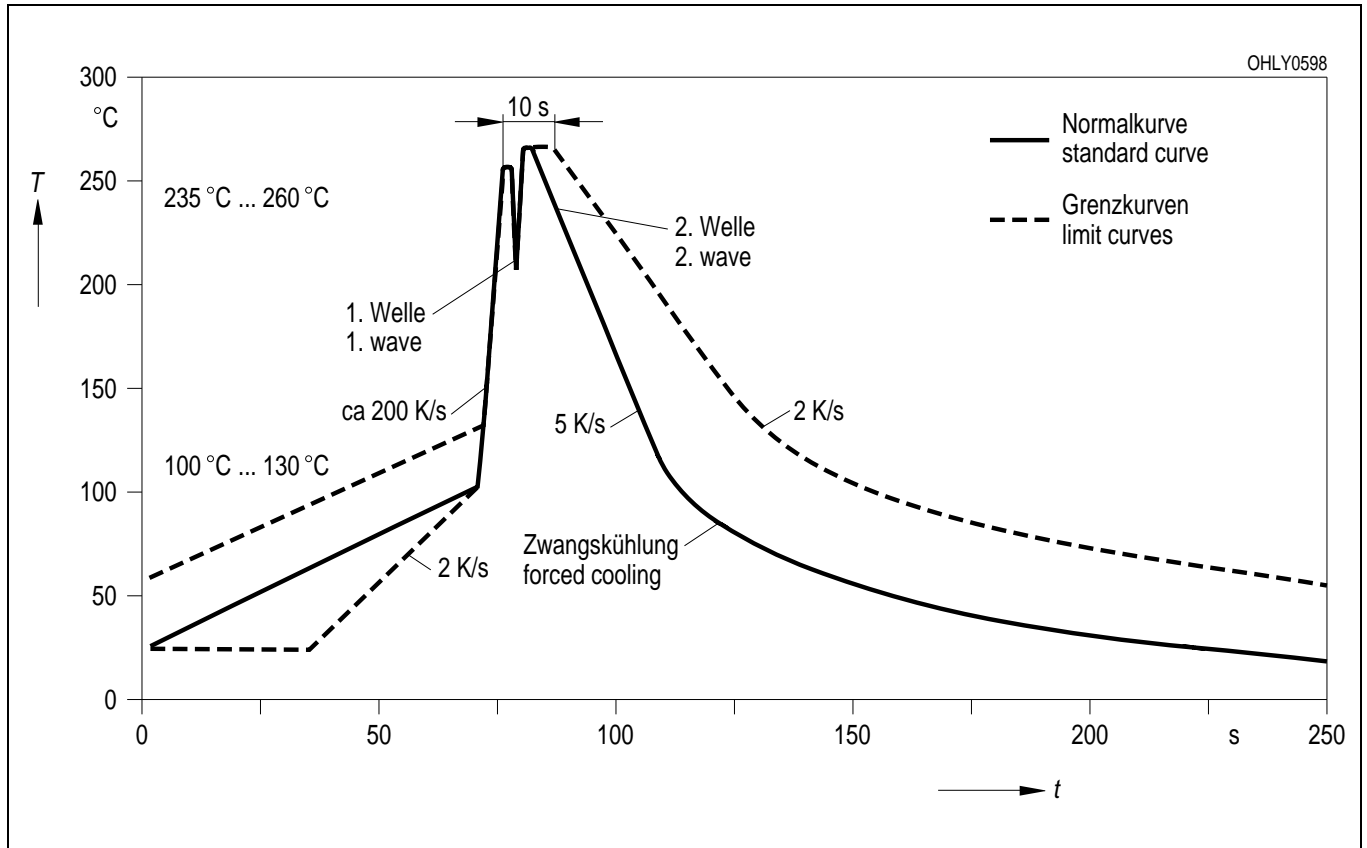
Package Colour: grey

Refractive index resin: 1.53

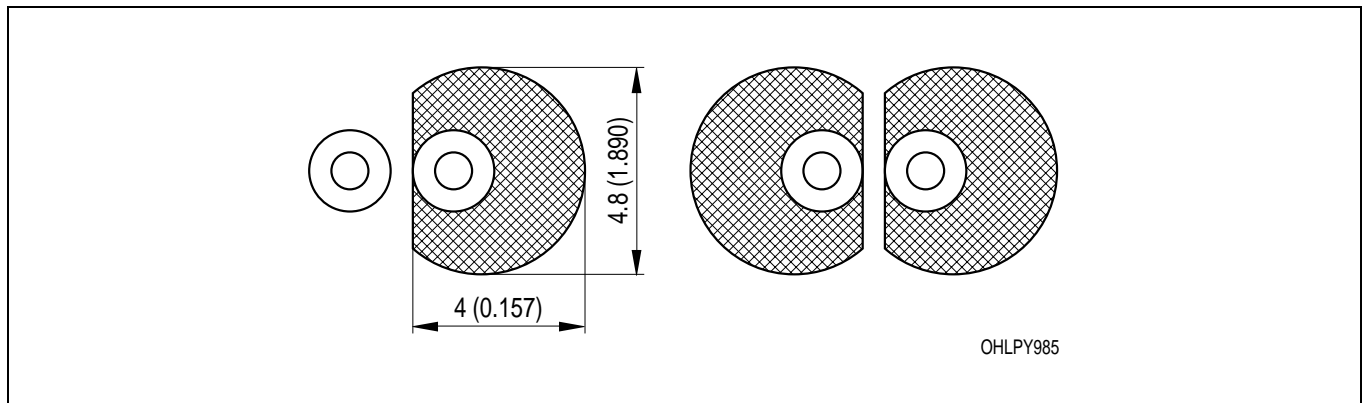
**Lötbedingungen**  
**Soldering Conditions**

**Wellenlöt (TTW)**  
**TTW Soldering**

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



**Empfohlenes Lötpad design** Wellenlöt (TTW)  
**Recommended Solder Pad** TTW Soldering



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

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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 sample base, but don't represent the production range. If required, e.g. because of technical improvements, the typ. data will be changed without any further notice.

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<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 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.