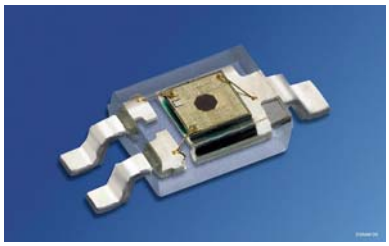
Schmitt-Trigger IC im Smart DIL Gehäuse
Schmitt-Trigger IC in Smart DIL Package
Lead (Pb) Free Product - RoHS Compliant

SFH 5440
SFH 5441



Wesentliche Merkmale

- SFH 5440: Ausgang active low
- SFH 5441: Ausgang active high
- Gegurtet lieferbar
- Geeignet für Anwendungen im Bereich von 400 nm bis 1100 nm

Features

- SFH 5440: Output active low
- SFH 5441: Output active high
- Available on tape and reel
- Suitable for applications from 400 nm to 1100 nm

Anwendungen

- Optischer Schalter
- Pulsformer
- Zähler

Applications

- Optical threshold switch
- Pulseformer
- Counter

Typ Type	Bestellnummer Ordering Code	Gehäuse Package
SFH 5440	Q65110A1212	Smart-DIL Gehäuse, GND-Kennzeichnung: breiter Anschluß Smart-DIL package, GND marking: broad lead
SFH 5441	Q65110A2641	

Grenzwerte (T_A = 25 °C)
Maximum Ratings

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Lagertemperatur Storage temperature range	T_{stg}	– 40 … + 100	°C
Betriebstemperatur Operating temperature range	T_{op}	– 40 … + 85	°C
Versorgungsspannung Supply voltage	V_{CC}	– 0.5 … + 20	V
Ausgangsspannung Output voltage	V_O	– 0.5 … + 20	V
Ausgangsstrom Output current	I_O	50	mA
Verlustleistung Power dissipation	P_{tot}	175	mW

Empfohlener Arbeitsbereich
Recommended Operating Conditions

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Versorgungsspannung Supply voltage	V_{CC}	4 … 18	V
Ausgangsstrom Output current	I_O	< 16	mA

Zur Stabilisierung der Versorgung wird ein Stützkondensator (angeschlossen zwischen V_{CC} und GND) von typ. 0.1 µF empfohlen.
A bypass capacitor, 0.1 µF typical, connected between V_{CC} and GND is recommended in order to stabilize power supply line.

Kennwerte (T_A = 25 °C, V_{CC} = 5 V)
Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Ausgangsspannung „high“ Output voltage “high” I_O = 0	V_{OH}	V_{CC} (> 4.0)	V
Ausgangsspannung „low“ Output voltage “low” I_O = 16 mA	V_{OL}	0.15 (< 0.4)	V

Kennwerte (T_A = 25 °C, V_{CC} = 5 V)
Characteristics (cont'd)

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Stromaufnahme, E = 0 Supply current V_{CC} = 5 V V_{CC} = 18 V	I_{CC}	3.3 (< 5) 5.0	mA
Schaltschwelle, λ = 950 nm Threshold "ON" SFH 5440: "H" → "L" SFH 5441: "L" → "H"	$E_{e, ON}$	170 (< 320)	µW/cm²
Hysterese Hysteresis	$E_{e, OFF}/E_{e, ON}$	0.6 (0.5 … 0.9)	–
Halbwinkel Half angle	φ	± 60	Grad degr.
Anstiegszeit 10% bis 90% Rise time 10% to 90% R_L = 280 Ω, E_e = 600 µW/cm², λ = 950 nm	t_r	100	ns
Abfallzeit 90% bis 10% Fall time 90% to 10% R_L = 280 Ω, E_e = 600 µW/cm², λ = 950 nm	t_f	100	ns
Ausgangsverzögerungszeit Propagation delay time "H" → "L" R_L = 280 Ω, E_e = 600 µW/cm², λ = 950 nm	t_{PHL}	5 (< 15)	µs
Ausgangsverzögerungszeit Propagation delay time "L" → "H" R_L = 280 Ω, E_e = 600 µW/cm², λ = 950 nm	t_{PLH}	5 (< 15)	µs

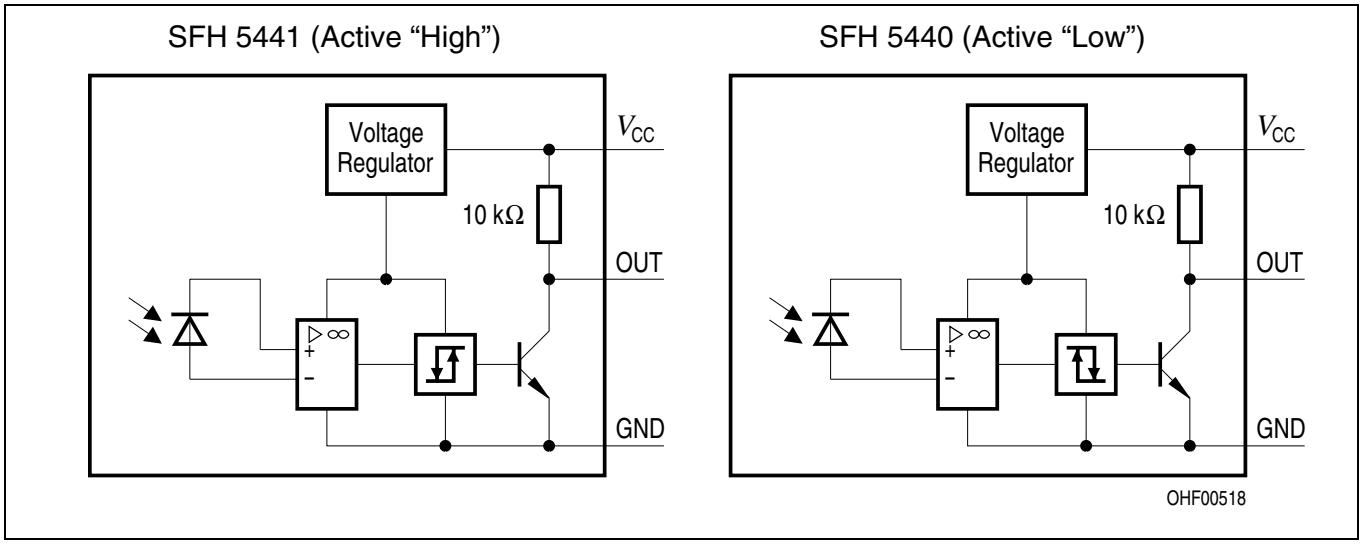


Figure 1 Block Diagram

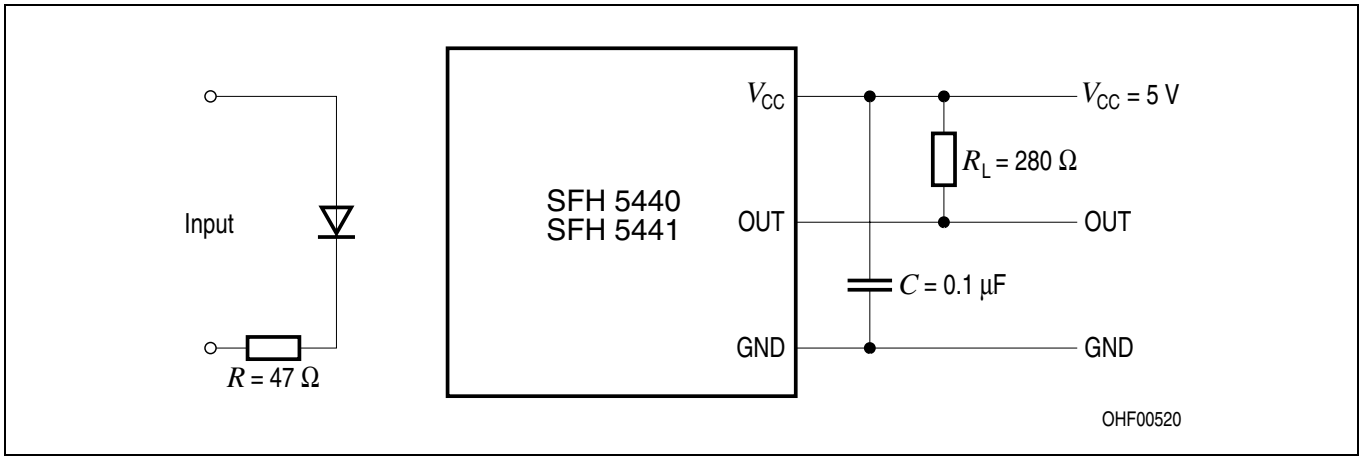


Figure 2 Test Circuit for Switching and Response Time

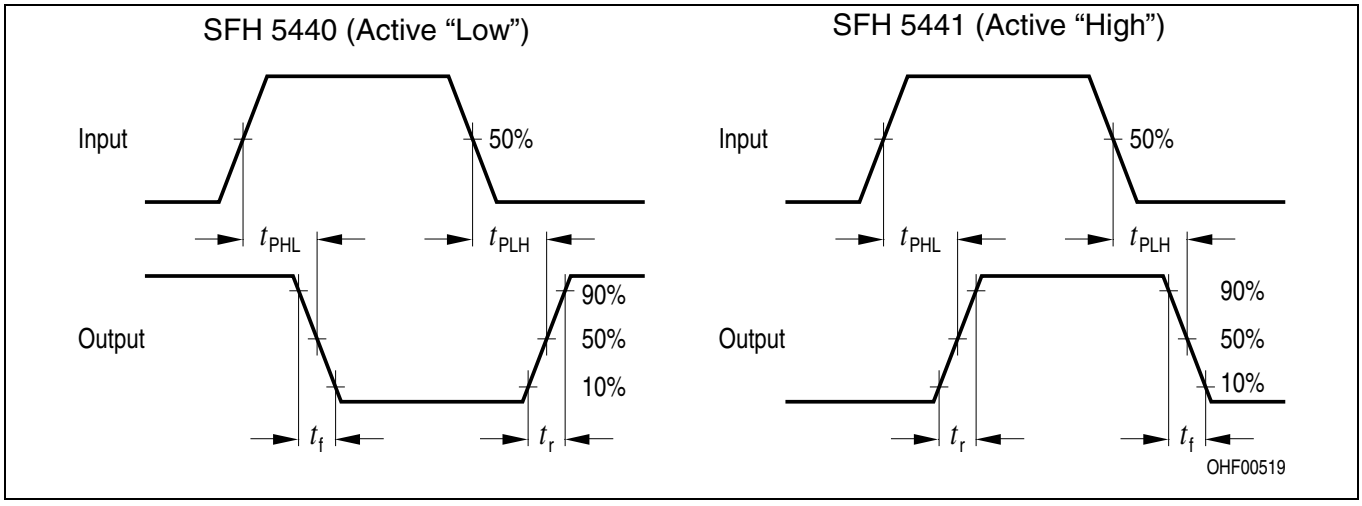
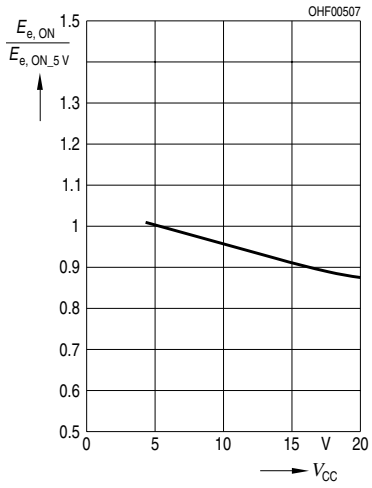
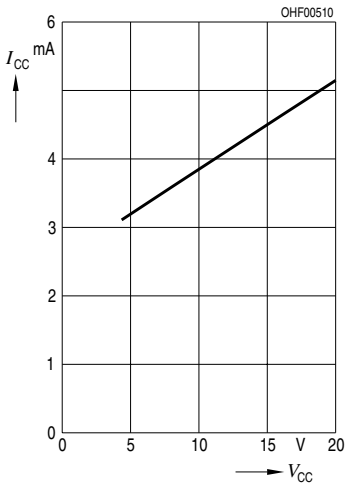


Figure 3 Switching Time Definitions

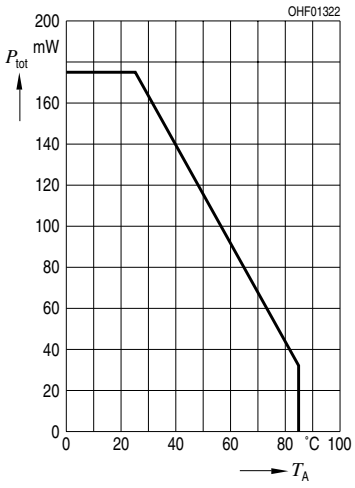
Relative Threshold
$E_{e,\,ON}/E_{e,\,ON\,(Vcc\,=\,5\,V)} = f(V_{CC})$



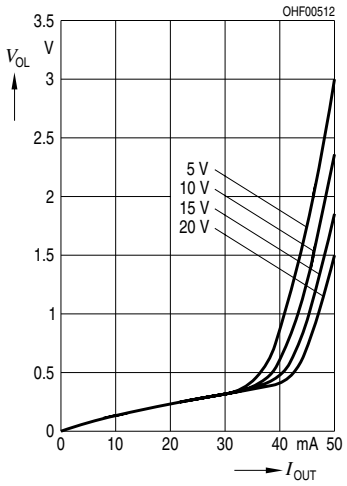
Supply Current
$I_{CC} = f(V_{CC})$



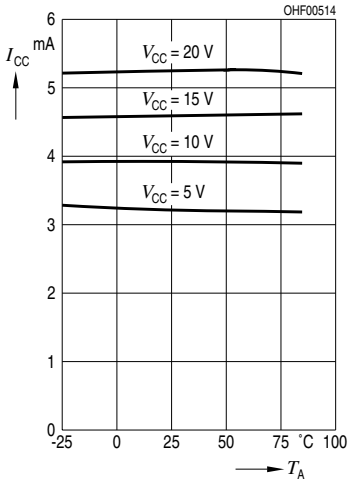
Total Power Dissipation
$P_{tot} = f(T_A)$



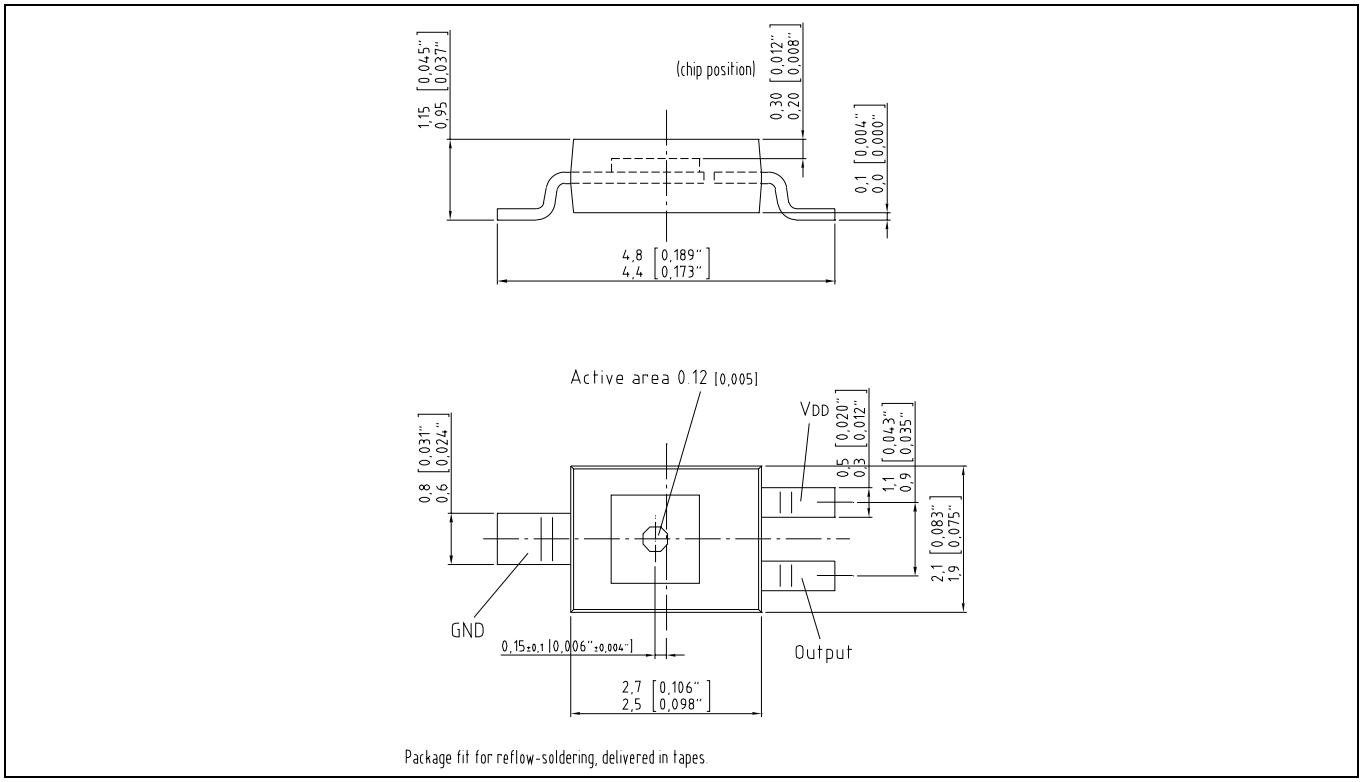
Output Voltage
$V_{OL} = f(I_{OUT}, V_{CC})$



Supply Current vs. Ambient Temperature $I_{CC} = f(T_A, V_{CC})$

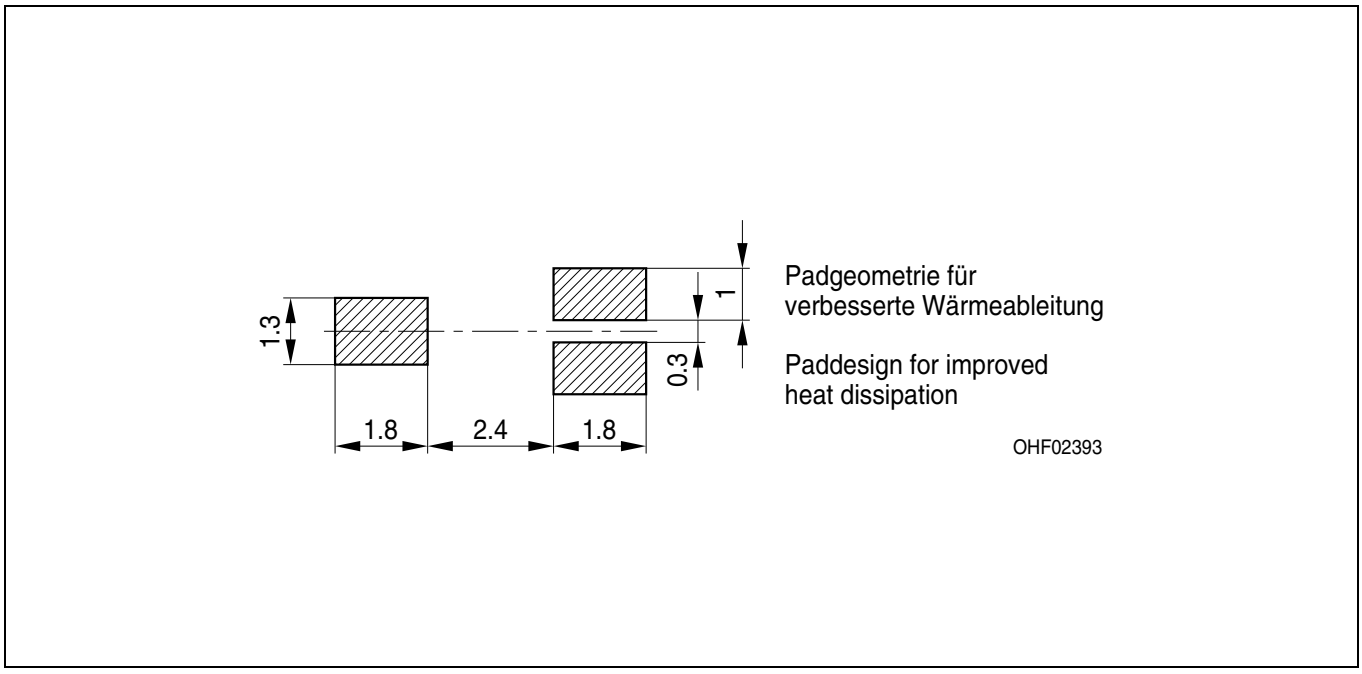


Maßzeichnung
Package Outlines



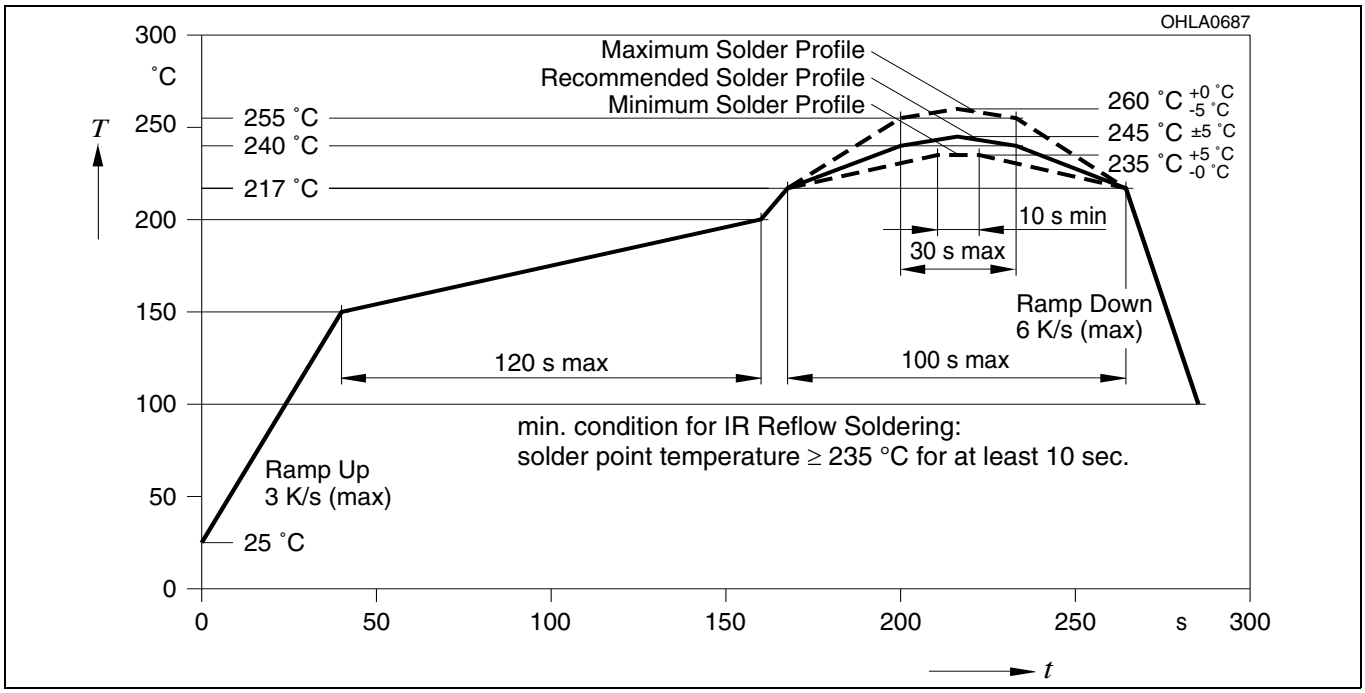
Maße in mm (inch) / Dimensions in mm (inch).

Empfohlenes Lötpaddesign
Recommended Solderpad Design



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

Vorbehandlung nach JEDEC Level 4
Preconditioning acc. to JEDEC Level 4
(nach J-STD-020C)
(acc. to J-STD-020C)



Published by
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Wernerwerkstrasse 2, D-93049 Regensburg
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The information describes the type of component and shall not be considered as assured characteristics.
Terms of delivery and rights to change design reserved. Due to technical requirements components may contain dangerous substances. For information on the types in question please contact our Sales Organization.

Packing

Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

Components used in life-support devices or systems must be expressly authorized for such purpose! Critical components [1] , may only be used in life-support devices or systems [2] with the express written approval of OSRAM OS.

[1] A critical component is a component usedin 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.

[2] 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.