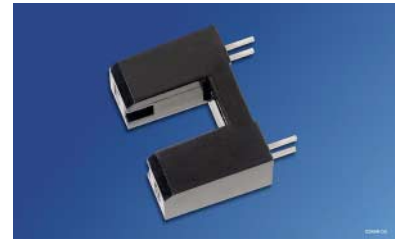


**Gabellichtschranke**  
**Slotted Interrupter**  
**Lead (Pb) Free Product - RoHS Compliant**  
**SFH 9315**



**Wesentliche Merkmale**

- Kompaktes Gehäuse
- GaAs-IR-Sendediode (950 nm)
- Si-Fototransistor mit Tageslichtsperrfilter

**Anwendungen**

- Geschwindigkeitsüberwachung
- Motorsteuerung
- Überwachung des Papiervorschubs in Druckern, Kopier- und Faxgeräten
- Speicherlaufwerke
- Steuerung des Druckkopfes in Druckern
- Münzdetektion
- Optoelektronische Schalter

**Features**

- Compact type
- GaAs infrared emitter (950 nm)
- Silicon phototransistor detector with daylight-cutoff filter

**Applications**

- Speed control
- Motor control
- Monitoring of paper feed in printers, copiers, facsimiles
- Disk drives
- Control of print head in printers
- Coin detection
- Optoelectronic switches

Typ Type	Bestellnummer Ordering Code	$I_{CE\ min.}$ [mA] ( $I_F = 20\ mA$ ; $V_{CE} = 5\ V$ )
SFH 9315	Q65110A1216	0.7

Grenzwerte  $T_A = 25\text{ °C}$ **Maximum Ratings**

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
<b>Sender (GaAs-Diode)</b> <b>Emitter (GaAs Diode)</b>			
Sperrspannung Reverse voltage	$V_R$	5	V
Durchlaßstrom Forward current	$I_{F(DC)}$	40	mA
Verlustleistung Power dissipation	$P_{tot}$	65	mW
Wärmewiderstand Thermal resistance	$R_{thJA}$	280	K/W

**Empfänger (Si-Fototransistor)****Detector (Silicon Phototransistor)**

Kollektor-Emitter-Spannung Collector-emitter voltage	$V_{CE}$	15	V
Kollektor-Emitter-Spannung, ( $t \leq 2$ min) Collector-emitter voltage, ( $t \leq 2$ min)	$V_{CE}$	30	
Emitter-Kollektor-Spannung Emitter-collector voltage	$V_{EC}$	7	
Kollektorstrom Collector current	$I_C$	15	mA
Verlustleistung Total power dissipation	$P_{tot}$	65	mW
Wärmewiderstand Thermal resistance	$R_{thJA}$	280	K/W

**Gabellichtschranke****Slotted Interrupter**

Lagertemperatur Storage temperature range	$T_{stg}$	- 40 ... + 85	°C
Betriebstemperatur Operating temperature range	$T_{op}$	- 40 ... + 85	
Elektrostatische Entladung Electrostatic discharge	ESD	2	kV

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

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
<b>Sender (GaAs-Diode)</b>			
<b>Emitter (GaAs Diode)</b>			
Wellenlänge der Strahlung Wavelength of peak emission	$\lambda_{\text{peak}}$	950	nm
Durchlaßspannung Forward voltage $I_F = 20\text{ mA}, t_p = 20\text{ ms}$	$V_F$	1.2 ( $\leq 1.4$ )	V
Sperrstrom Reverse current $V_R = 5\text{ V}$	$I_R$	0.01 ( $\leq 1$ )	$\mu\text{A}$
Kapazität Capacitance $V_R = 0\text{ V}, f = 1\text{ MHz}$	$C_0$	16	pF

**Empfänger (Si-Fototransistor)****Detector (Silicon Phototransistor)**

Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\text{ max}}$	920	nm
Spectr. Bereich der Fotoempfindlichkeit Spectral range of sensitivity $S = 10\%$ of $S_{\text{max}}$	$\lambda$	840 ... 1080	nm
Kapazität Capacitance $V_{CE} = 0\text{ V}, f = 1\text{ MHz}, E = 0$	$C_{CE}$	4.5	pF
Dunkelstrom Dark current $V_{CE} = 20\text{ V}$	$I_{CEO}$	2 ( $\leq 50$ )	nA

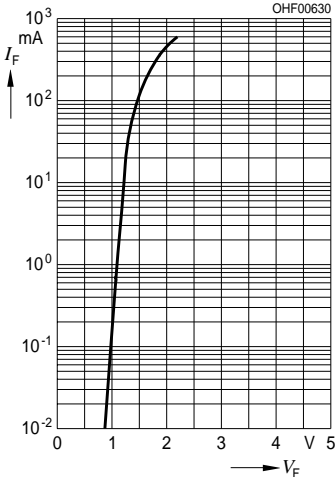
Kennwerte  $T_A = 25\text{ °C}$   
 Characteristics (cont'd)

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
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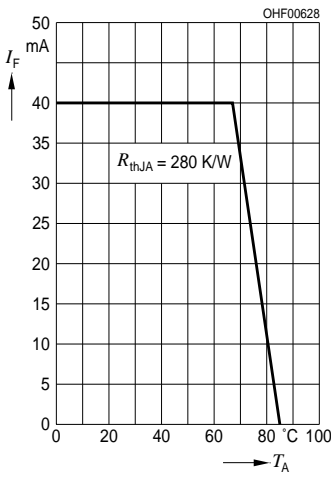
**Gabellichtschranke**  
**Slotted interrupter**

Kollektor-Emitterstrom Collector-emitter current $I_F = 20\text{ mA}; V_{CE} = 5\text{ V}$	$I_{CE\text{ min.}}$	0.7	mA
Kollektor-Emitter-Sättigungsspannung Collector-emitter-saturation voltage $I_F = 20\text{ mA}; I_C = 0.2\text{ mA}$	$V_{CE\text{ sat}}$	$\leq 0.4$	V
Anstiegs- und Abfallzeit Rise and fall time $V_{CC} = 5\text{ V}, I_C = 1\text{ mA}, R_L = 1\text{ k}\Omega$	$t_r$ $t_f$	13 17	$\mu\text{s}$ $\mu\text{s}$

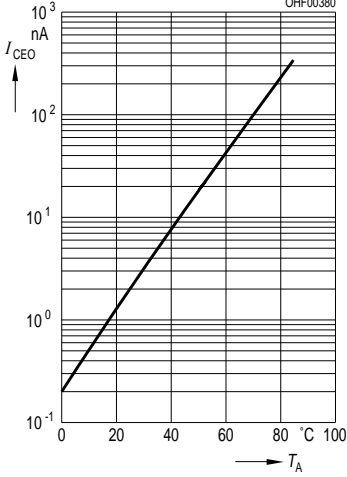
**Forward Current  $I_F = f(V_F)$**   
 Single pulse,  $t_p = 20 \mu s$



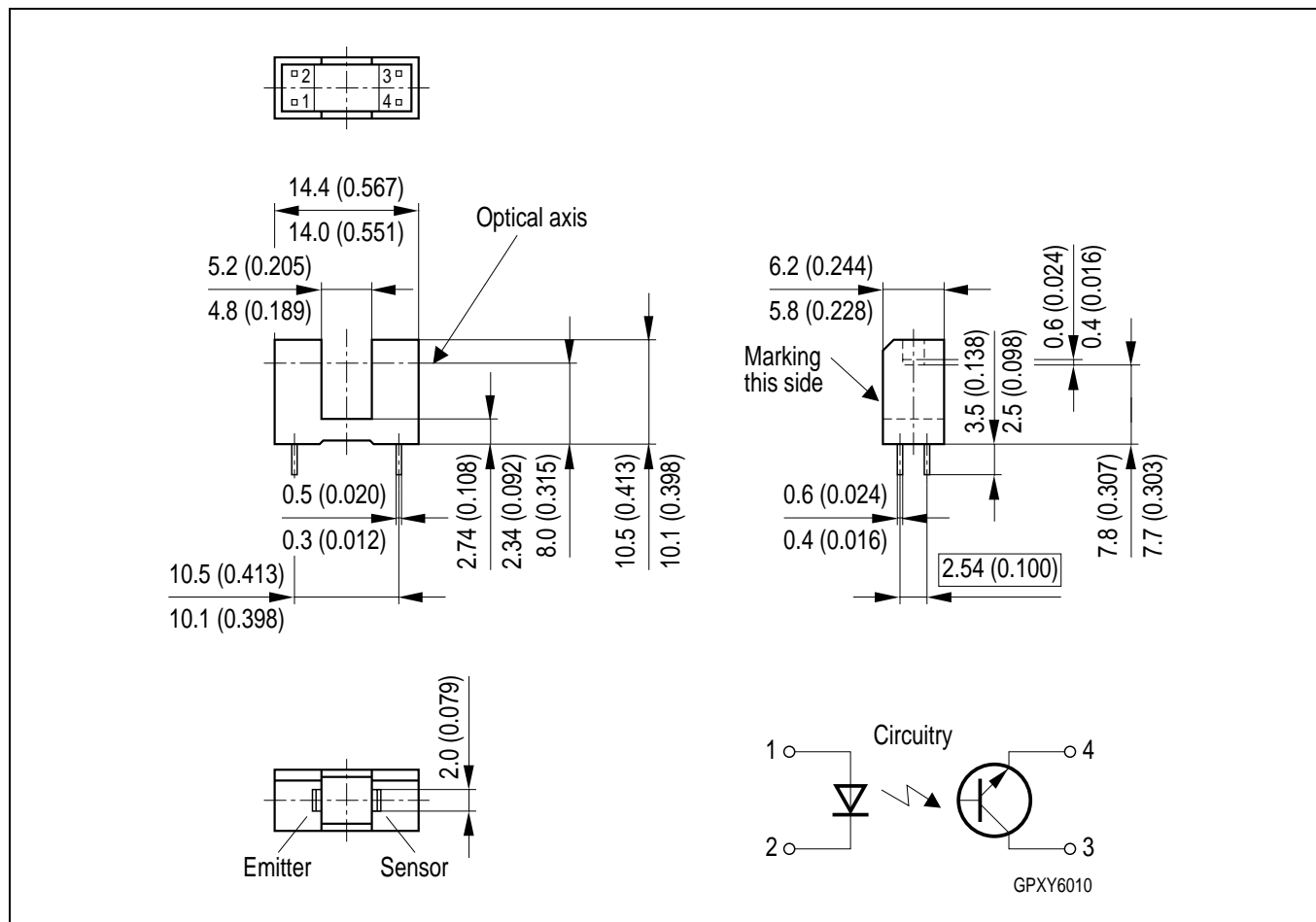
**Max. Permissible Forward Current  $I_F = f(T_A)$**



**Dark Current  $I_{CEO} = f(T_A)$**   
 $V_{CE} = 20 \text{ V}, E = 0$



Maßzeichnung  
Package Outlines



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

## Löthinweise Soldering Conditions

Bauform Type	Tauch-, Schwalllötung Dip, Wave Soldering		Reflowlötung Reflow Soldering		Kolbenlötung Iron Soldering (Iron temp.)
	Peak Temp. (solderbath)	Max. Time in Peak Zone	Peak Temp. (package temp.)	Max. Time in Peak Zone	
SFH 9315	260 °C	10 s	n. a.	–	300 °C < 5 s

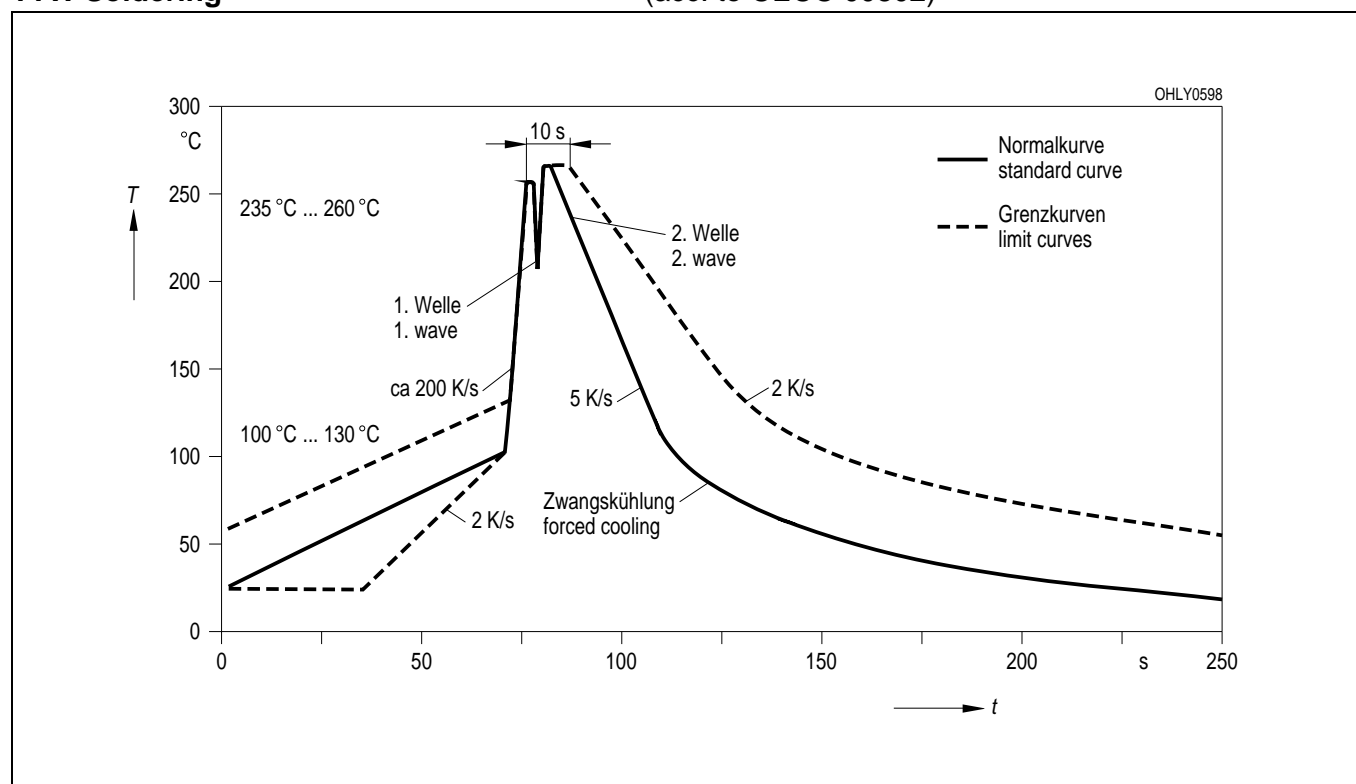
## Lötbedingungen Soldering Conditions

### Wellenlötten (TTW)

(nach CECC 00802)

### TTW Soldering

(acc. to CECC 00802)



Published by OSRAM Opto Semiconductors GmbH  
Wernerwerkstrasse 2, D-93049 Regensburg

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#### 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 <sup>1</sup>, may only be used in life-support devices or systems <sup>2</sup> with the express written approval of OSRAM OS.

<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.

<sup>2</sup> 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.

EU RoHS and China RoHS compliant product



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