

**Rote Lumineszenzdiode**  
**Red Emitter**  
**Lead (Pb) Free Product - RoHS Compliant**

**SFH 4273**



**Wesentliche Merkmale**

- Schwarz eingefärbtes TOPLED-Gehäuse
- Typische Emissionswellenlänge 660nm
- Verbesserte Abbildungseigenschaften durch Absorption der Seitenstrahlung
- Größe der Leuchtquelle 325 µm x 325 µm
- Feuchte-Empfindlichkeitsstufe 2 nach JEDEC Standard J-STD-020C

**Anwendungen**

- Miniaturlichtschranken und Lichtschranken über große Entfernungen
- Industrieelektronik
- „Messen/Steuern/Regeln“
- Sensorik
- Alarm- und Sicherungssysteme

**Features**

- Black colored TOPLED-package
- Typical peak wavelength 660nm
- Improved imaging characteristics due to absorption of side emission
- Size of emitting area 325µm x 325µm
- Moisture sensitivity level 2 according to JEDEC Standard J-STD-020C

**Applications**

- Miniature and long distance photointerrupters
- Industrial electronics
- For drive and control circuits
- Sensor technology
- Alarm and safety equipment

Typ Type	Bestellnummer Ordering Code	Strahlstärkegruppierung <sup>1)</sup> ( $I_F = 50 \text{ mA}$ , $t_p = 20 \text{ ms}$ ) Radiant Intensity Grouping <sup>1)</sup> $I_e \text{ (mW/sr)}$
SFH 4273	Q65110A2523	> 0.63 (typ. 1.0)

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

Achtung: Es wird empfohlen, das Bauteil nicht bei extremer Luftfeuchtigkeit zu betreiben. Ist dies dennoch vorgesehen, setzen Sie sich bitte mit OSRAM OS in Verbindung

Attention: It is recommended not to operate the device under extreme humidity. If this is designated though, please contact OSRAM OS.

Grenzwerte ( $T_A = 25\text{ °C}$ )

## 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	$V_R$	3	V
Durchlassstrom Forward current	$I_F$	50	mA
Stoßstrom, $\tau = 10\ \mu\text{s}$ , $D = 0$ Surge current	$I_{FSM}$	1	A
Verlustleistung Power dissipation	$P_{tot}$	125	mW
Wärmewiderstand Sperrschicht - Umgebung bei Montage auf FR4 Platine, Padgröße je $16\ \text{mm}^2$ Thermal resistance junction - ambient mounted on PC-board (FR4), padsize $16\ \text{mm}^2$ each	$R_{thJA}$	450	K/W
Wärmewiderstand Sperrschicht - Lötstelle bei Montage auf Metall-Block Thermal resistance junction - soldering point, mounted on metal block	$R_{thJS}$	$\approx 200$	K/W

Kennwerte ( $T_A = 25\text{ °C}$ )

## Characteristics

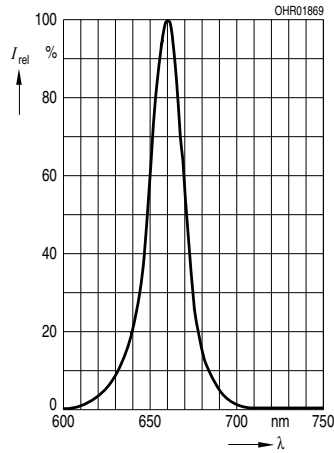
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der Strahlung Wavelength at peak emission $I_F = 50\text{ mA}$ , $t_p = 20\text{ ms}$	$\lambda_{\text{peak}}$	660	nm
Spektrale Bandbreite bei 50% von $I_{\text{max}}$ Spectral bandwidth at 50% of $I_{\text{max}}$ $I_F = 50\text{ mA}$	$\Delta\lambda$	25	nm
Abstrahlwinkel Half angle	$\varphi$	$\pm 60$	Grad deg.
Aktive Chipfläche Active chip area	$A$	0.106	mm <sup>2</sup>
Abmessungen der aktiven Chipfläche Dimensions of the active chip area	$L \times B$ $L \times W$	$0.325 \times 0.325$	mm <sup>2</sup>
Schaltzeiten, $I_e$ von 10% auf 90% und von 90% auf 10%, bei $I_F = 50\text{ mA}$ , $R_L = 50\ \Omega$ Switching times, $I_e$ from 10% to 90% and from 90% to 10%, $I_F = 50\text{ mA}$ , $R_L = 50\ \Omega$	$t_r$ , $t_f$	100	ns
Kapazität Capacitance $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$	$C_o$	30	pF
Durchlassspannung Forward voltage $I_F = 50\text{ mA}$ , $t_p = 20\text{ ms}$	$V_F$	2.1 ( $\leq 2.8$ )	V
Sperrstrom, Reverse curr50mA50 mAent $V_R = 5\text{ V}$	$I_R$	0.01 ( $\leq 1$ )	$\mu\text{A}$
Gesamtstrahlungsfluss Total radiant flux $I_F = 50\text{ mA}$ , $t_p = 20\text{ ms}$	$\Phi_e$	5	mW
Temperaturkoeffizient von $I_e$ bzw. $\Phi_e$ , $I_F = 50\text{ mA}$ Temperature coefficient of $I_e$ or $\Phi_e$ , $I_F = 50\text{ mA}$	$TC_I$	- 0.4	%/K
Temperaturkoeffizient von $V_F$ , $I_F = 50\text{ mA}$ Temperature coefficient of $V_F$ , $I_F = 50\text{ mA}$	$TC_V$	- 3	mV/K
Temperaturkoeffizient von $\lambda$ , $I_F = 50\text{ mA}$ Temperature coefficient of $\lambda$ , $I_F = 50\text{ mA}$	$TC_\lambda$	+ 0.16	nm/K

**Strahlstärke  $I_e$  in Achsrichtung**gemessen bei einem Raumwinkel  $\Omega = 0.01$  sr**Radiant Intensity  $I_e$  in Axial Direction**at a solid angle of  $\Omega = 0.01$  sr

Bezeichnung Parameter	Symbol	Werte Values	Einheit Unit
Strahlstärke Radiant intensity $I_F = 50$ mA, $t_p = 20$ ms	$I_e$	> 0.63 (typ. 1.0)	mW/sr

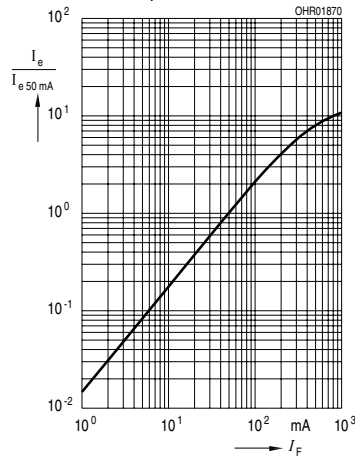
**Relative Spectral Emission**

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



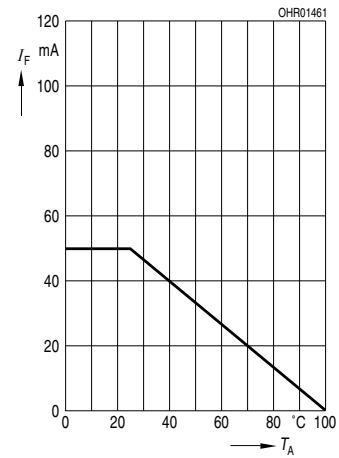
**Radiant Intensity**

$I_e / I_{e(50mA)} = f(I_F)$   
Single pulse,  $t_p = 20 \mu s$



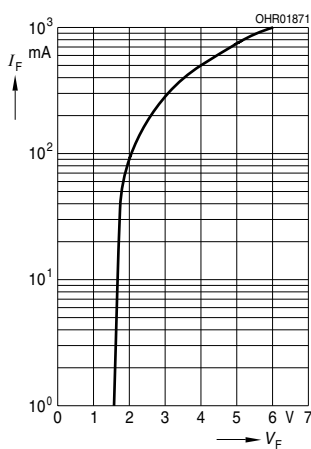
**Max. Permissible Forward Current**

$I_F = f(T_A)$



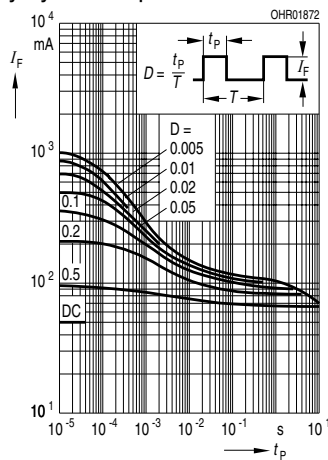
**Forward Current**

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



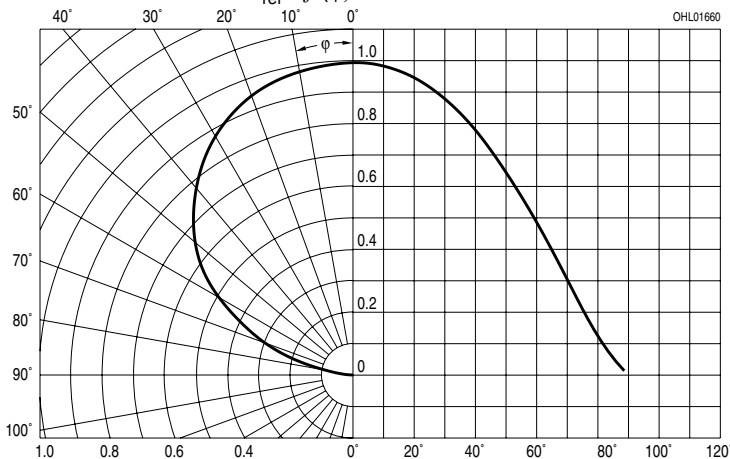
**Permissible Pulse Handling Capability**

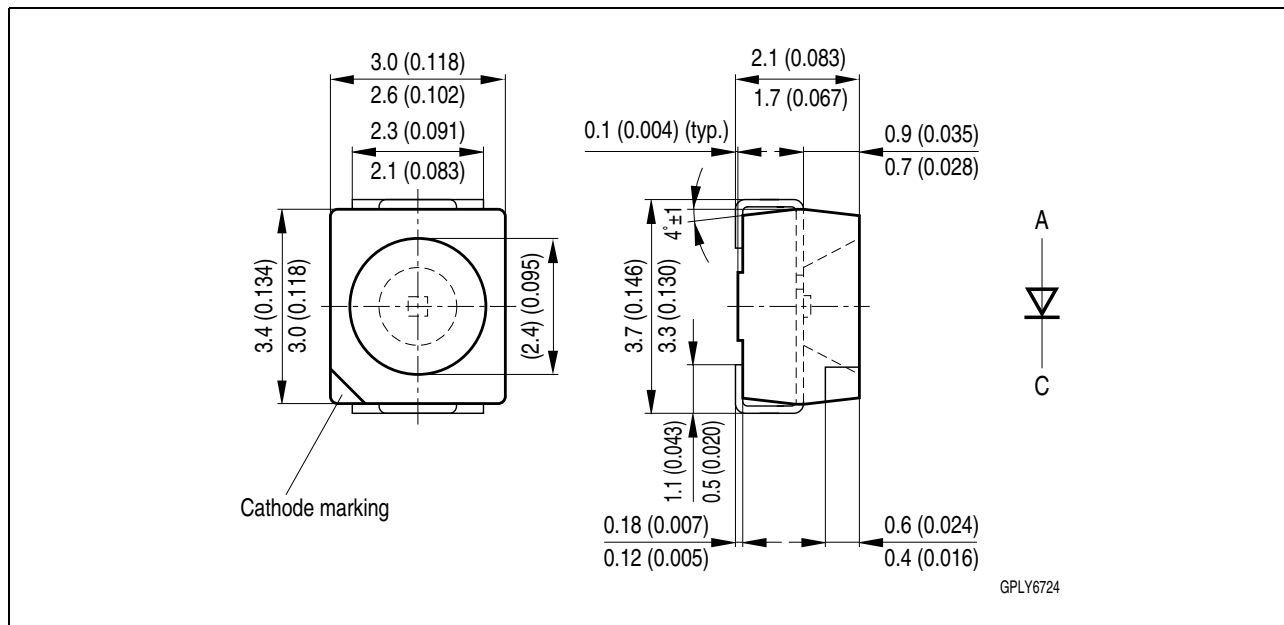
$I_F = f(t_p)$ ,  $T_A = 25^\circ C$   
duty cycle  $D =$  parameter



**Radiation Characteristics**

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



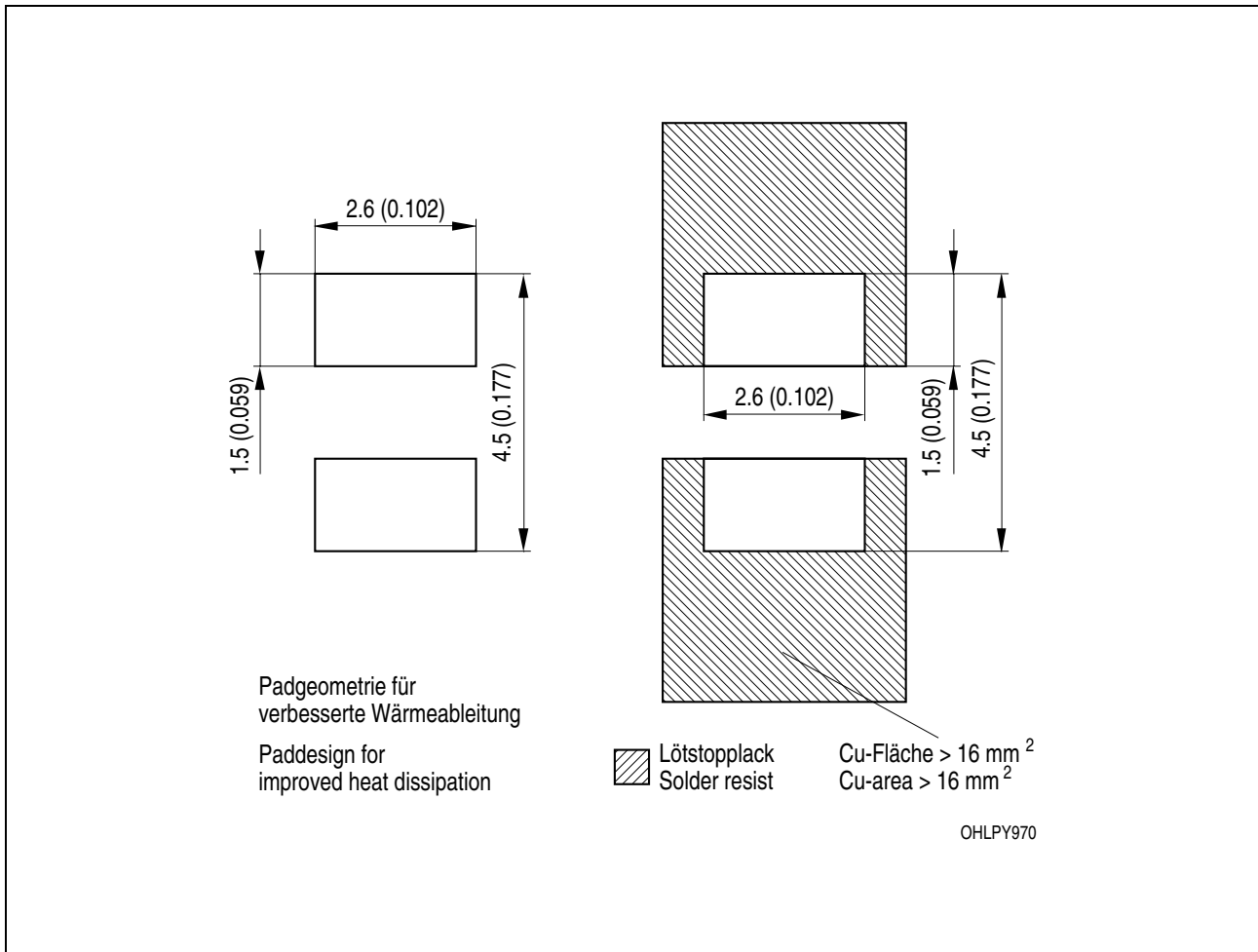
**Maßzeichnung**  
**Package Outlines**


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

Gehäuse / Package	TOPLED®, klarer Verguss / TOPLED®, clear resin
Anschlussbelegung Pin configuration	abgeschrägte Ecke: Kathode beveled edge: Cathode
Farbe Color	schwarz black
Brechungsindex Verguss Refractive index resin	1.53 1.53

**Empfohlenes Lötpad-Design**  
**Recommended Solder Pad**

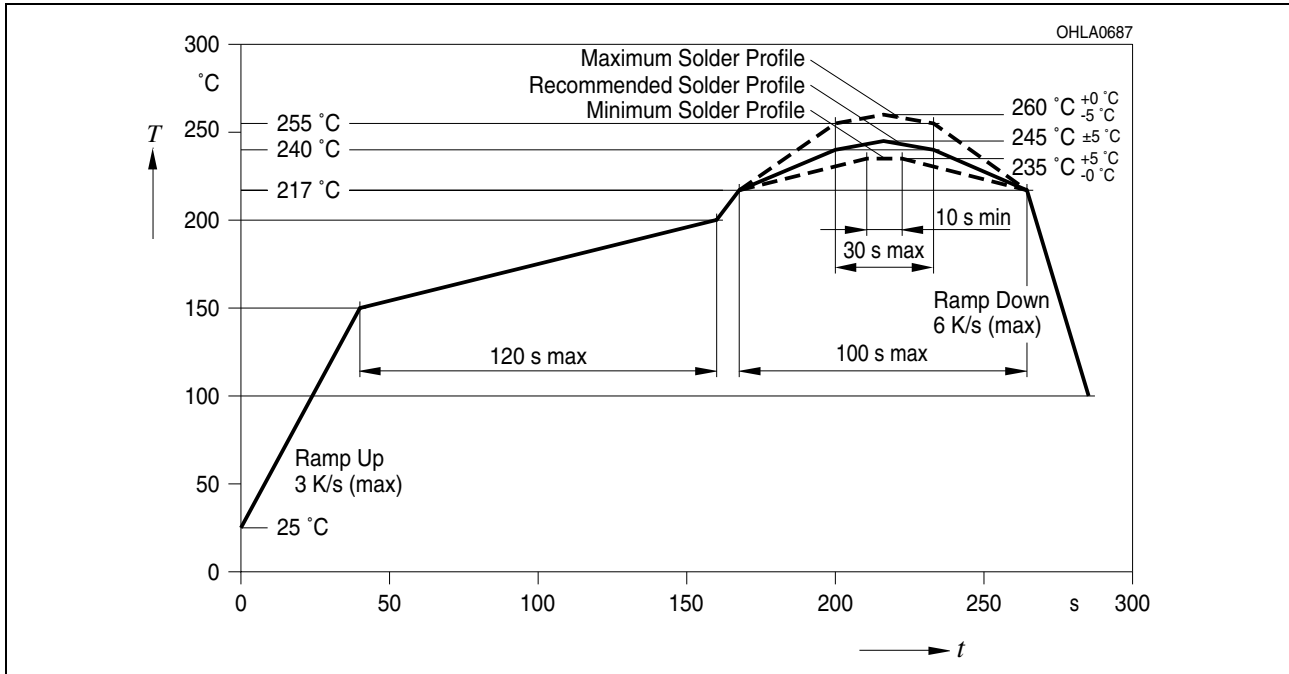
**Reflow Löten**  
**Reflow Soldering**



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

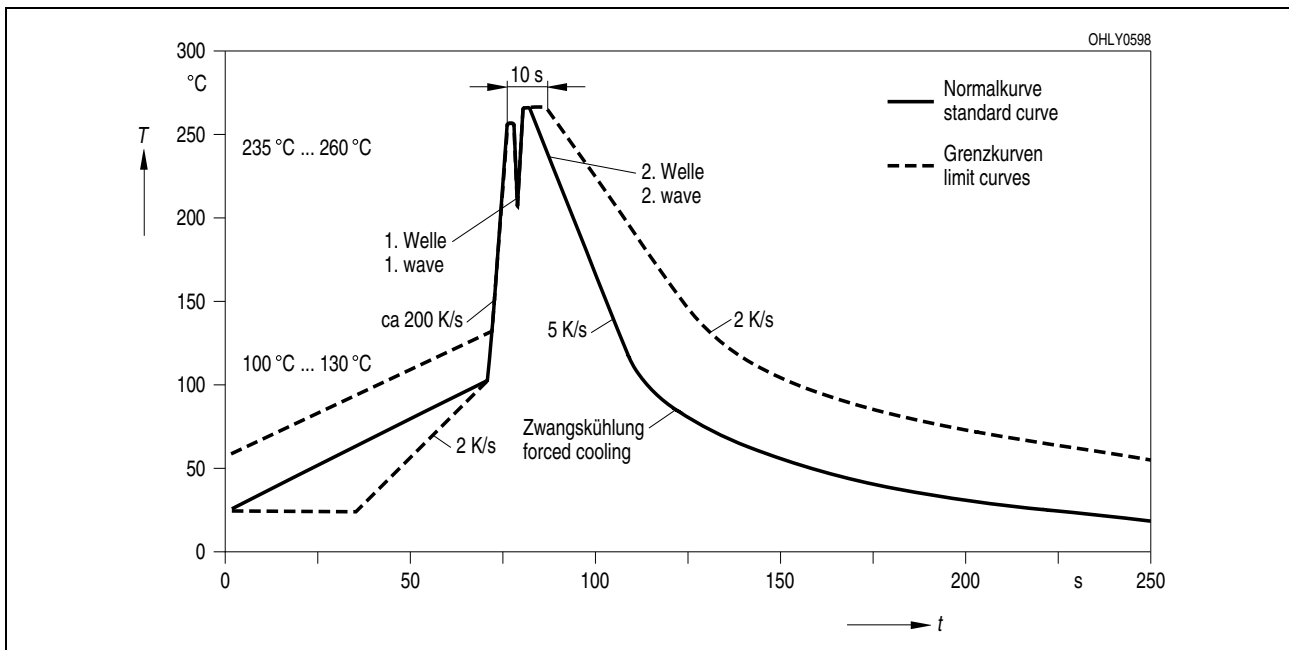
**Lötbedingungen**  
**Soldering Conditions**  
**Reflow Lötprofil für bleifreies Löt**  
**Reflow Soldering Profile for lead free soldering**

Vorbehandlung nach JEDEC Level 2  
 Preconditioning acc. to JEDEC Level 2  
 (nach J-STD-020C)  
 (acc. to J-STD-020C)



**Wellenlöten (TTW)**  
**TTW Soldering**

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





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