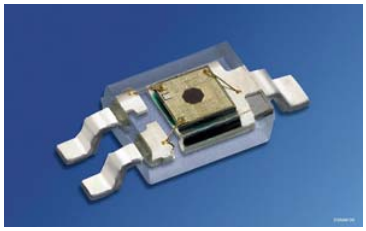
Schmitt-Trigger IC im Smart DIL Gehäuse
Schmitt-Trigger IC in Smart DIL Package
Lead (Pb) Free Product - RoHS Compliant

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	

Opto Semiconductors OSRAM

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

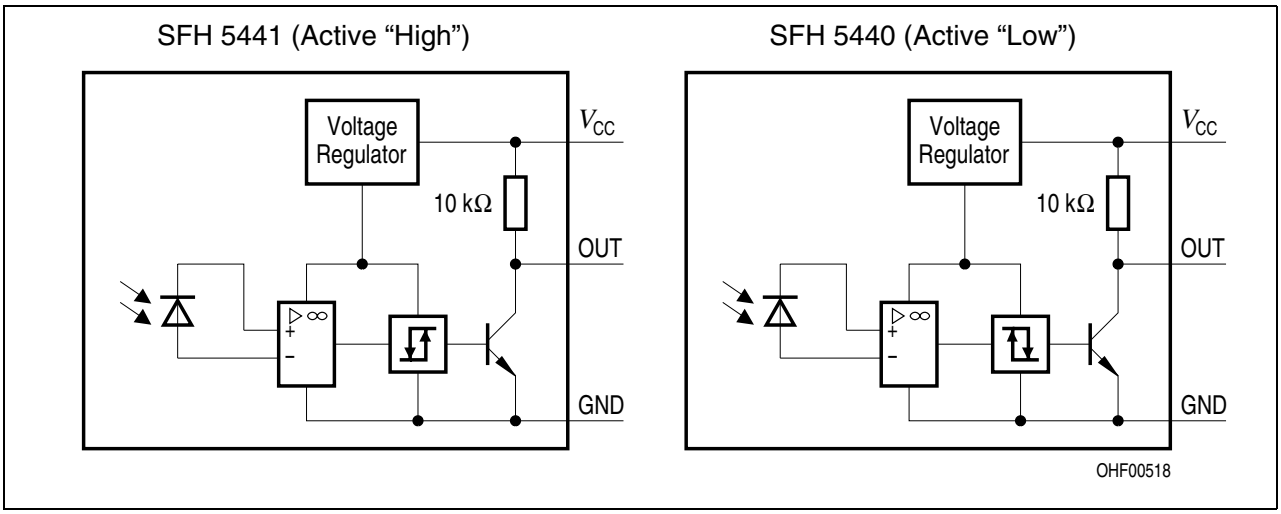


Figure 1 Block Diagram

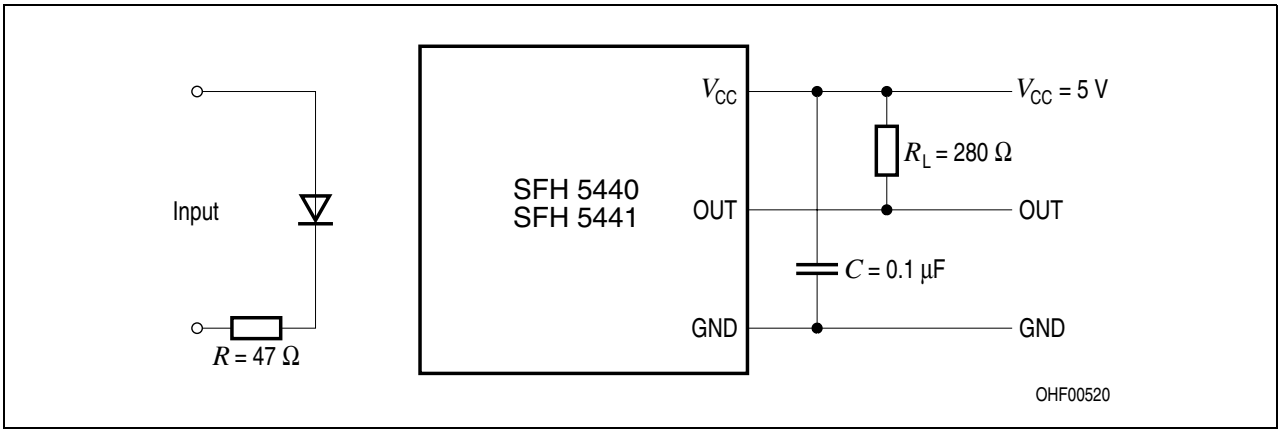


Figure 2 Test Circuit for Switching and Response Time

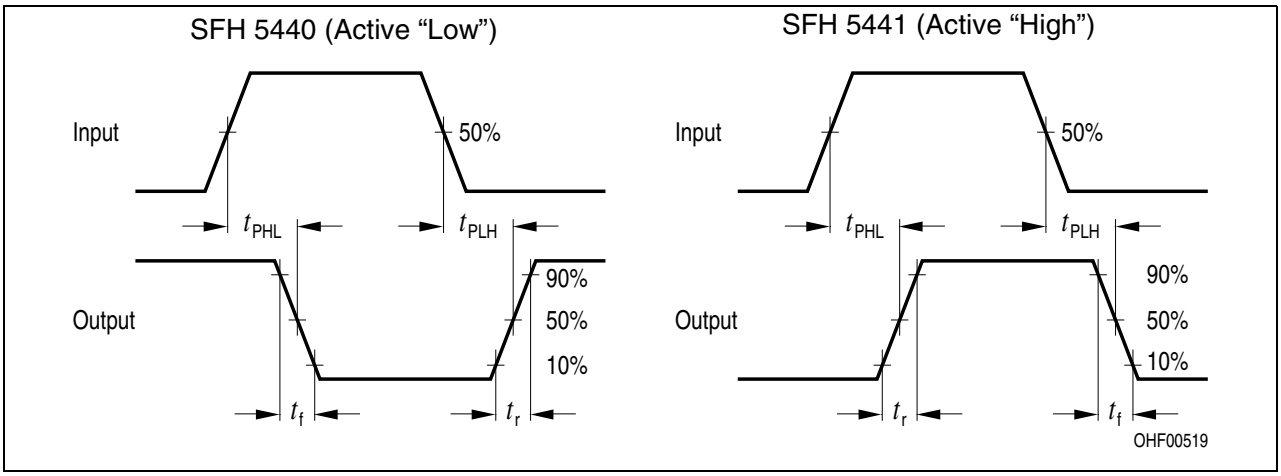
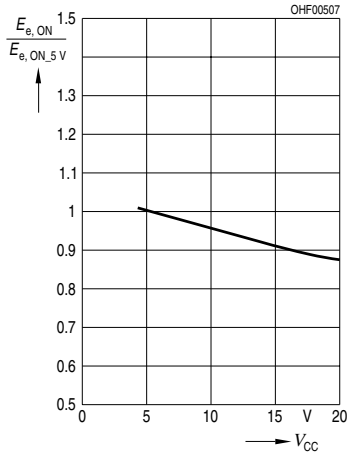
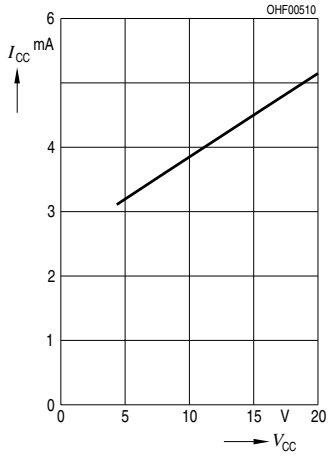


Figure 3 Switching Time Definitions

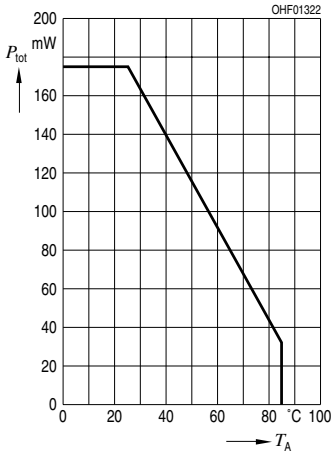
Relative Threshold
$E_{e,\,ON}/E_{e,\,ON\,(Vcc\,=\,5\,V)} = f\,(V_{CC})$



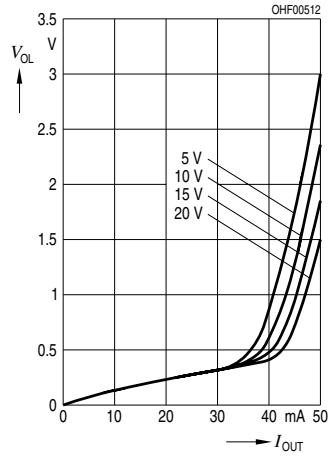
Supply Current
$I_{CC} = f\,(V_{CC})$



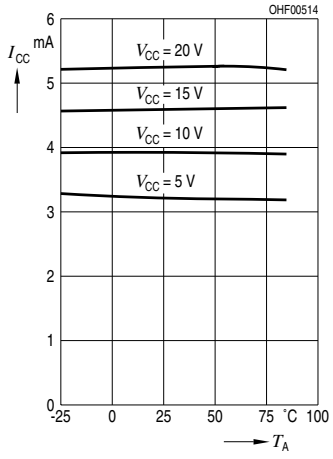
Total Power Dissipation
$P_{tot} = f\,(T_A)$



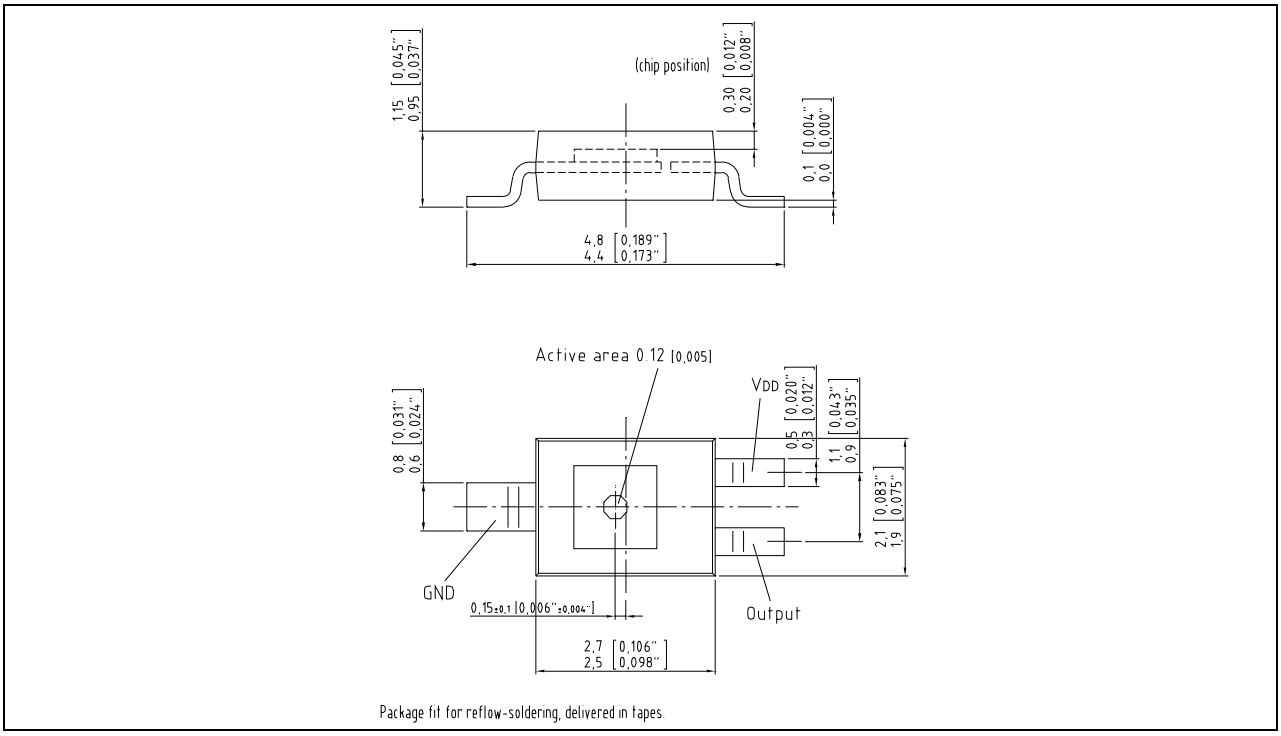
Output Voltage
$V_{OL} = f\,(I_{OUT}, V_{CC})$



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

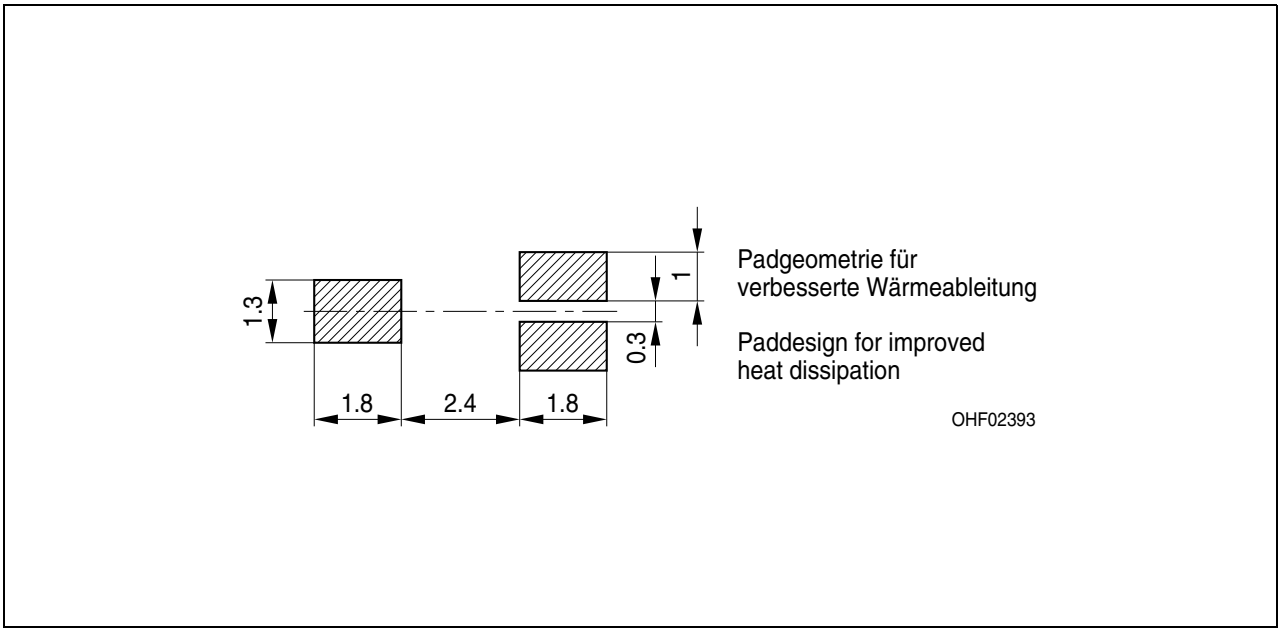


Maßzeichnung
Package Outlines



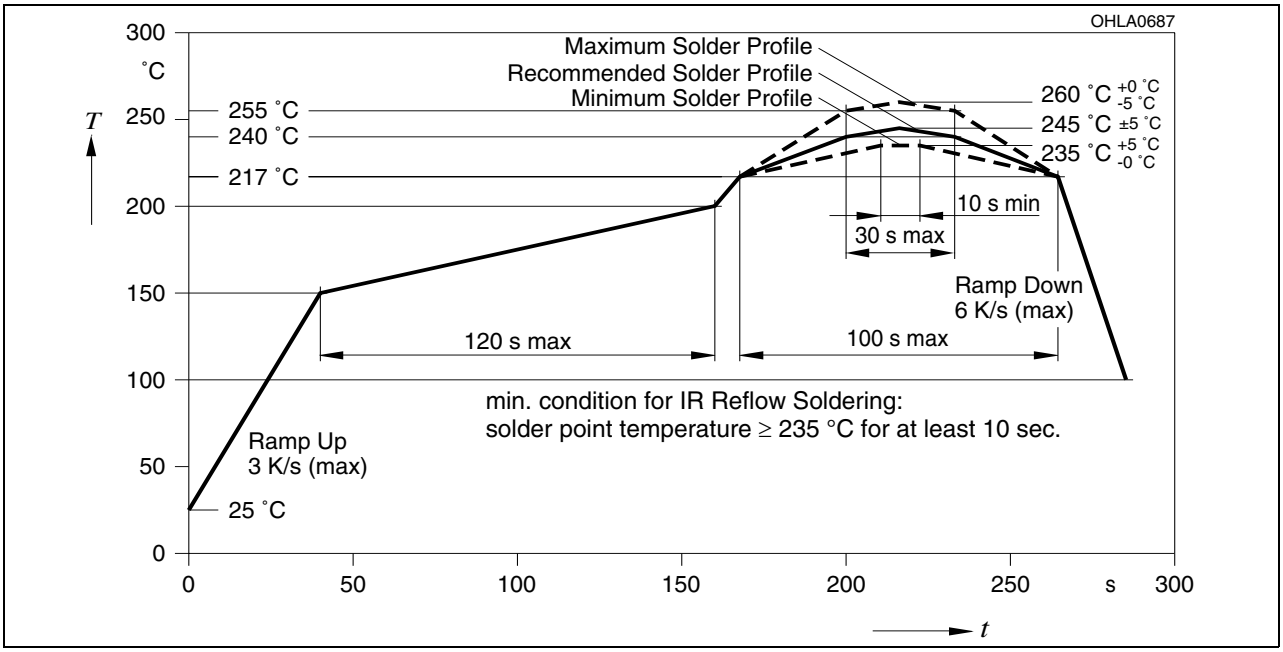
Maße in mm (inch) / Dimensions in mm (inch).

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
OSRAM Opto Semiconductors GmbH
Wernerwerkstrasse 2, D-93049 Regensburg
www.osram-os.com

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[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.

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