

IR-Lumineszenzdiode

Infrared Emitter

Lead (Pb) Free Product - RoHS Compliant

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 ³/₄)
- 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 ¹⁾ ($I_F = 100\text{mA}$, $t_p = 20\text{ ms}$) Radiant intensity grouping ¹⁾ I_e (mW/sr)
LD 271	Q62703Q0148	15 (>10)
LD 271 L	Q62703Q0833	
LD 271 H	Q62703Q0256	>16
LD 271 LH	Q62703Q0838	

¹⁾ 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 $I_F = 100 \text{ mA}$, $t_p = 20 \text{ ms}$	λ_{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	φ	± 25	Grad deg.
Aktive Chipfläche Active chip area	A	0.25	mm ²
Abmessungen der aktiven Chipfläche Dimensions of the active chip area	$L \times B$ $L \times W$	0.5×0.5	mm ²
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	μs

Kennwerte ($T_A = 25\text{ °C}$)

Characteristics (cont'd)

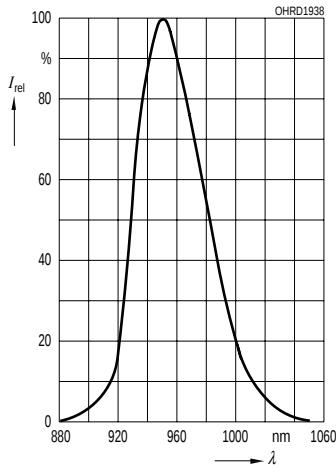
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Kapazität, $V_R = 0\text{ V}$, $f = 1\text{ MHz}$ Capacitance	C_0	40	pF
Durchlaßspannung Forward voltage $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$ $I_F = 1\text{ A}$, $t_p = 100\text{ }\mu\text{s}$	V_F V_F	1.30 (≤ 1.5) 1.90 (≤ 2.5)	V V
Sperrstrom, $V_R = 5\text{ V}$ Reverse current	I_R	0.01 (≤ 1)	μA
Gesamtstrahlungsfluß Total radiant flux $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	Φ_e	18	mW
Temperaturkoeffizient von I_e bzw. Φ_e , $I_F = 100\text{ mA}$ Temperature coefficient of I_e or Φ_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 λ , $I_F = 100\text{ mA}$ Temperature coefficient of λ , $I_F = 100\text{ mA}$	TC_λ	0.3	nm/K

Gruppierung der Strahlstärke I_e in Achsrichtunggemessen 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

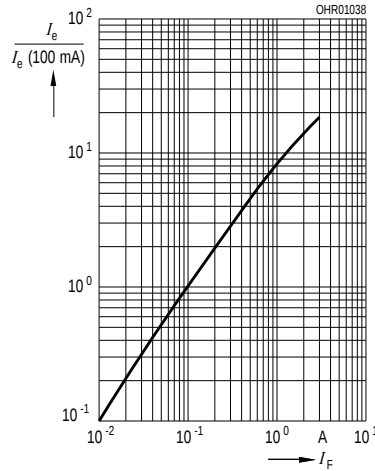
Relative Spectral emission

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



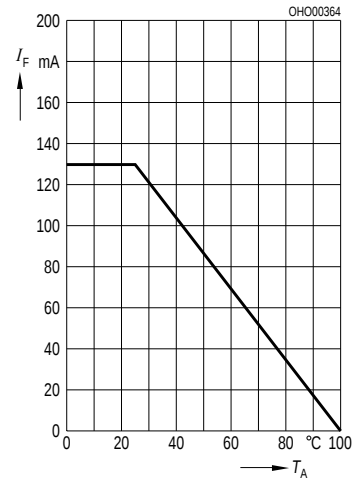
$$\text{Radiant Intensity } \frac{I_e}{I_e(100 \text{ mA})} = f(I_F)$$

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



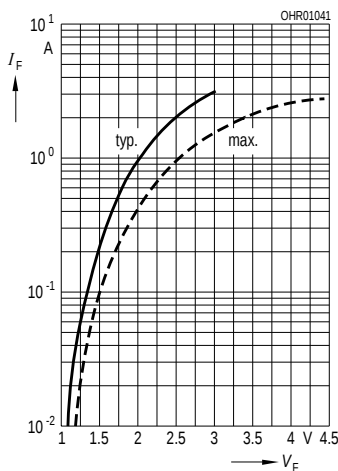
Max. Permissible Forward Current

$$I_F = f(T_A)$$



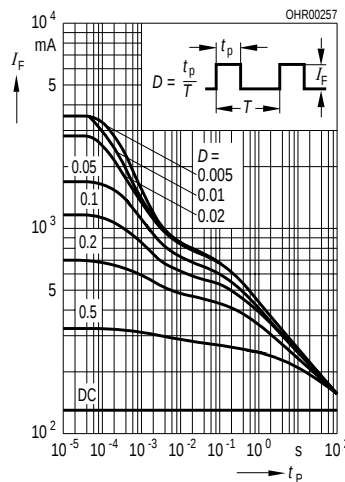
Forward Current

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



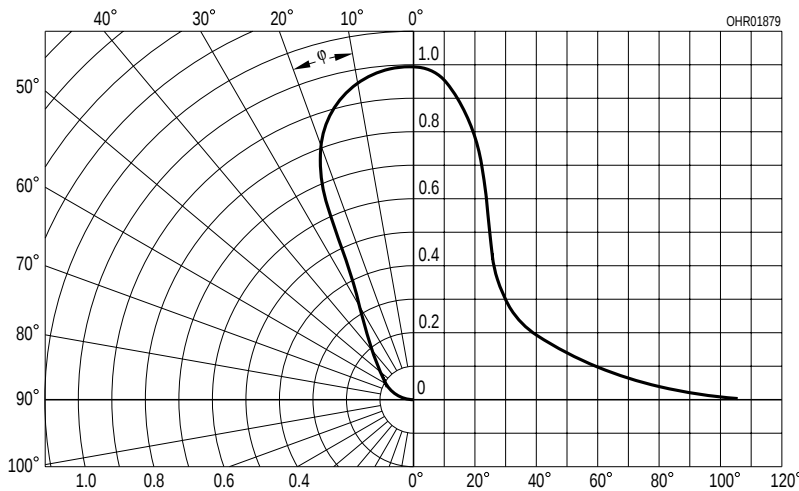
Permissible Pulse Handling

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



Radiation Characteristics

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



Technical drawing of a cathode assembly. The drawing includes a side view and a cross-sectional view. Key dimensions are provided in millimeters (mm) and inches (in).

Side View Dimensions:

- Overall width: 9.0 (0.354)
- Distance from left edge to center of cathode: 8.2 (0.323)
- Distance from center of cathode to right edge: 7.8 (0.307)
- Distance from left edge to center of cathode (alternative): 7.5 (0.295)
- Distance from center of cathode to right edge (alternative): 5.9 (0.232)
- Distance from center of cathode to right edge (alternative): 5.5 (0.217)
- Distance from left edge to center of cathode (alternative): 0.6 (0.024)
- Distance from left edge to center of cathode (alternative): 0.4 (0.016)
- Distance from left edge to center of cathode (alternative): 2.54 (0.100)
- Distance from left edge to center of cathode (alternative): 1.8 (0.071)
- Distance from left edge to center of cathode (alternative): 1.2 (0.047)
- Distance from left edge to center of cathode (alternative): 25.2 (0.992)
- Distance from left edge to center of cathode (alternative): 24.2 (0.953)
- Distance from center of cathode to right edge (alternative): 4.8 (0.189)
- Distance from center of cathode to right edge (alternative): 4.2 (0.165)
- Distance from center of cathode to right edge (alternative): 11.6 (0.457)
- Distance from center of cathode to right edge (alternative): 11.2 (0.441)

Cross-sectional View Dimensions:

- Overall width: 0.6 (0.024)
- Distance from left edge to center of cathode: 0.4 (0.016)

Other Labels:

- Area not flat
- Cathode
- Chip position

Technical drawing of a cathode assembly, showing side and end views with dimensions in mm and inches.

Side View Dimensions:

- Top horizontal dimensions: 29 (1.142), 27 (1.063), 9.0 (0.354), 8.2 (0.323), 7.8 (0.307), 7.5 (0.295)
- Left vertical dimensions: 1.8 (0.071), 1.2 (0.047), spacing, 2.54 (0.100)
- Internal vertical dimensions: 0.4 (0.016), 0.8 (0.031), 0.4 (0.016), 0.6 (0.024)
- Right vertical dimensions: 4.8 (0.189), 4.2 (0.165), 5.1 (0.201)
- Right circular features: $\varnothing 4.8$ (0.189), $\varnothing 5.1$ (0.201)
- Labels: Cathode, Area not flat, Chip position

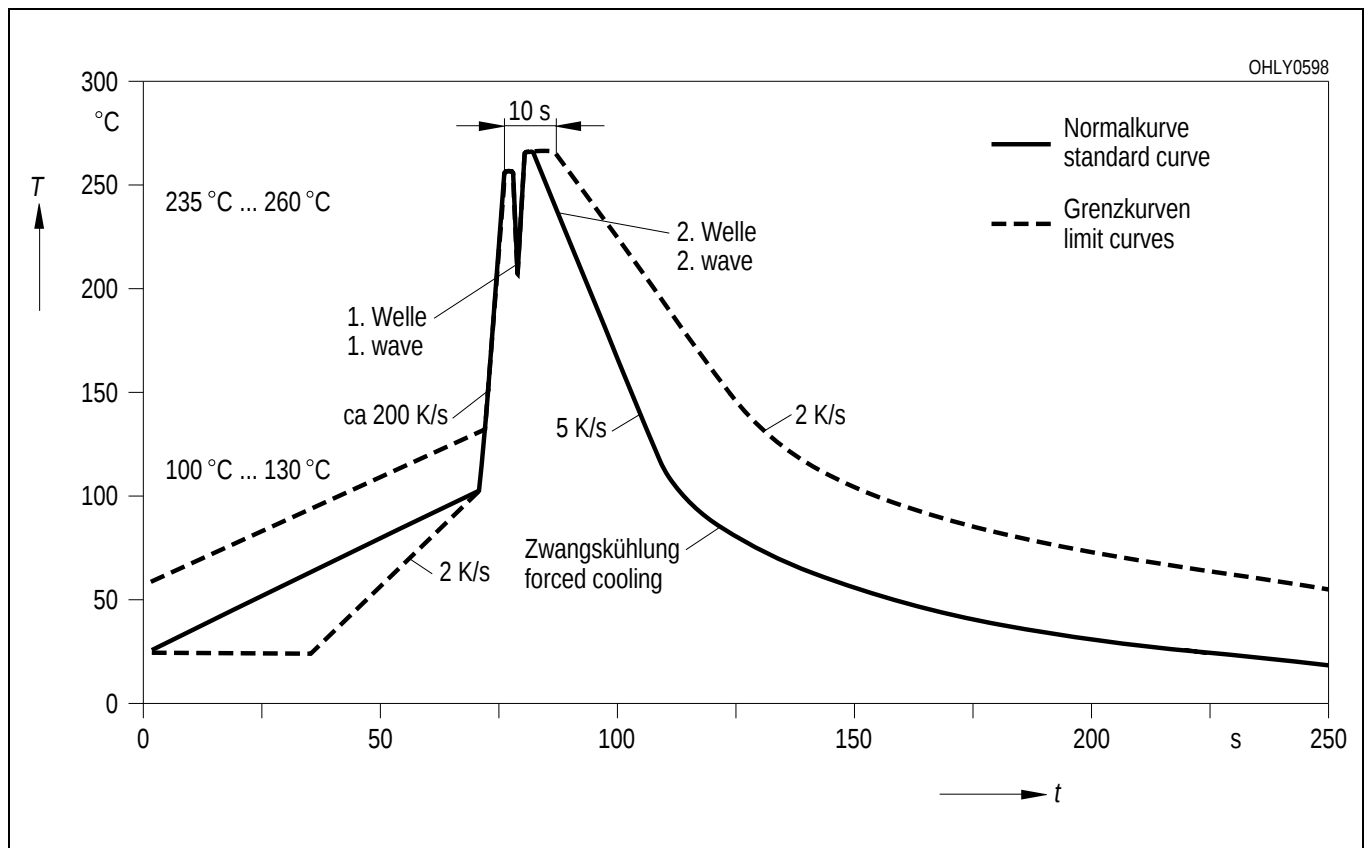
End View Dimensions:

- Top horizontal dimensions: 5.9 (0.232), 5.5 (0.217)
- Bottom horizontal dimensions: 0.6 (0.024), 0.4 (0.016)

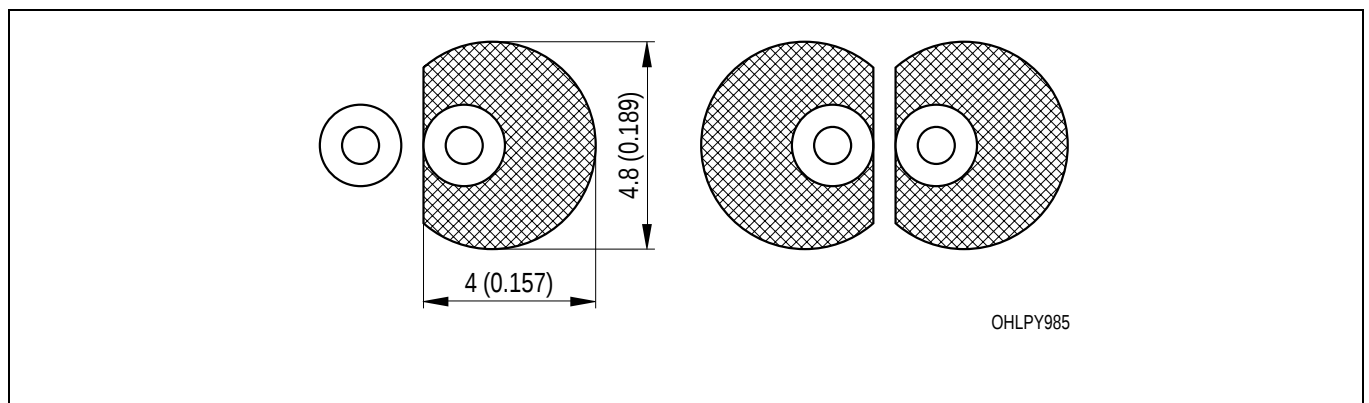
Lötbedingungen Soldering Conditions

Wellenlöten (TTW) TTW Soldering

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



Empfohlenes Lötpaddesign Wellenlöten (TTW) Recommended Solder Pad TTW Soldering



Maße in mm (inch) / Dimensions in mm (inch).

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