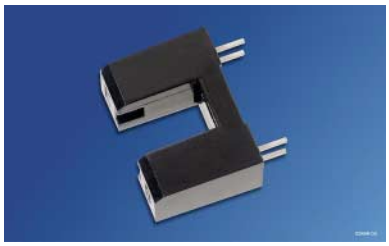
Gabellichtschranke
Slotted Interrupter

SFH 9310



Wesentliche Merkmale

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

Features

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

Anwendungen

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

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 9310	Q62702-P5214	Schwarzes Polykarbonat Plastikgehäuse, Anschlüsse im 2.54-mm Raster, Senderseite durch Buchstaben „E“, Empfängerseite durch Buchstaben „S“ gekennzeichnet, Kathode / Transistoremitter durch schräge Kante 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”, cathode / emitter of transistor marked with edge at an angle.

Grenzwerte T_A = 25 °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, ($t \leq 2$ min) Collector-emitter voltage, ($t \leq 2$ 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

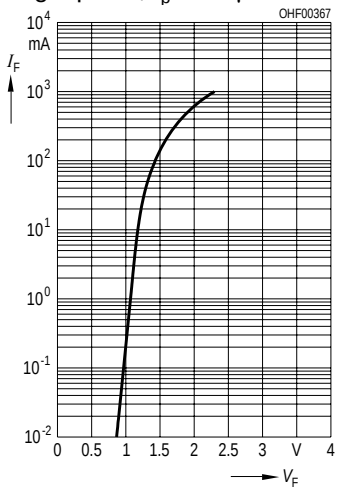
Kennwerte T_A = 25 °C
Characteristics

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Sender (GaAs-Diode) **Emitter** (GaAs Diode)			
Wellenlänge der Strahlung Wavelength of peak emission	λ_{peak}	950	nm
Durchlaβspannung Forward voltage I_F = 20 mA, t_p = 20 ms	V_F	1.2 (≤ 1.4)	V
Sperrstrom Reverse current V_R = 5 V	I_R	0.01 (≤ 1)	µA
Kapazität Capacitance V_R = 0 V, f = 1 MHz	C_0	16	pF
Empfänger (Si-Fototransistor) **Detector** (Silicon Phototransistor)			
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\ max}$	920	nm
Spectr. Bereich der Fotoempfindlichkeit Spectral range of sensitivity S = 10% of S_{max}	λ	840 … 1080	nm
Kapazität Capacitance V_{CE} = 0 V, f = 1 MHz, E = 0	C_{CE}	6.5	pF
Dunkelstrom Dark current V_{CE} = 20 V	I_{CEO}	2 (≤ 50)	nA

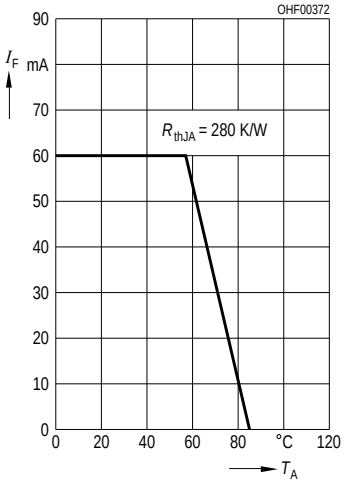
Kennwerte T_A = 25 °C
Characteristics (cont'd)

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Gabellichtschranke **Slotted interrupter**			
Kollektor-Emitterstrom Collector-emitter current I_F = 20 mA; V_{CE} = 5 V	$I_{CE\ min.}$ $I_{CE\ typ.}$	> 0.7	mA
Kollektor-Emitter-Sättigungsspannung Collector-emitter-saturation voltage I_F = 20 mA; I_C = 0.2 mA	$V_{CE\ sat}$	≤ 0.4	V
Anstiegs- und Abfallzeit Rise and fall time V_{CC} = 5 V, I_C = 1 mA, R_L = 1 kΩ	t_r t_f	13 17	µs µs

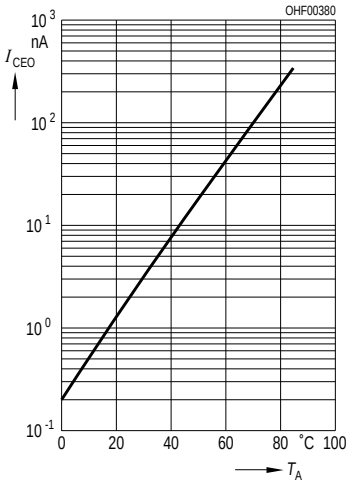
Forward Current $I_F = f(V_F)$
Single pulse, t_p = 20 µs



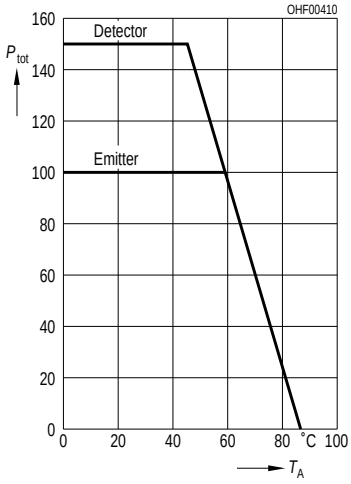
Max. Permissible Forward Current $I_F = f(T_A)$



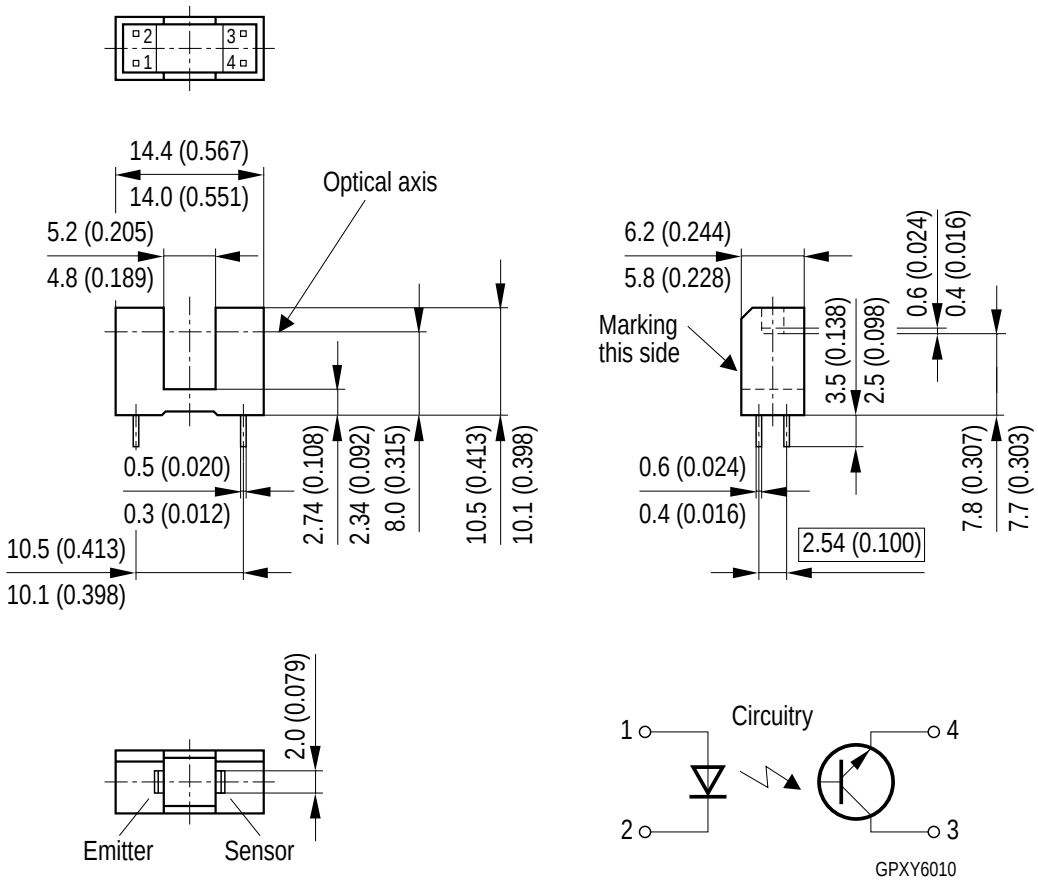
Dark Current $I_{CEO} = f(T_A)$
V_{CE} = 20 V, E = 0



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 9310	260 °C	10 s	n. a.	–	300 °C < 5 s

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