

Micro SIDELED

LG Y870



Vorläufige Daten / Preliminary Data

Besondere Merkmale

- **Gehäusetyp:** weißes SMT-Gehäuse
- **Besonderheit des Bauteils:** kleine Bauform mit extrem breiter Abstrahlcharakteristik; ideal für Hinterleuchtungen und Einkopplungen in Lichtleiter
- **Wellenlänge:** 570 nm
- **Abstrahlwinkel:** Lambertscher Strahler (120°)
- **Technologie:** GaP
- **optischer Wirkungsgrad:** 2 lm/W
- **Gruppierungsparameter:** Lichtstärke
- **Verarbeitungsmethode:** für alle SMT-Bestücktechniken geeignet
- **Lötmethode:** IR Reflow Löten und Wellenlöten (TTW)
- **Vorbehandlung:** nach JEDEC Level 2
- **Gurtung:** 8 mm Gurt mit 3000/Rolle, \varnothing 180 mm oder 10000/Rolle, \varnothing 330 mm

Anwendungen

- optimale Einkopplung in Lichtleiter
- Hinterleuchtung (LCD, Mobiltelefone, Tasten, Allgemeinbeleuchtung, Werbebeleuchtung)
- Signal- und Symbolleuchten
- Automobilbereich (z. B. Instrumentenbeleuchtung)

Features

- **package:** white SMT package
- **feature of the device:** small package with extremely wide viewing angle; ideal for backlighting and coupling in light guides
- **wavelength:** 570 nm
- **viewing angle:** Lambertian Emitter (120°)
- **technology:** GaP
- **optical efficiency:** 2 lm/W
- **grouping parameter:** luminous intensity
- **assembly methods:** suitable for all SMT assembly methods
- **soldering methods:** IR reflow soldering and TTW soldering
- **preconditioning:** acc. to JEDEC Level 2
- **taping:** 8 mm tape with 3000/reel, \varnothing 180 mm or 10000/reel, \varnothing 330 mm

Applications

- optimized coupling into light guides
- backlighting (LCD, cellular phones, keys, general lightning, illuminated advertising)
- signal and symbol luminaire
- automotive (e. g. car radio backlighting)

| 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 |
| LG Y870-J2K2-1 | green | colorless clear | 5.6 ... 11.2 | 25 (typ.) | Q62703-Q6189 |
| LG Y870-K2M1-1 | | | 9.0 ... 22.4 | 45 (typ.) | Q62703-Q6190 |

Anm.: -1 gesamter Farbbereich

Die Standardlieferform von Serientypen beinhaltet eine untere bzw. eine obere Familiengruppe, die aus nur 3 bzw. 4 Halbgruppen besteht. Einzelne Halbgruppen sind nicht erhältlich. In einer Verpackungseinheit / Gurt ist immer nur eine Halbgruppe enthalten.

Note: -1 Total color tolerance range

The standard shipping format for serial types includes a lower or upper family group of 3 or 4 individual groups. Individual half groups are not available. No packing unit / tape ever contains more than one luminous intensity half group.

Grenzwerte
Maximum Ratings

| Bezeichnung Parameter | Symbol Symbol | Wert Value | Einheit Unit |
|--|------------------|----------------|-----------------|
| 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} | t.b.d. | A |
| Sperrspannung Reverse voltage | V_R | 5 | V |
| Leistungsaufnahme Power consumption | P_{tot} | 95 | mW |
| Wärmewiderstand Thermal resistance Sperrschicht/Umgebung Junction/air | $R_{th JA}$ | 530 | 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 $\geq 16 \text{ mm}^2$) | $R_{th JS}$ | 300 | K/W |

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

| Bezeichnung Parameter | | Symbol Symbol | Wert Value | Einheit Unit |
|--|------------------|------------------------------|-----------------------|--------------------------------|
| Wellenlänge des emittierten Lichtes Wavelength at peak emission $I_F = 10\text{ mA}$ | (typ.) | λ_{peak} | 572 | nm |
| Dominantwellenlänge ¹⁾ Dominant wavelength ¹⁾ $I_F = 10\text{ mA}$ | (typ.) | λ_{dom} | 570 ± 6 | nm |
| Spektrale Bandbreite bei 50 % $I_{\text{rel max}}$ Spectral bandwidth at 50 % $I_{\text{rel max}}$ $I_F = 10\text{ mA}$ | (typ.) | $\Delta\lambda$ | 25 | nm |
| Abstrahlwinkel bei 50 % I_V (Vollwinkel) Viewing angle at 50 % I_V | (typ.) | 2φ | 120 | Grad deg. |
| Durchlassspannung ²⁾ Forward voltage ²⁾ $I_F = 10\text{ mA}$ | (typ.) (max.) | V_F V_F | 2.0 2.5 | V V |
| Sperrstrom Reverse current $V_R = 5\text{ V}$ | (typ.) (max.) | I_R I_R | 0.01 10 | μA μA |
| Temperaturkoeffizient von λ_{peak} Temperature coefficient of λ_{peak} $I_F = 10\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$ | (typ.) | $TC_{\lambda_{\text{peak}}}$ | 0.11 | nm/K |
| Temperaturkoeffizient von λ_{dom} Temperature coefficient of λ_{dom} $I_F = 10\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$ | (typ.) | $TC_{\lambda_{\text{dom}}}$ | 0.07 | nm/K |
| Temperaturkoeffizient von V_F Temperature coefficient of V_F $I_F = 10\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$ | (typ.) | TC_V | - 1.4 | mV/K |
| Optischer Wirkungsgrad Optical efficiency $I_F = 10\text{ mA}$ | (typ.) | η_{opt} | 2 | lm/W |

¹⁾ Wellenlängen werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von ±1 nm ermittelt.
Wavelengths are tested at a current pulse duration of 25 ms and a tolerance of ±1 nm.

²⁾ Spannungswerte werden mit einer Stromeinprägedauer von 1 ms und einer Genauigkeit von ±0.1 V ermittelt.
Voltages are tested at a current pulse duration of 1 ms and a tolerance of ±0.1 V.

Helligkeits-Gruppierungsschema
Luminous Intensity Groups

| Lichtgruppe Luminous Intensity Group | Lichtstärke Luminous Intensity I_V (mcd) | Lichtstrom Luminous Flux Φ_V (lm) |
|---|--|--|
| J2 | 5.6 ... 7.1 | 19 (typ.) |
| K1 | 7.1 ... 9.0 | 24 (typ.) |
| K2 | 9.0 ... 11.2 | 30 (typ.) |
| L1 | 11.2 ... 14.0 | 40 (typ.) |
| L2 | 14.0 ... 18.0 | 50 (typ.) |
| M1 | 18.0 ... 22.4 | 60 (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 a tolerance of $\pm 11\%$.

Gruppenbezeichnung auf Etikett
Group Name on Label

Beispiel: L1
 Example: L1

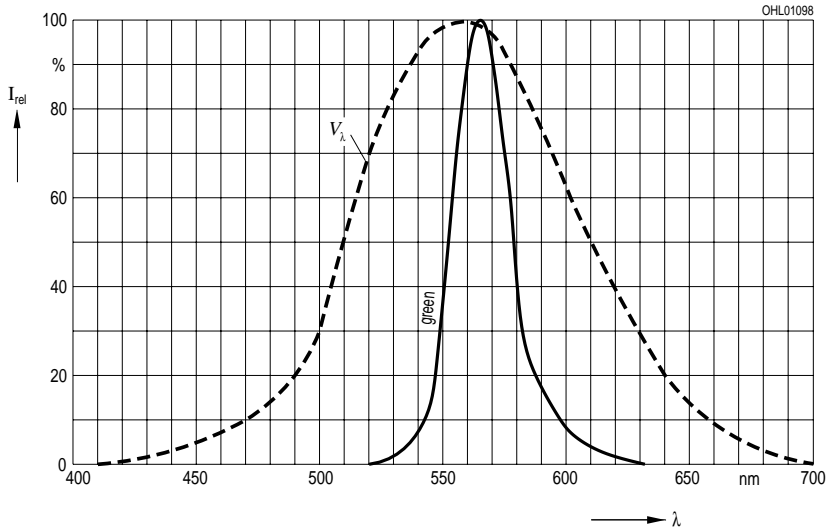
| Lichtgruppe Luminous Intensity Group | Halbgruppe Half Group |
|---|--------------------------|
| L | 1 |

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

Relative Spectral Emission

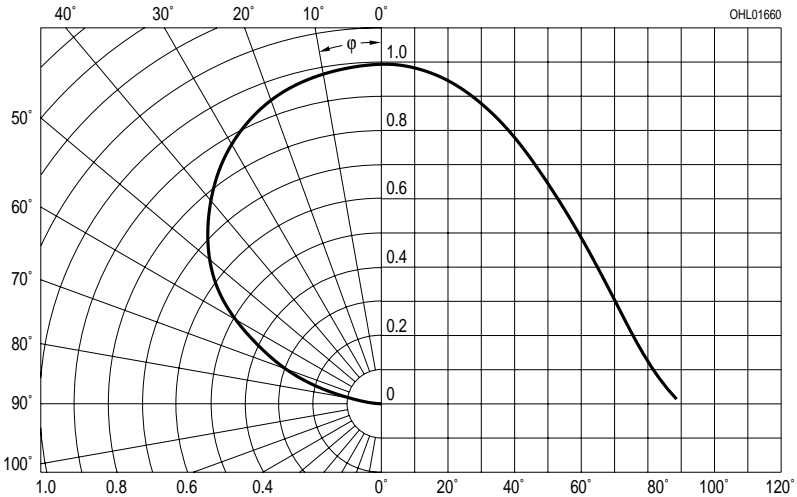
$V(\lambda)$ = spektrale Augenempfindlichkeit

Standard eye response curve



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

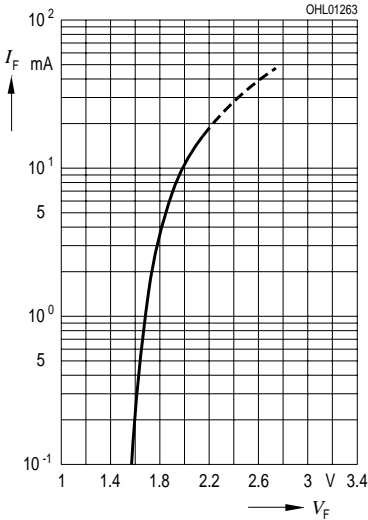
Radiation Characteristic



Durchlassstrom $I_F = f(V_F)$

Forward Current

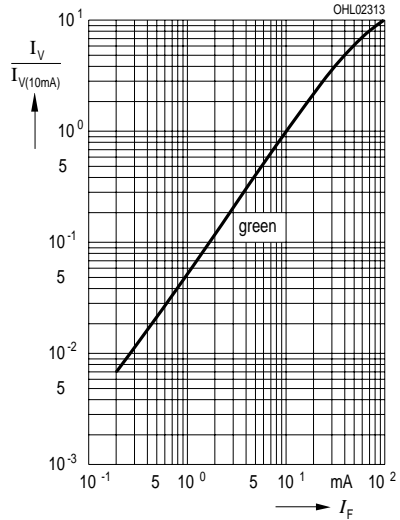
$T_A = 25\text{ }^\circ\text{C}$



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

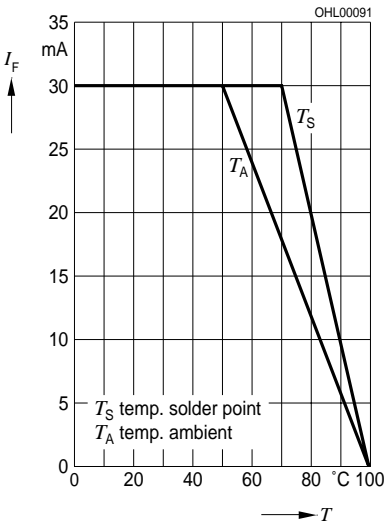
Relative Luminous Intensity

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



Maximal zulässiger Durchlassstrom $I_F = f(T_A)$

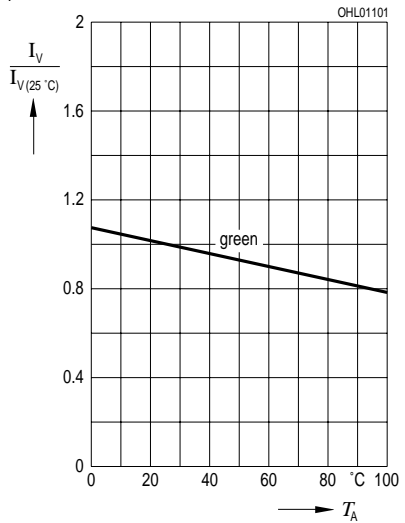
Max. Permissible Forward Current



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

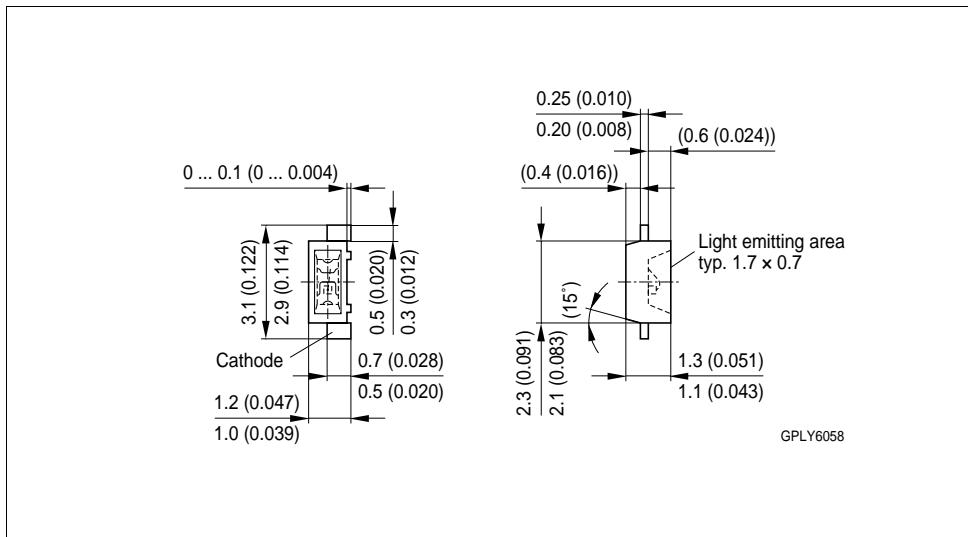
Relative Luminous Intensity

$I_F = 10\text{ mA}$



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

**Maßzeichnung
Package Outlines**

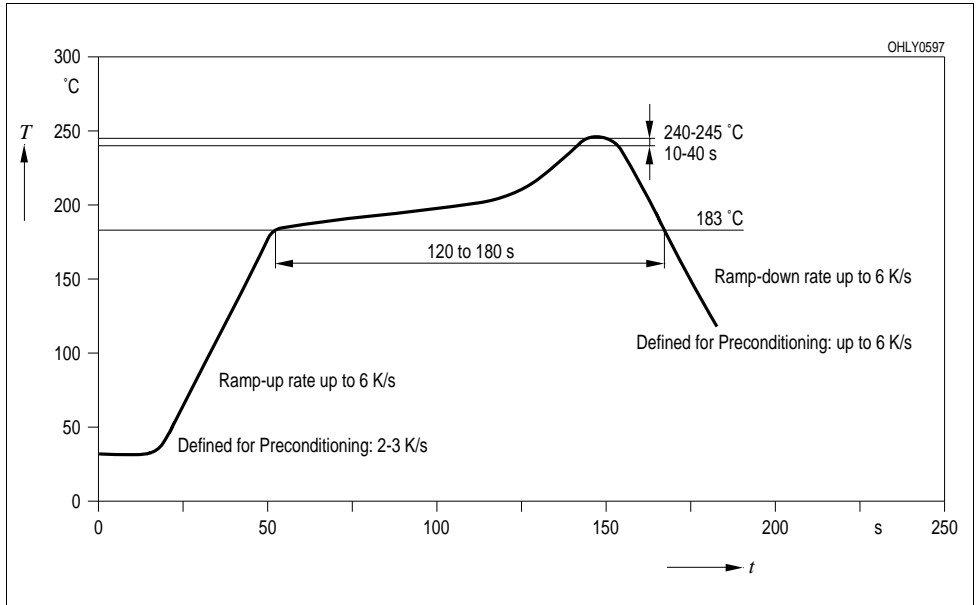


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

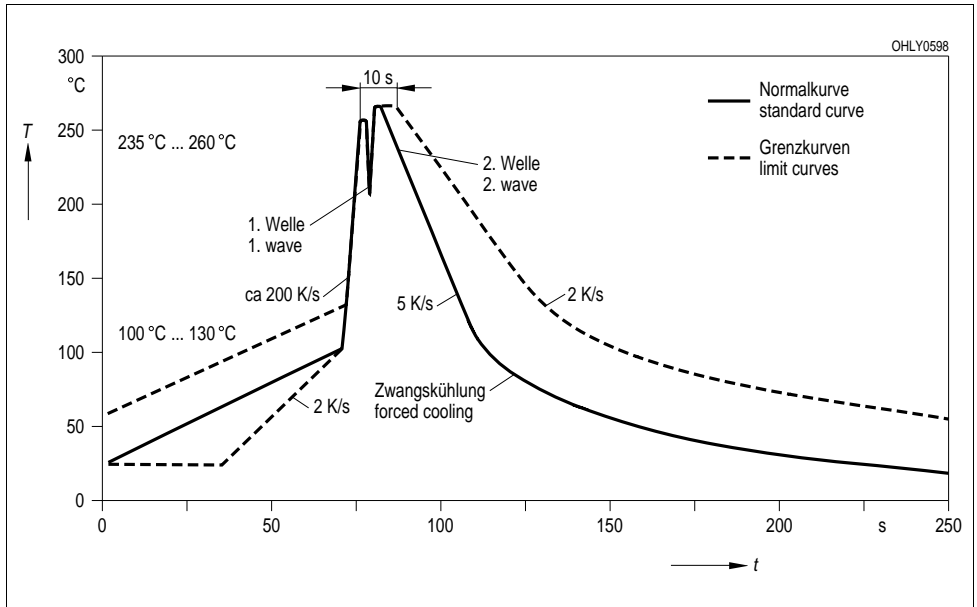
Gewicht / Approx. weight: 6 mg

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

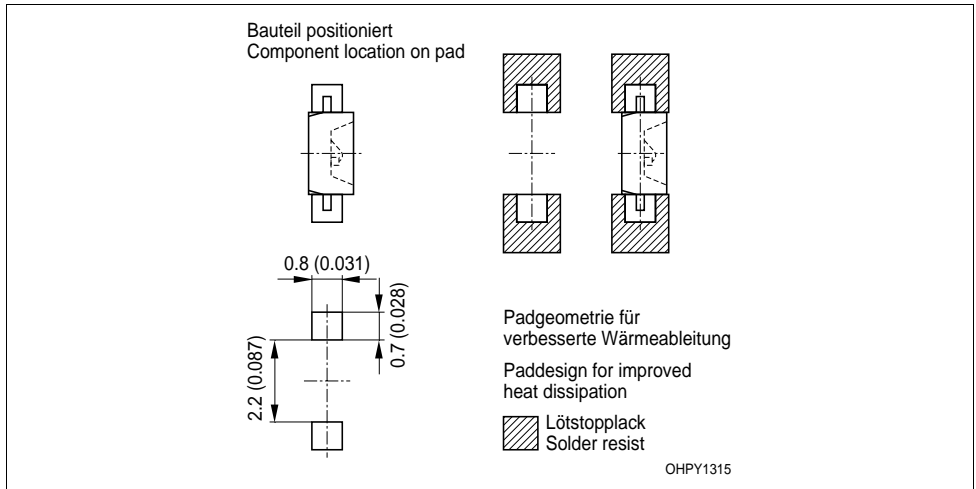
IR-Reflow Lötprofil (nach IPC 9501)
IR Reflow Soldering Profile (acc. to IPC 9501)



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



Empfohlenes Lötpaddesign IR Reflow Löten
Recommended Solder Pad IR Reflow Soldering



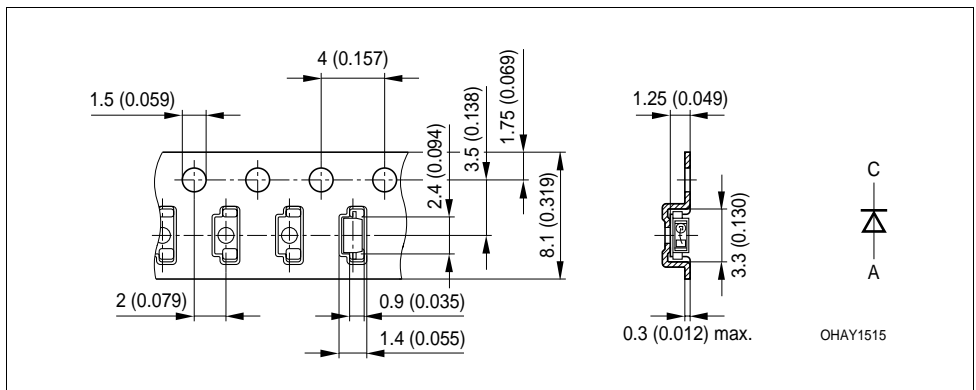
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).
 Gehäuse für Wellenlöten (TTW) geeignet / Package suitable for TTW-soldering

Gurtung / Polarität und Lage

Verpackungseinheit 3000/Rolle, ø180 mm oder
 10000/Rolle, ø330 mm

Method of Taping / Polarity and Orientation

Packing unit 3000/reel, ø180 mm
 or 10000/reel, ø330 mm



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

Revision History: 2001-06-26

Previous Version: 2001-06-26

| Page | Subjects (major changes since last revision) |
|------|--|
| | |
| | |

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