Silizium-PIN-Fotodiode
Silicon PIN Photodiode
Lead (Pb) Free Product - RoHS Compliant

SFH 203
SFH 203 FA

SFH 203

SFH 203 FA

Wesentliche Merkmale

- Wellenlängenbereich ($S_{10\%}$) 400nm bis 1100nm (SFH203) und 750nm bis 1100nm (SFH203FA)
- Kurze Schaltzeit (typ. 5 ns)
- 5 mm-Plastikbauform im LED-Gehäuse

Anwendungen

- Industrieelektronik
- „Messen/Steuern/Regeln“
- Schnelle Lichtschranken

Features

- Wavelength range ($S_{10\%}$) 400 nm to 1100 nm (SFH 203) and 750nm to 1100nm (SFH 203FA)
- Short switching time (typ. 5 ns)
- 5 mm LED plastic package

Applications

- Industrial electronics
- For control and drive circuits
- High speed photointerrupters

Typ **Type**	**Bestellnummer** **Ordering Code**	**Fotostrom**, E_v=1000 lx, standard light A, V_R = 5 V (SFH 203) **Photocurrent**, E_e=1 mW/cm^2, λ = 870nm, V_R = 5 V(SFH 203 FA) Ip (µA)
SFH 203	Q62702P0955	80 (≥50)
SFH 203 FA	Q62702P0956	50 (≥30)

OSRAM Opto Semiconductors

Grenzwerte
Maximum Ratings

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Betriebs- und Lagertemperatur Operating and storage temperature range	T_{op}; T_{stg}	– 40 … + 100	°C
Sperrspannung Reverse voltage	V_R V_R (t < 2 min)	20 50	V V
Verlustleistung Total power dissipation	P_{tot}	150	mW

Kennwerte (T_A = 25 °C)
Characteristics

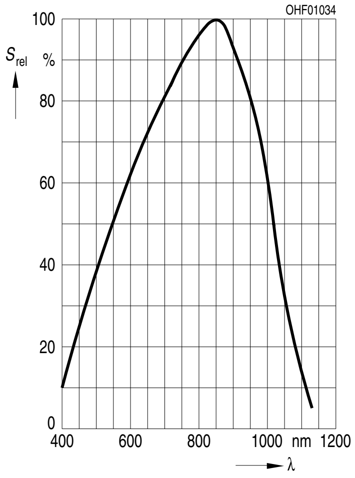
Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**		**Einheit** **Unit**
		SFH 203	**SFH 203 FA**	
Fotostrom Photocurrent V_R = 5 V, Normlicht/standard light A, T = 2856 K, E_V = 1000 lx V_R = 5 V, λ = 870 nm, E_e = 1 mW/cm^2	 I_P I_P	 80 (≥ 50) –	 – 50 (≥ 30)	 µA µA
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\ max}$	850	900	nm
Spektraler Bereich der Fotoempfindlichkeit S = 10% von S_{max} Spectral range of sensitivity S = 10% of S_{max}	λ	400 … 1100	750 … 1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	1	1	mm^2
Abmessung der bestrahlungsempfindlichen Fläche Dimensions of radiant sensitive area	$L \times B$ $L \times W$	1 × 1	1 × 1	mm × mm
Halbwinkel Half angle	φ	± 20	± 20	Grad deg.
Dunkelstrom, V_R = 20 V Dark current	I_R	1 (≤ 5)	1 (≤ 5)	nA
Spektrale Fotoempfindlichkeit, λ = 850 nm Spectral sensitivity	S_λ	0.62	0.59	A/W
Quantenausbeute, λ = 850 nm Quantum yield	η	0.89	0.86	Electrons Photon

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

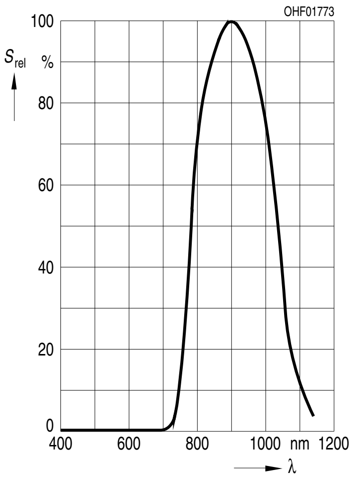
Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**		**Einheit** **Unit**
		SFH 203	**SFH 203 FA**	
Leerlaufspannung Open-circuit voltage E_v = 1000 lx, Normlicht/standard light A, T = 2856 K E_e = 0.5 mW/cm², λ = 870 nm	V_O V_O	420 (≥ 350) –	– 370 (≥ 300)	mV mV
Kurzschlußstrom Short-circuit current E_v = 1000 lx, Normlicht/standard light A, T = 2856 K E_e = 0.5 mW/cm², λ = 870 nm	I_{SC} I_{SC}	80 –	– 25	µA µA
Anstiegs- und Abfallzeit des Fotostromes Rise and fall time of the photocurrent R_L = 50 Ω; V_R = 20 V; λ = 850 nm	t_r, t_f	5	5	ns
Durchlaßspannung, I_F = 80 mA, E = 0 Forward voltage	V_F	1.3	1.3	V
Kapazität, V_R = 0 V, f = 1 MHz, E = 0 Capacitance	C_0	11	11	pF
Temperaturkoeffizient von V_O Temperature coefficient of V_O	TC_V	– 2.6	– 2.6	mV/K
Temperaturkoeffizient von I_{SC} Temperature coefficient of I_{SC} Normlicht/standard light A λ = 870 nm	TC_I	0.18 –	– 0.1	%/K
Rauschäquivalente Strahlungsleistung Noise equivalent power V_R = 20 V, λ = 850 nm	NEP	2.9×10^{-14}	2.9×10^{-14}	$\frac{W}{\sqrt{Hz}}$
Nachweisgrenze, V_R = 20 V, λ = 850 nm Detection limit	D*	3.5×10^{12}	3.5×10^{12}	$\frac{cm \times \sqrt{Hz}}{W}$

OSRAM
Opto Semiconductors

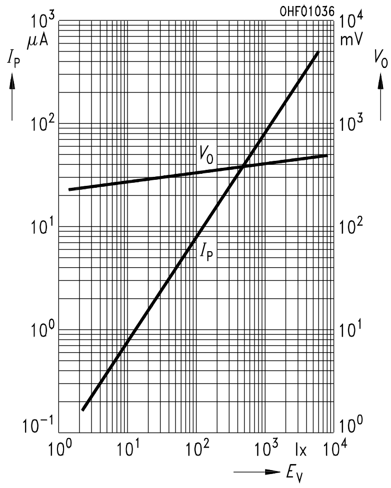
Relative Spectral Sensitivity
SFH 203
$S_{rel} = f(\lambda)$



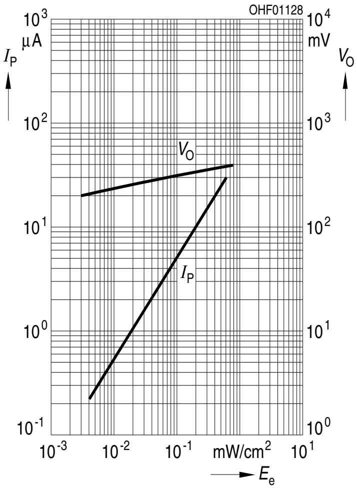
Relative Spectral Sensitivity
SFH 203 FA
$S_{rel} = f(\lambda)$



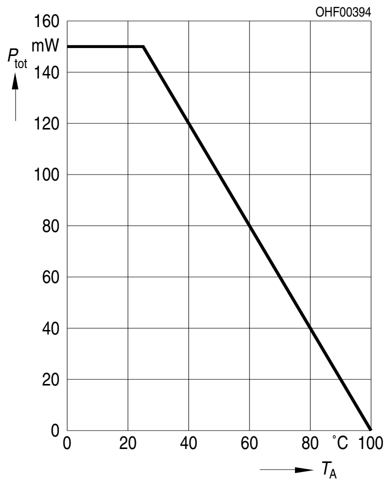
Photocurrent $I_P = f(E_v)$, V_R = 5 V
Open-Circuit Voltage $V_O = f(E_v)$
SFH 203



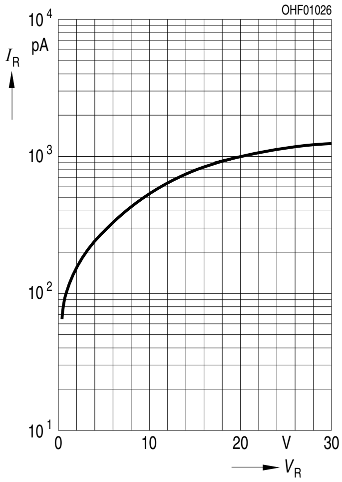
Photocurrent $I_P = f(E_e)$, V_R = 5 V
Open-Circuit-Voltage $V_O = f(E_e)$
SFH 203 FA



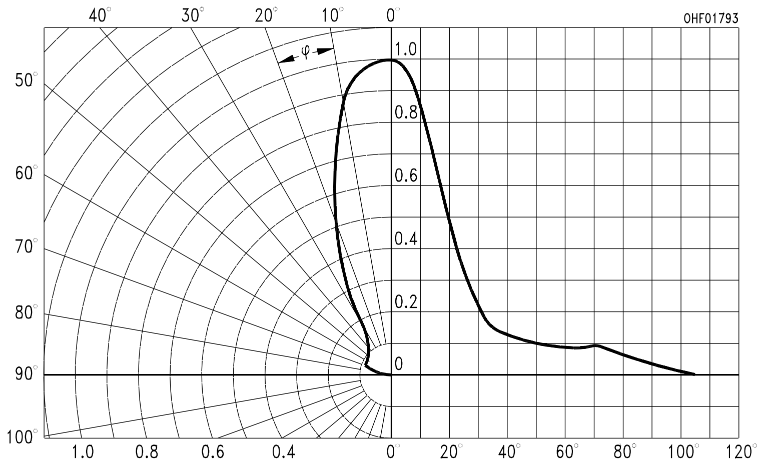
Total Power Dissipation
$P_{tot} = f(T_A)$



Dark Current
$I_R = f(V_R)$, $E = 0$

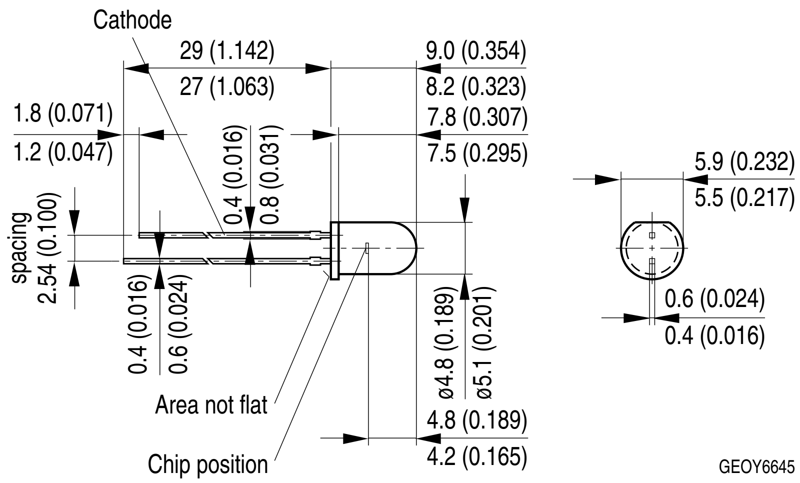


Directional Characteristics
$S_{rel} = f(\varphi)$



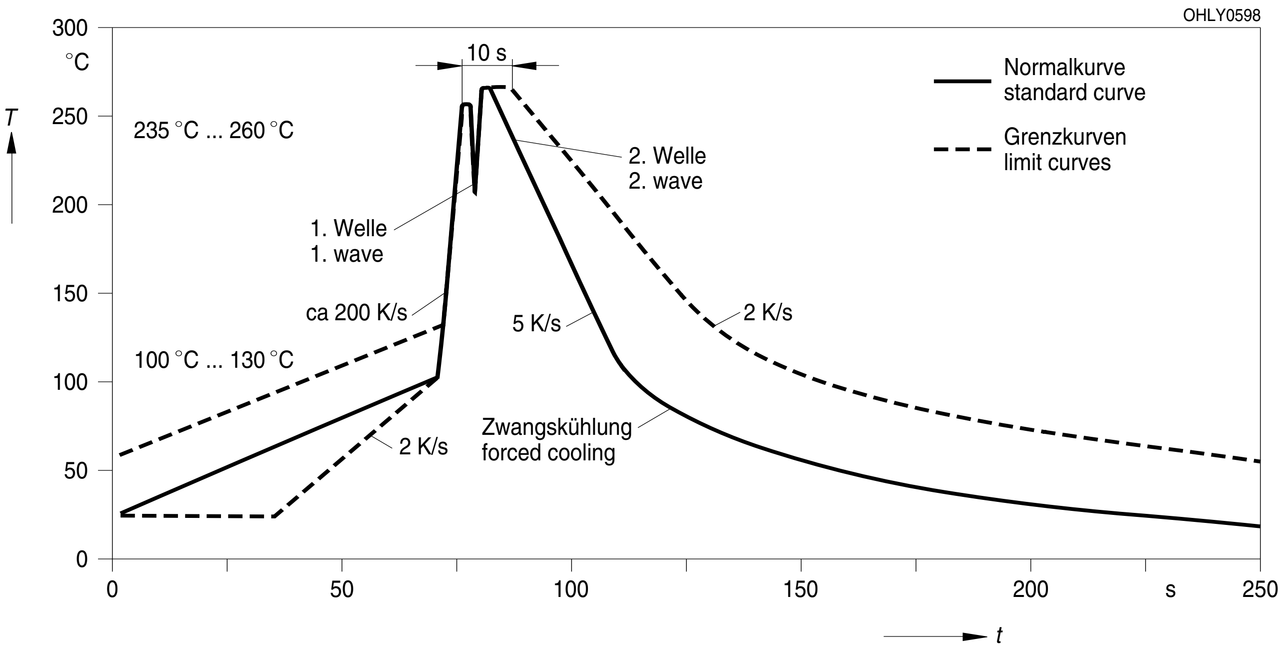
OSRAM
Opto Semiconductors

Maßzeichnung
Package Outlines



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

Lötbedingungen
Soldering Conditions
Wellenlöten (TTW) (nach CECC 00802)
TTW Soldering (acc. to CECC 00802)



EU RoHS and China RoHS compliant product

此产品符合欧盟 RoHS 指令的要求；

按照中国的相关法规和标准，不含有毒有害物质或元素。

Published by
OSRAM Opto Semiconductors GmbH
Leibnizstraße 4, D-93055 Regensburg
www.osram-os.com

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.

[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.