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

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

Anwendungen

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

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)

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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

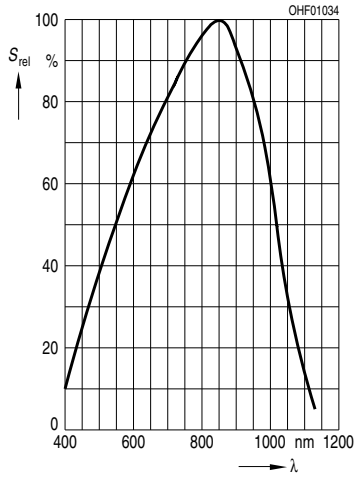
Kennwerte (T_A = 25 °C)
Characteristics

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/cm²	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	mm²
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

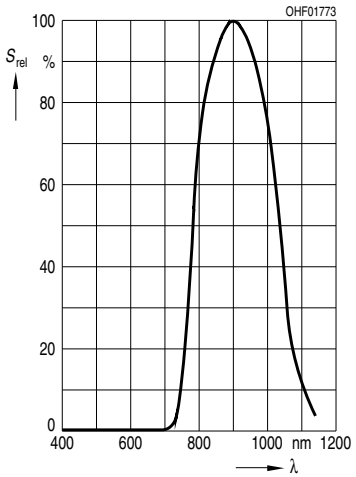
Kennwerte (T_A = 25 °C)
Characteristics (cont'd)

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}	$\frac{cm \times \sqrt{Hz}}{W}$

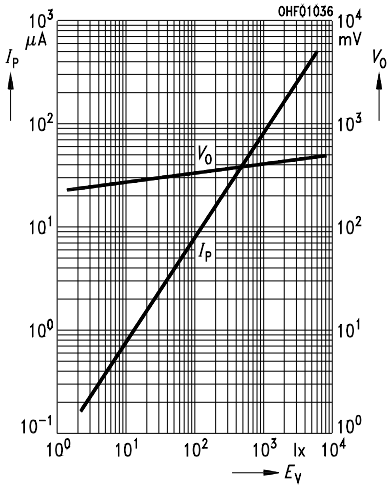
Relative Spectral Sensitivity
SFH 203
$S_{rel} = f(\lambda)$



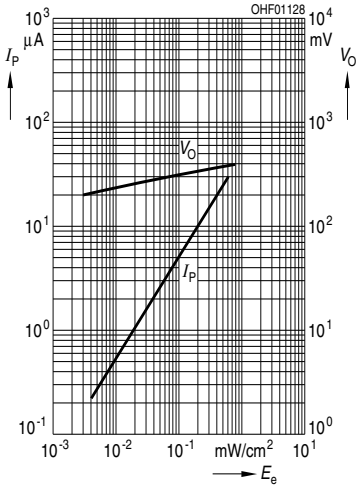
Relative Spectral Sensitivity
SFH 203 FA
$S_{rel} = f(\lambda)$



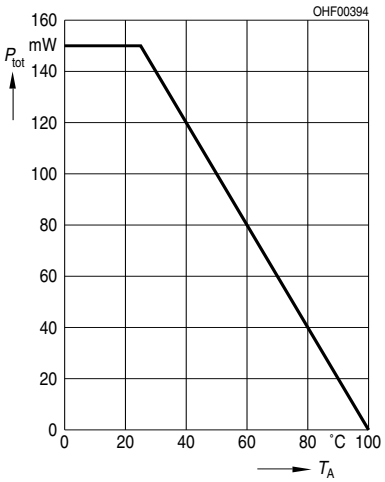
Photocurrent $I_P = f(E_v)$, V_R = 5 V
Open-Circuit Voltage $V_O = f(E_v)$
SFH 203



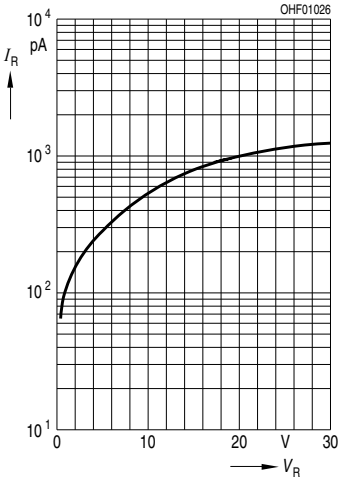
Photocurrent $I_P = f(E_e)$, V_R = 5 V
Open-Circuit-Voltage $V_O = f(E_e)$
SFH 203 FA



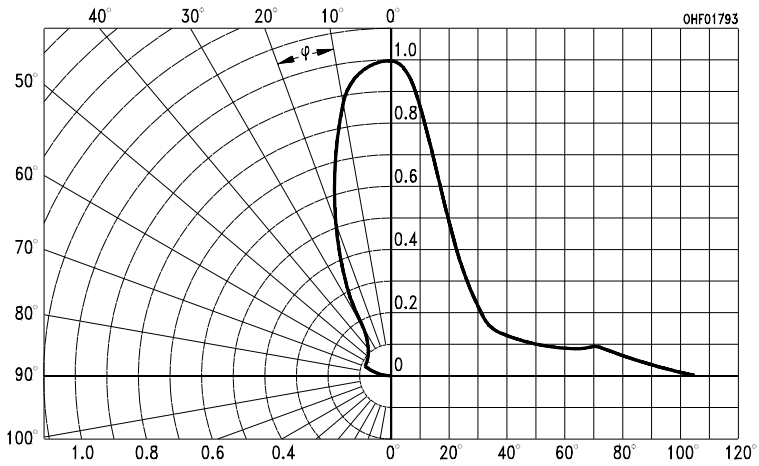
Total Power Dissipation
$P_{tot} = f(T_A)$



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



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



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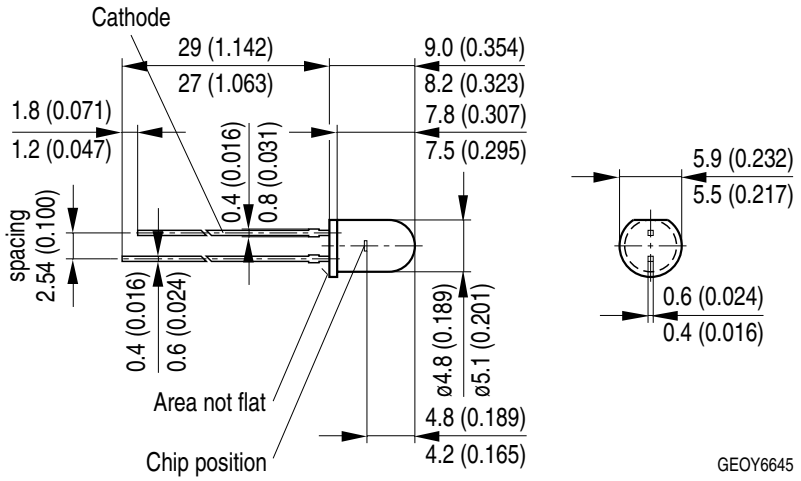
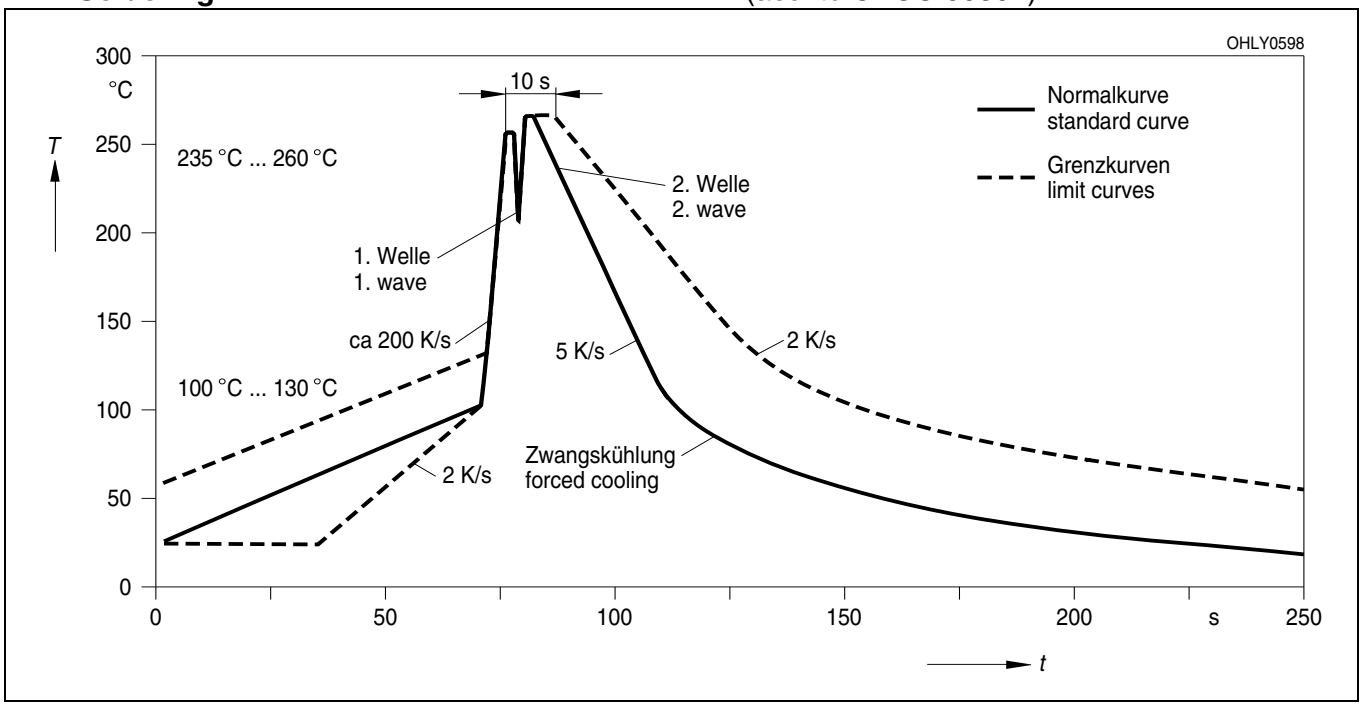
Maßzeichnung
Package Outlines



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

Lötbedingungen
Soldering Conditions

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



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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。

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