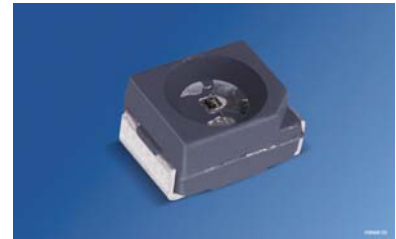


**Rote Lumineszenzdiode**  
**Red Emitter**  
**Lead (Pb) Free Product - RoHS Compliant**

**SFH 4272**



**Wesentliche Merkmale**

- Schwarz eingefärbtes TOPLED-Gehäuse
- Typische Emissionswellenlänge 645nm
- Verbesserte Abbildungseigenschaften durch Absorption der Seitenstrahlung
- Größe der Leuchtquelle 200µm x 200µm
- Feuchte-Empfindlichkeitsstufe 2 nach JEDEC Standard J-STD-020C

**Features**

- Black coloured TOPLED-package
- Typical Peakwavelength 645nm
- Improved imaging characteristics due to absorption of side emission
- Size of emitting area 200µm x 200µm
- Moisture sensitivity level 2 according to JEDEC Standard J-STD-020C

**Anwendungen**

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

**Applications**

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

<b>Typ Type</b>	<b>Bestellnummer Ordering Code</b>	<b>Strahlstärkegruppierung<sup>1)</sup> (<math>I_F = 20 \text{ mA}</math>, <math>t_p = 20 \text{ ms}</math>) Radiant Intensity Grouping<sup>1)</sup> <math>I_e</math> (mW/sr)</b>
SFH 4272	Q65110A2522	> 0.16 (typ. 0.35)

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

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	$V_R$	5	V
Durchlassstrom Forward current	$I_F$	30	mA
Stoßstrom, $\tau = 10\ \mu\text{s}$ , $D = 0$ Surge current	$I_{FSM}$	1	A
Verlustleistung Power dissipation	$P_{tot}$	80	mW
Wärmewiderstand Sperrschicht - Umgebung bei Montage auf FR4 Platine, Padgröße je $16\ \text{mm}^2$ Thermal resistance junction - ambient mounted on PC-board (FR4), pads size $16\ \text{mm}^2$ each	$R_{thJA}$	500	K/W
Wärmewiderstand Sperrschicht - Lötstelle bei Montage auf Metall-Block Thermal resistance junction - soldering point, mounted on metal block	$R_{thJS}$	280	K/W

Kennwerte ( $T_A = 25\text{ °C}$ )

## Characteristics

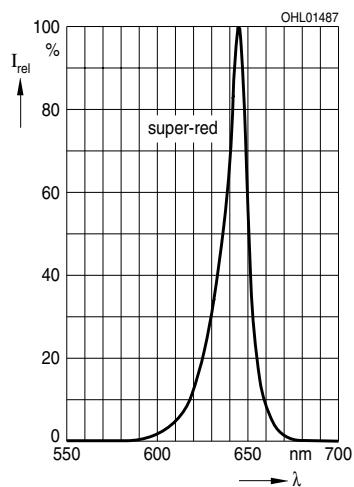
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der Strahlung Wavelength at peak emission $I_F = 20\text{ mA}$ , $t_p = 20\text{ ms}$	$\lambda_{\text{peak}}$	645	nm
Spektrale Bandbreite bei 50% von $I_{\text{max}}$ Spectral bandwidth at 50% of $I_{\text{max}}$ $I_F = 20\text{ mA}$	$\Delta\lambda$	16	nm
Abstrahlwinkel Half angle	$\varphi$	$\pm 60$	Grad deg.
Aktive Chipfläche Active chip area	$A$	0.04	mm <sup>2</sup>
Abmessungen der aktiven Chipfläche Dimensions of the active chip area	$L \times B$ $L \times W$	$0.2 \times 0.2$	mm <sup>2</sup>
Durchlassspannung Forward voltage $I_F = 20\text{ mA}$ , $t_p = 20\text{ ms}$	$V_F$	$2.0 (\leq 2.5)$	V
Sperrstrom Reverse current $V_R = 5\text{ V}$	$I_R$	$0.01 (\leq 10)$	$\mu\text{A}$
Gesamtstrahlungsfluss Total radiant flux $I_F = 20\text{ mA}$ , $t_p = 20\text{ ms}$	$\Phi_e$	1	mW
Temperaturkoeffizient von $I_e$ bzw. $\Phi_e$ , $I_F = 20\text{ mA}$ Temperature coefficient of $I_e$ or $\Phi_e$ , $I_F = 20\text{ mA}$	$TC_I$	- 0.5	%/K
Temperaturkoeffizient von $V_F$ , $I_F = 20\text{ mA}$ Temperature coefficient of $V_F$ , $I_F = 20\text{ mA}$	$TC_V$	- 2	mV/K
Temperaturkoeffizient von $\lambda$ , $I_F = 20\text{ mA}$ Temperature coefficient of $\lambda$ , $I_F = 20\text{ mA}$	$TC_\lambda$	+ 0.14	nm/K

Strahlstärke  $I_e$  in Achsrichtung (gemessen bei einem Raumwinkel  $\Omega = 0.01\text{ sr}$ )Radiant Intensity  $I_e$  in Axial Direction (at a solid angle of  $\Omega = 0.01\text{ sr}$ )

Bezeichnung Parameter	Symbol	Werte Values	Einheit Unit
Strahlstärke Radiant intensity $I_F = 20\text{ mA}$ , $t_p = 20\text{ ms}$	$I_e$	> 0.16 (typ. 0.35)	mW/sr

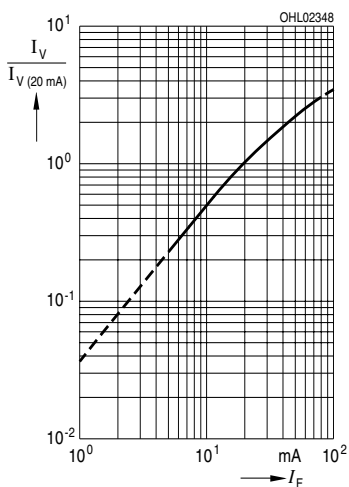
**Relative Spectral Emission**

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



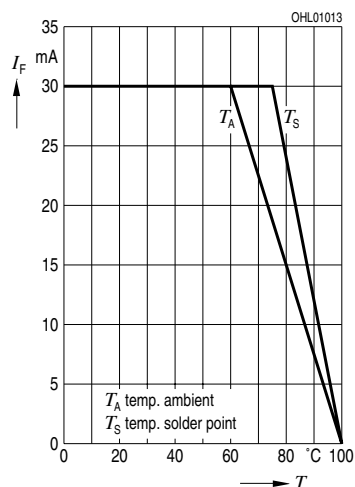
**Radiant Intensity**

$I_e / I_{e(20\text{ mA})} = f(I_F)$



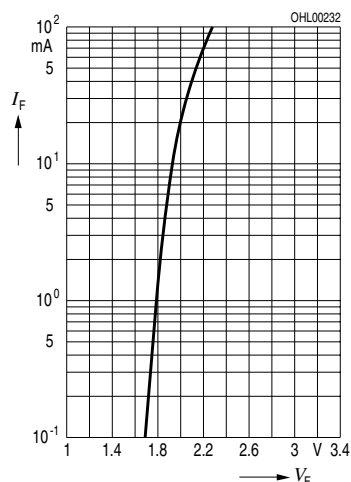
**Max. Permissible Forward Current**

$I_F = f(T_A)$



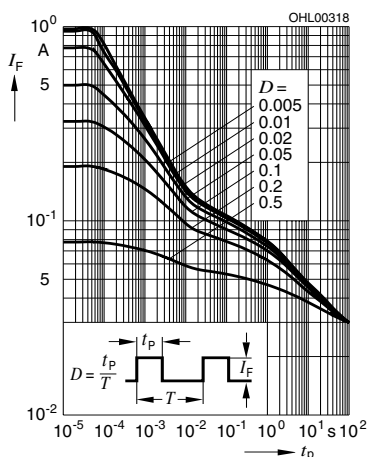
**Forward Current**

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



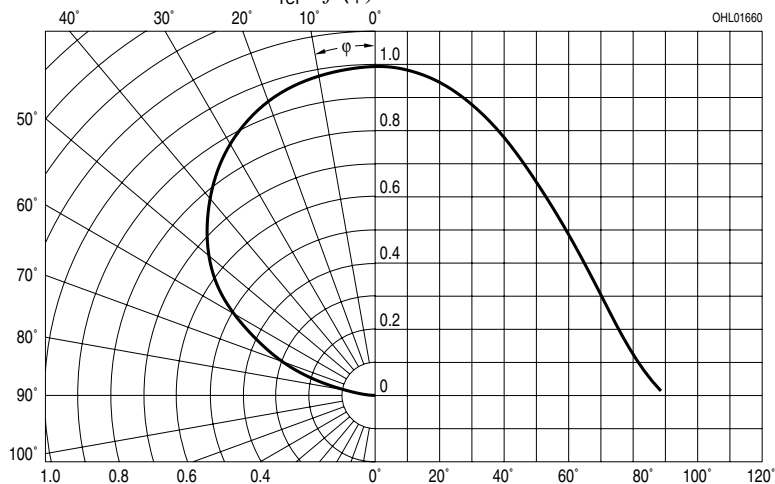
**Permissible Pulse Handling Capability**

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

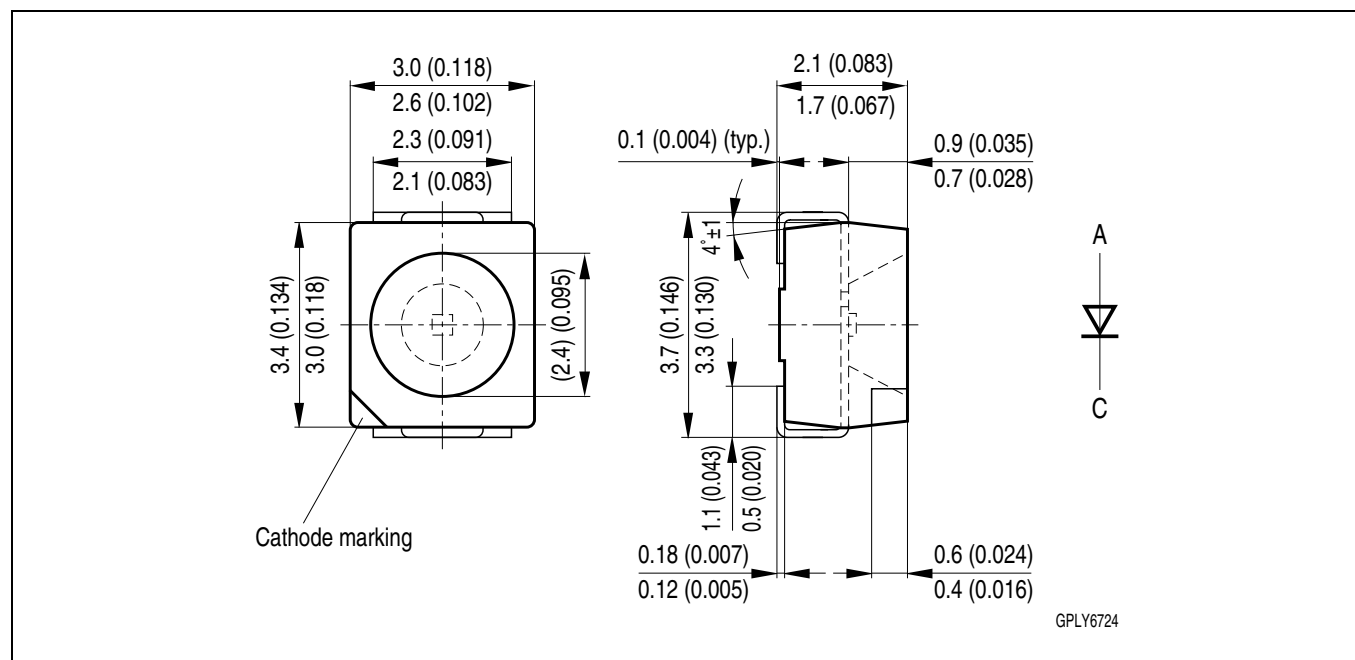


**Radiation Characteristics**

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



## Maßzeichnung Package Outlines

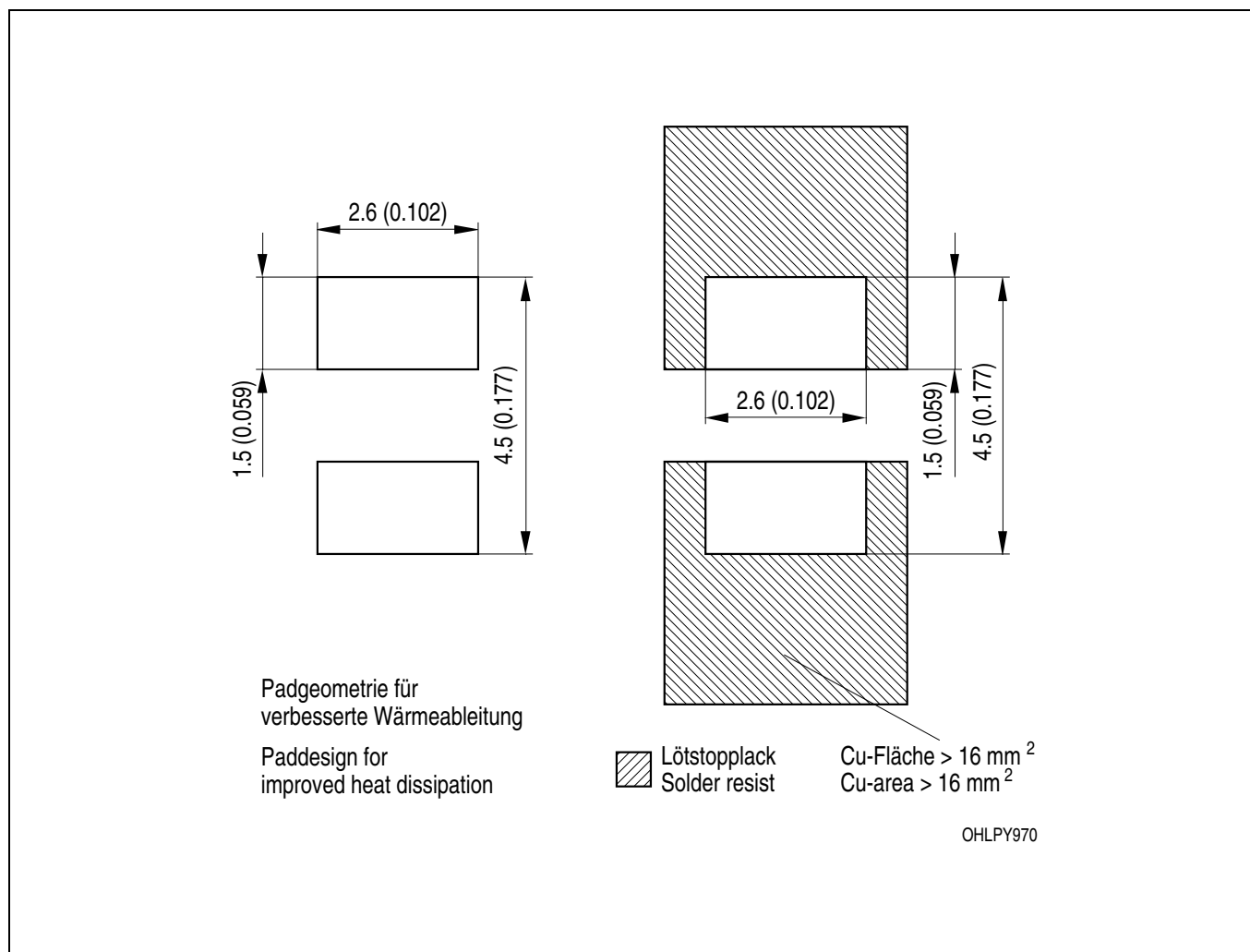


Maße in mm (inch) / Dimensions in mm (inch).

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 Lötpaddesign**  
**Recommended Solder Pad**

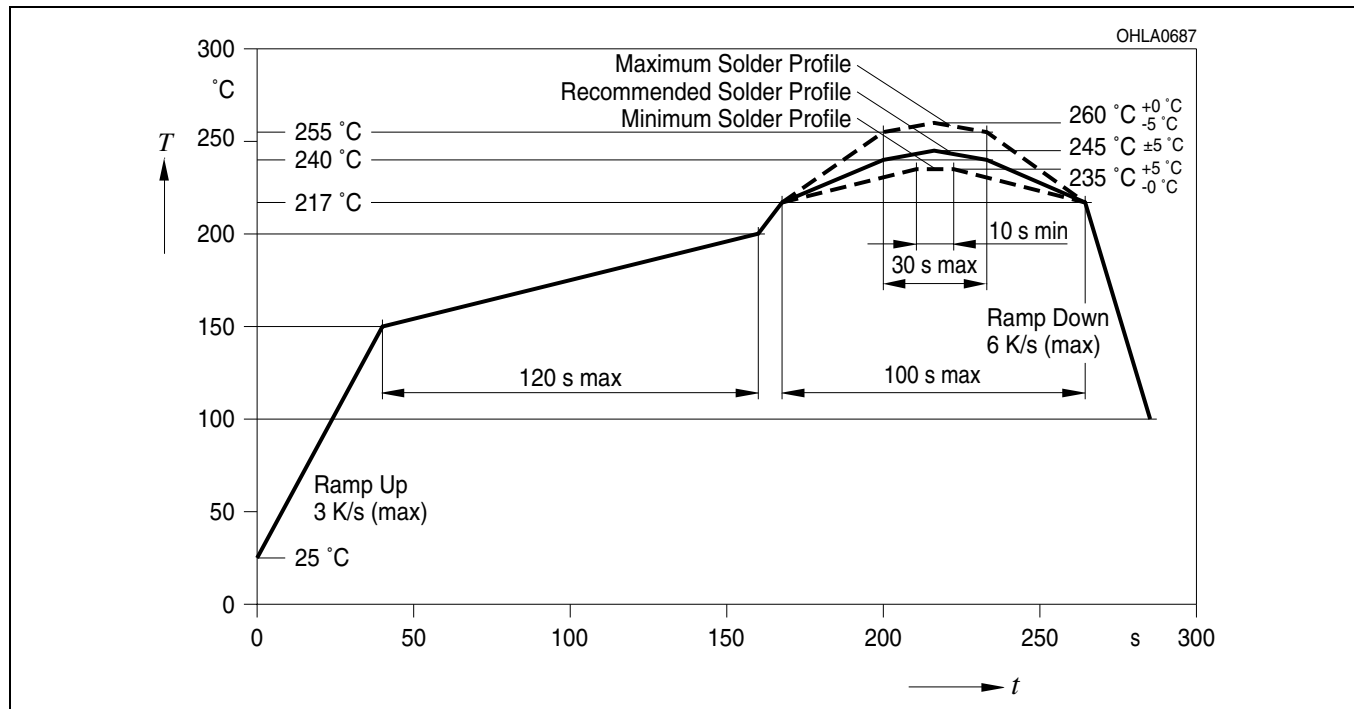
Reflow Löten  
 Reflow Soldering



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

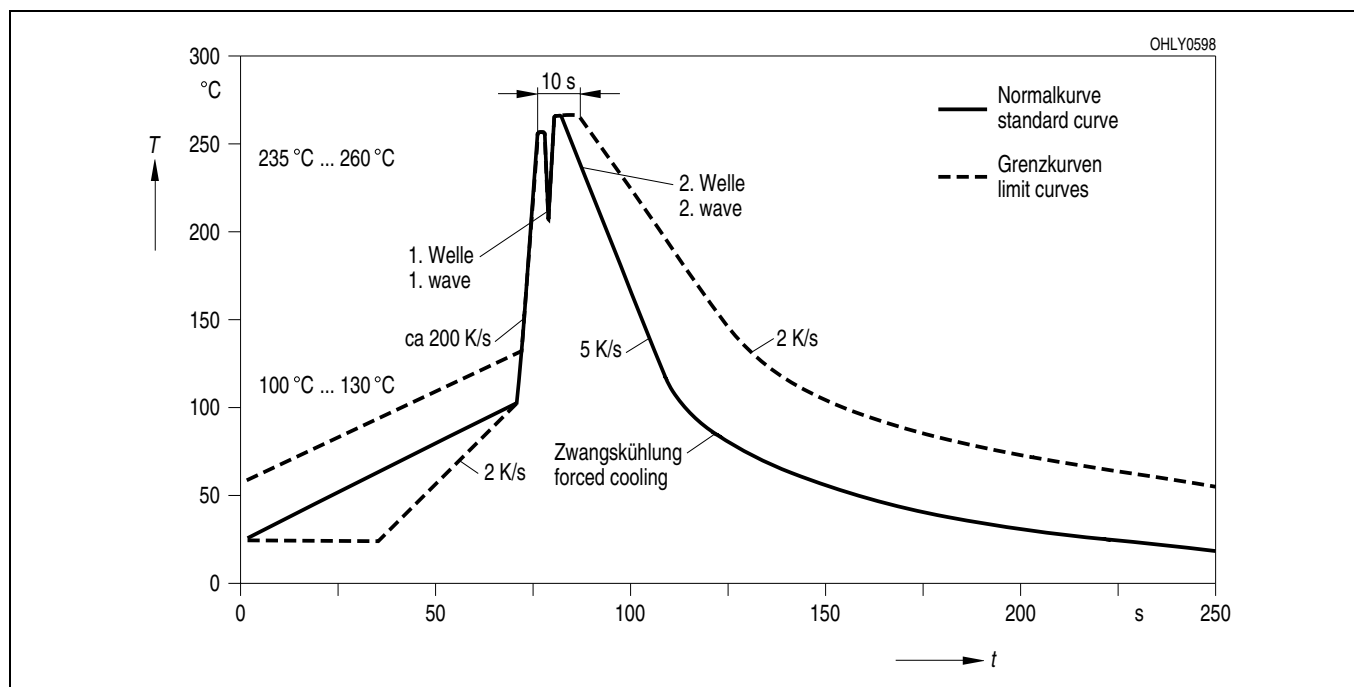
**Lötbedingungen**  
**Soldering Conditions**  
**Reflow Lötprofil für bleifreies Löten**  
**Reflow Soldering Profile for lead free soldering**

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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<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.

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