

Gabellichtschranke Slotted Interrupter

SFH 9300



Wesentliche Merkmale

- Kompaktes Gehäuse
- GaAs-IR-Sendediode (950 nm)
- Si-Fototransistor mit Tageslichtsperrfilter
- Einfache Unterscheidbarkeit von Sender (transparentes Gehäuse) und Empfänger (schwarzes Gehäuse)

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
- Easy identification of emitter (clear component package) and transistor (black component package)

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 9300	Q62702-P5019	Schwarzes Polykarbonat Plastikgehäuse, Anschlüsse im 2,54-mm Raster Polycarbonate plastic material housing, solder tabs 2.54-mm (1/10") spacing

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, ($t \leq 2$ 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

Grenzwerte $T_A = 25\text{ °C}$
Maximum Ratings (cont'd)

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
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}	950	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

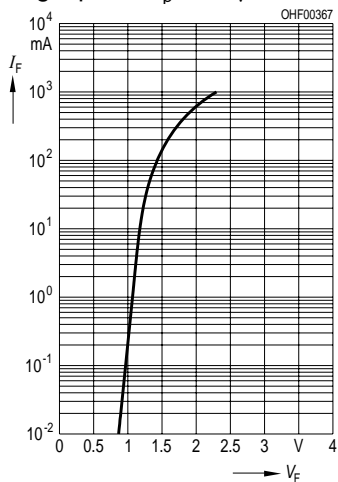
Kennwerte $T_A = 25\text{ °C}$
Characteristics (cont'd)

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
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 $V_{\text{CE}} = 0\text{ V}, f = 1\text{ MHz}, E = 0$	C_{CE}	6.5	pF
Dunkelstrom Dark current $V_{\text{CE}} = 20\text{ V}$	I_{CEO}	2 (≤ 50)	nA

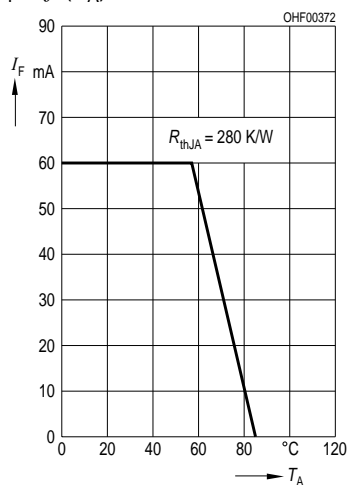
Gabellichtschanke
Slotted Interrupter

Kollektor-Emitterstrom Collector-emitter current $I_F = 20\text{ mA}; V_{\text{CE}} = 5\text{ V}$	$I_{\text{CE min.}}$ $I_{\text{CE typ.}}$	> 1	mA
Kollektor-Emitter-Sättigungsspannung Collector-emitter-saturation voltage $I_F = 20\text{ mA}; I_C = 0.3\text{ mA}$	$V_{\text{CE sat}}$	≤ 0.4	V
Anstiegs- und Abfallzeit Rise and fall time $V_{\text{CC}} = 5\text{ V}, I_C = 1\text{ mA}, R_L = 1\text{ k}\Omega$	t_r t_f	13 17	μs μs

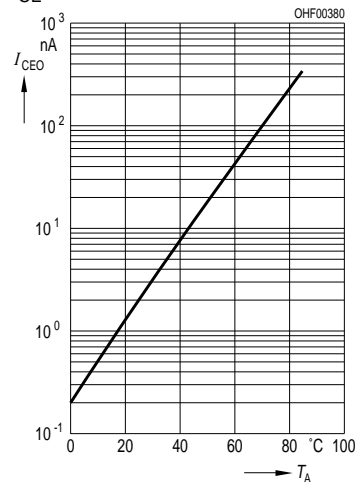
Forward Current $I_F = f(V_F)$
 Single pulse, $t_p = 20 \mu s$



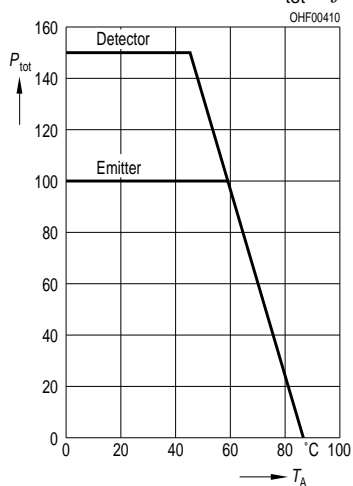
Max. Permissible Forward Current $I_F = f(T_A)$



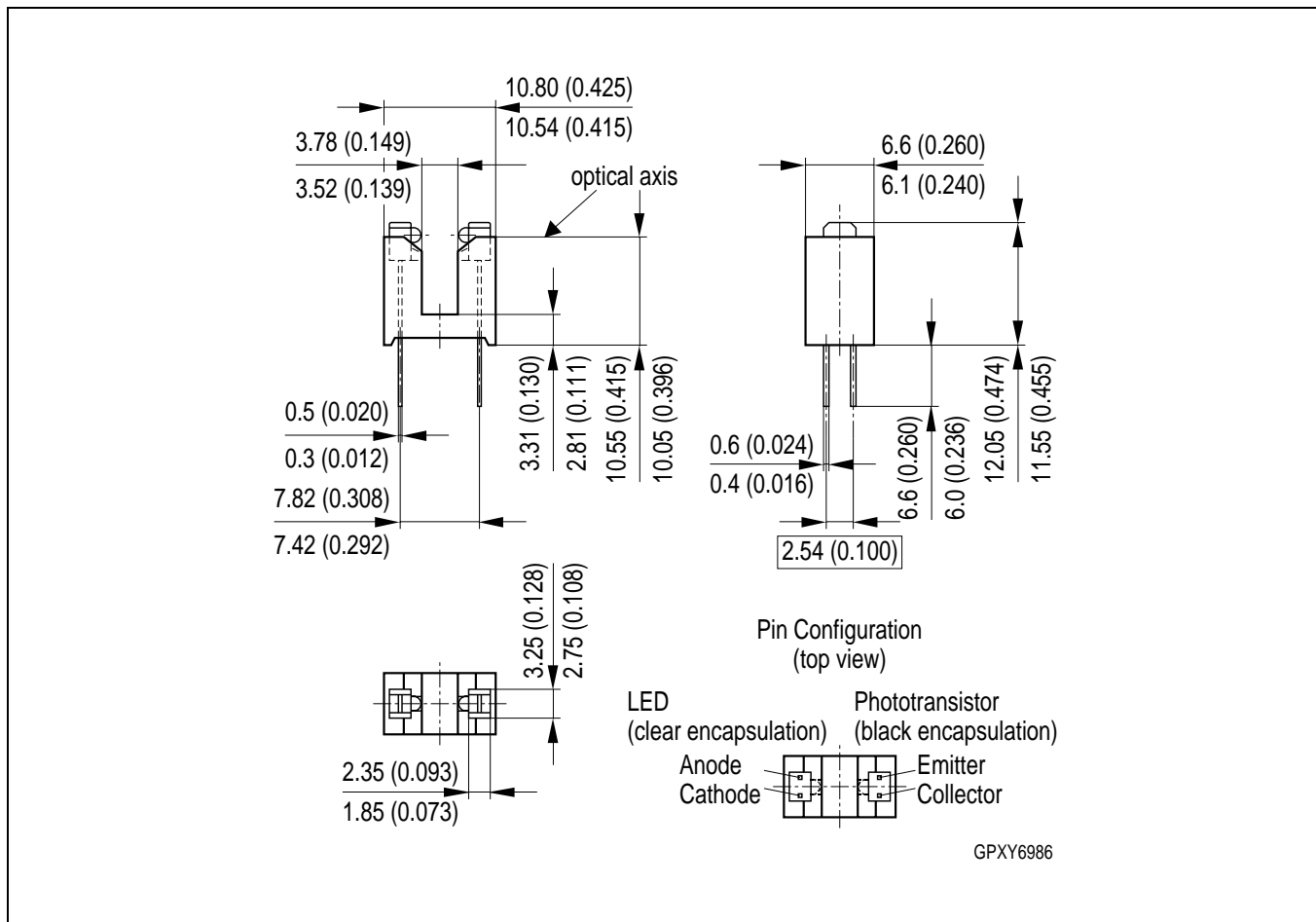
Dark Current $I_{CEO} = f(T_A)$
 $V_{CE} = 20 V, E = 0$



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 (Iron temp.)
	Peak Temp. (solderbath)	Max. Time in Peak Zone	Peak Temp. (package temp.)	Max. Time in peak zone	
SFH 9300	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 components ¹, may only be used in life-support devices or systems ² with the express written approval of OSRAM OS.

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