

Gabellichtschranken Slotted Interrupters

SFH 9305



Wesentliche Merkmale

- Kompaktes Gehäuse
- GaAs-IR-Sendediode (940 nm)
- Si-Fototransistor mit Tageslichtsperrfilter
- Gehäuse mit SFH 4110 und SFH 3100 F als Basiskomponenten

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 (940 nm)
- Silicon phototransistor detector with daylight-cutoff filter
- Package using SFH 4110 and SFH 3100 F as basic components

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	Gehäuse Package
SFH 9305	on request	Schwarzes Polycarbonat Plastikgehäuse, Anschlüsse im 2.54-mm Raster, Senderseite durch Buchstaben „E“, Empfängerseite durch Buchstaben „S“ gekennzeichnet. Black polycarbonate plastic material housing, solder tabs 2.54-mm (1/10") spacing, emitter side marked with letter "E", sensor side marked with letter "S".

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

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Sender (GaAs-Diode) Emitter (GaAs Diode)			
Sperrspannung Reverse voltage	V_R	5	V
Durchlaßstrom Forward current	I_F (DC)	60	mA
Verlustleistung Power dissipation	P_{tot}	100	mW
Wärmewiderstand Thermal resistance	R_{thJA}	280	K/W

Empfänger (Si-Fototransistor)
Detector (Silicon Phototransistor)

Kollektor-Emitter-Spannung Collector-emitter voltage	V_{CE}	30	V
Kollektor-Emitter-Spannung, ($t \leq 2\text{ min}$) Collector-emitter voltage, ($t \leq 2\text{ min}$)	V_{CE}	70	
Emitter-Kollektor-Spannung Emitter-collector voltage	V_{EC}	7	
Kollektorstrom Collector current	I_C	50	mA
Verlustleistung Total power dissipation	P_{tot}	150	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

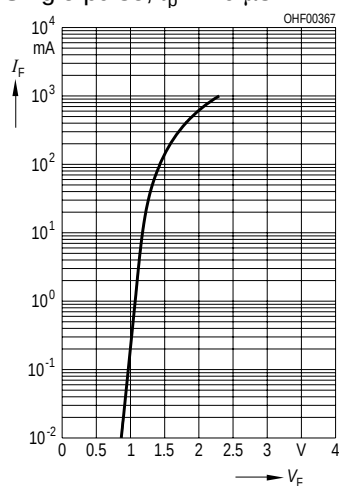
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Sender (GaAs-Diode)			
Emitter (GaAs Diode)			
Wellenlänge der Strahlung Wavelength of peak emission	λ_{peak}	940	nm
Durchlaßspannung Forward voltage $I_F = 20\text{ mA}$, $t_p = 20\text{ ms}$	V_F	1.2 (≤ 1.4)	V
Sperrstrom Reverse current $V_R = 5\text{ V}$	I_R	0.01 (≤ 1)	μA
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_{max}	λ	840 ... 1080	nm
Kapazität Capacitance $V_{CE} = 0\text{ V}$, $f = 1\text{ MHz}$, $E = 0$	C_{CE}	6.5	pF
Dunkelstrom Dark current $V_{CE} = 20\text{ V}$	I_{CEO}	2 (≤ 50)	nA

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

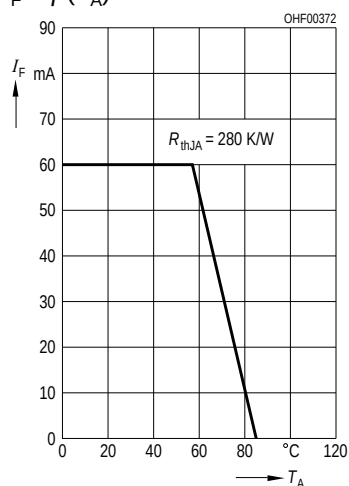
Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Gabellichtschranke Slotted Interrupter			
Kollektor-Emitterstrom Collector-emitter current $I_F = 20\text{ mA}$; $V_{CE} = 5\text{ V}$	$I_{CE\text{ min.}}$ $I_{CE\text{ typ.}}$	> 0.7	mA
Kollektor-Emitter-Sättigungsspannung Collector-emitter-saturation voltage $I_F = 20\text{ mA}$; $I_C = 0.2\text{ mA}$	$V_{CE\text{ sat}}$	≤ 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	μs μs

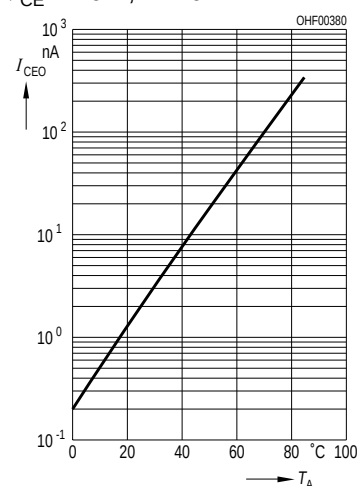
Forward Current $I_F = f(V_F)$
Single pulse, $t_p = 20 \mu s$



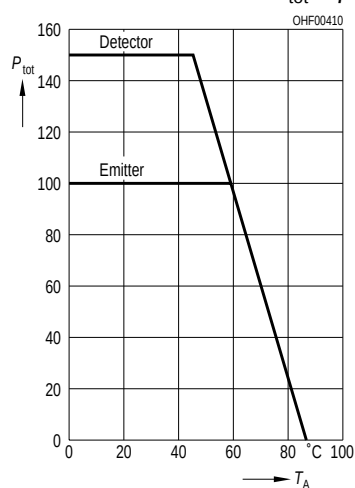
Max. Permissible Forward Current $I_F = f(T_A)$



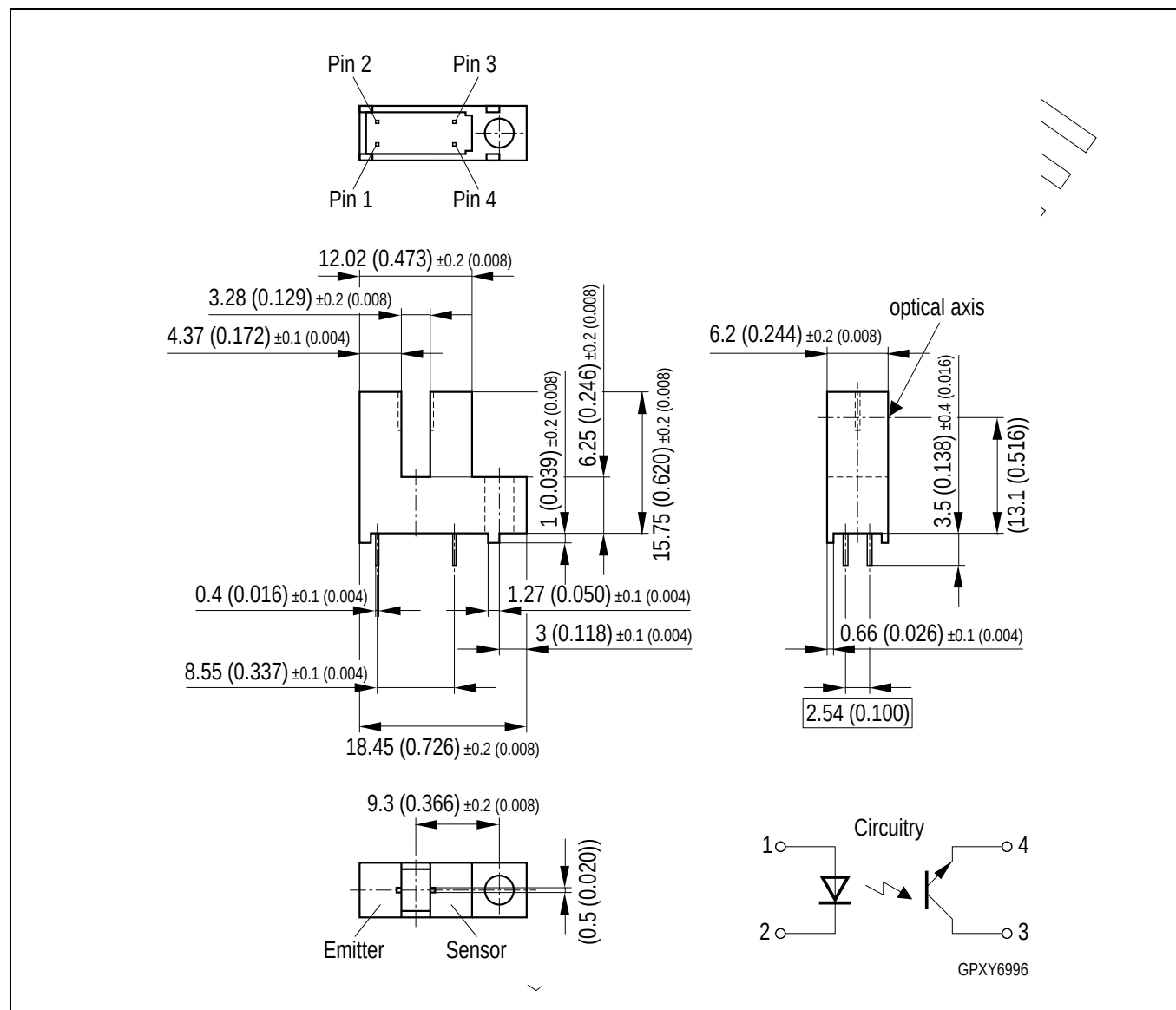
Dark Current $I_{CEO} = f(T_A)$
 $V_{CE} = 20 V, E = 0$



Total Power Dissipation for Emitter and Detector $P_{tot} = f(T_A)$



Maßzeichnung Package Outlines



Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

Löthinweise Soldering Conditions

Bauform Type	Tauch-, Schwalllötung Dip, Wave Soldering		Reflowlötung Reflow Soldering		Kolbenlötung Iron Soldering
	Peak Temp. (solderbath)	Max. Time in Peak Zone	Peak Temp. (package temp.)	Max. Time in Peak Zone	(Iron temp.)
SFH 9305	260 °C	10 s	n. a.	–	300 °C < 5 s

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Attention please!

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 components¹, may only be used in life-support devices or systems² with the express written approval of OSRAM OS.

¹ 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.

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.