

Silizium-Fotodiode mit V_λ Charakteristik
Silicon Photodiode with V_λ Characteristics
Lead (Pb) Free Product - RoHS Compliant
SFH 2430



Wesentliche Merkmale

- Spektrale Empfindlichkeit angepasst an die Augenempfindlichkeit (V_λ)
- Niedriger Temperaturkoeffizient der Fotoempfindlichkeit
- Gute Linearität
- DIL-Plastikbauform mit hoher Packungsdichte

Features

- Spectral sensitivity adapted to Human Eye Sensitivity (V_λ)
- Low temperature coefficient of spectral sensitivity
- high linearity
- DIL plastic package with high packing density

Anwendungen

- Umgebungslichtsensor (Handy, Regensensor, Klimaanlagesteuerung)

Applications

- Ambient light sensor (Mobile phone, rain sensor, regulation of air conditioning)

Typ Type	Bestellnummer Ordering Code	Fotostrom, $E_v=1000 \text{ lx}$, standard light A, $V_R = 5 \text{ V}$ Photocurrent $I_p (\mu\text{A})$
SFH 2430	Q65110A2673	6.3 (>5)

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	6	V
Verlustleistung, $T_A = 25\text{ °C}$ Total power dissipation	P_{tot}	150	mW

Kennwerte ($T_A = 25\text{ °C}$, Normlicht A, $T = 2856\text{ K}$)
Characteristics ($T_A = 25\text{ °C}$, standard light A, $T = 2856\text{ K}$)

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Fotoempfindlichkeit, $V_R = 5\text{ V}$ Spectral sensitivity	S	6.3 (>5)	nA/lx
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\max}$	570	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von $S_{\max}$ Spectral range of sensitivity $S = 10\%$ of $S_{\max}$	λ	400 ... 900	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	7.00	mm ²
Abmessung der bestrahlungsempfindlichen Fläche Dimensions of radiant sensitive area	$L \times B$ $L \times W$	2.65 × 2.65	mm × mm
Halbwinkel Half angle	φ	± 60	Grad deg.
Dunkelstrom, $V_R = 5\text{ V}$ Dark current	I_R	0.1 (<5)	nA
Spektrale Fotoempfindlichkeit, $\lambda = 550\text{ nm}$ Spectral sensitivity	S_λ	0.17	A/W
Anstiegs- und Abfallzeit des Fotostromes Rise and fall time of the photocurrent $R_L = 50\text{ k}\Omega$; $V_R = 5\text{ V}$; $\lambda = 550\text{ nm}$	t_r, t_f	200	µs
Durchlaßspannung, $I_F = 100\text{ mA}$, $E = 0$ Forward voltage	V_F	1.2	V

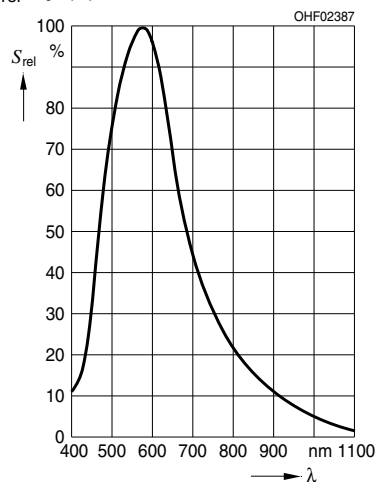
Kennwerte ($T_A = 25\text{ °C}$, Normlicht A, $T = 2856\text{ K}$)

Characteristics ($T_A = 25\text{ °C}$, standard light A, $T = 2856\text{ K}$) (cont'd)

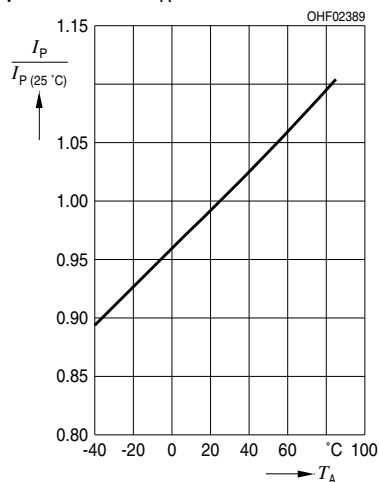
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Kapazität, $V_R = 0\text{ V}$, $f = 1\text{ MHz}$, $E = 0$ Capacitance	C_0	1000	pF
Temperaturkoeffizient von I_{SC} Temperature coefficient of I_{SC}	TC_1	0.16	%/K

Relative Spectral Sensitivity

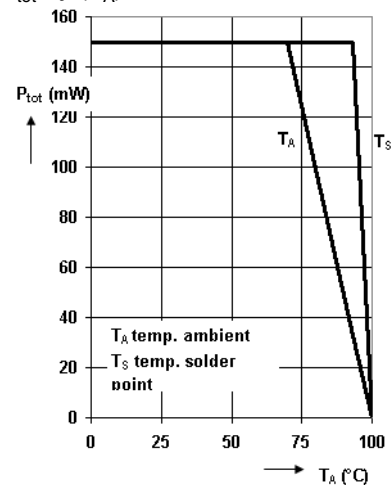
$$S_{\text{rel}} = f(\lambda)$$

**Photocurrent $I_P/I_{P(25^\circ\text{C})} = f(T_A)$**

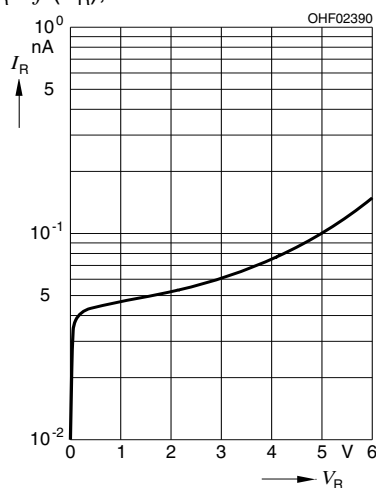
$$E_v = 1000 \text{ lx}, V_R = 5 \text{ V}$$

**Total Power Dissipation**

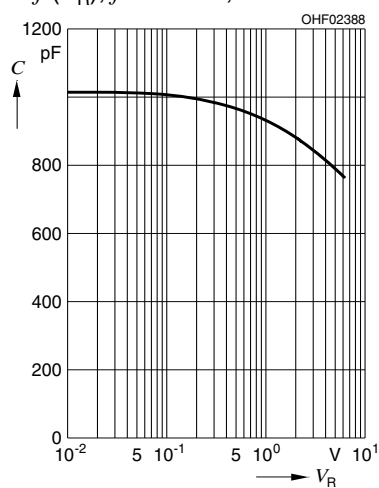
$$P_{\text{tot}} = f(T_A)$$

**Dark Current**

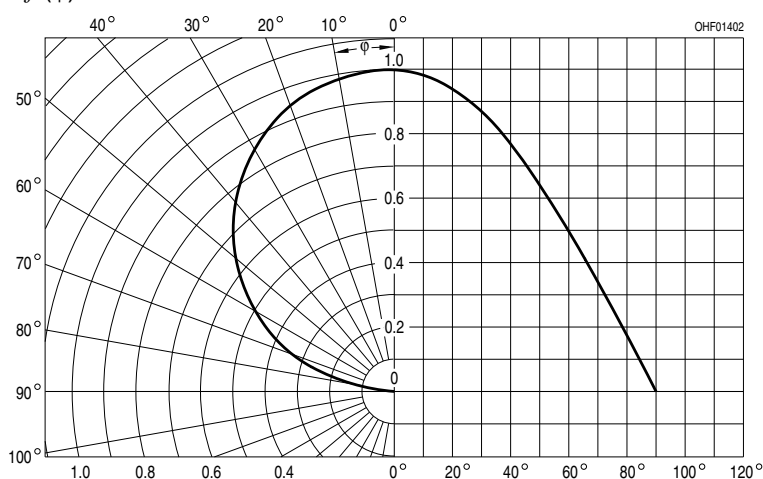
$$I_R = f(V_R), E = 0$$

**Capacitance**

$$C = f(V_R), f = 1 \text{ MHz}, E = 0$$

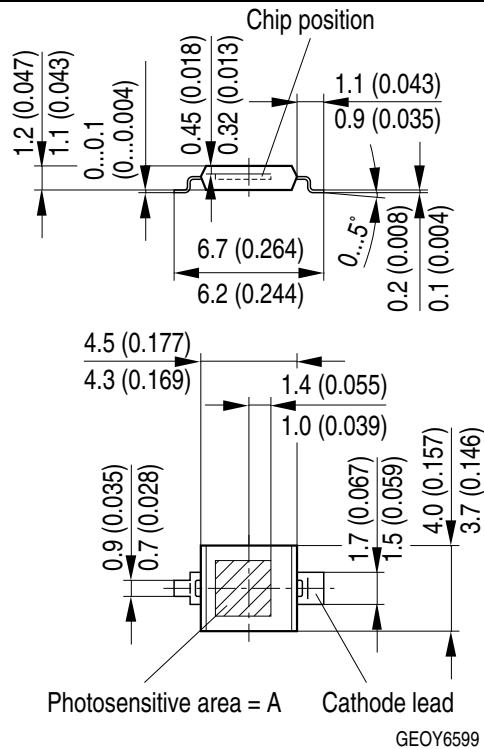
**Directional Characteristics**

$$S_{\text{rel}} = f(\varphi)$$

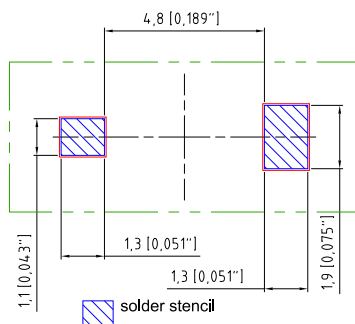
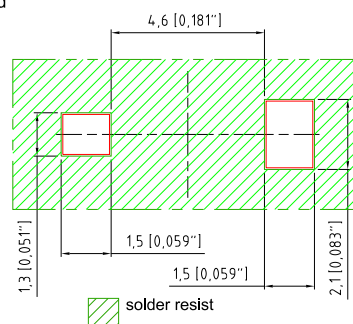
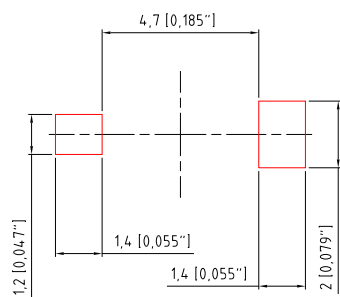


Maßzeichnung Package Outlines

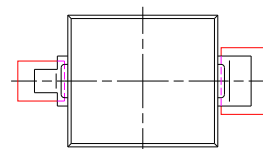
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Empfehlung Lötpaddesign
Recommended Pad



Component Location on Pad



E062 3010 111 - 01

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

2011-10-14

5

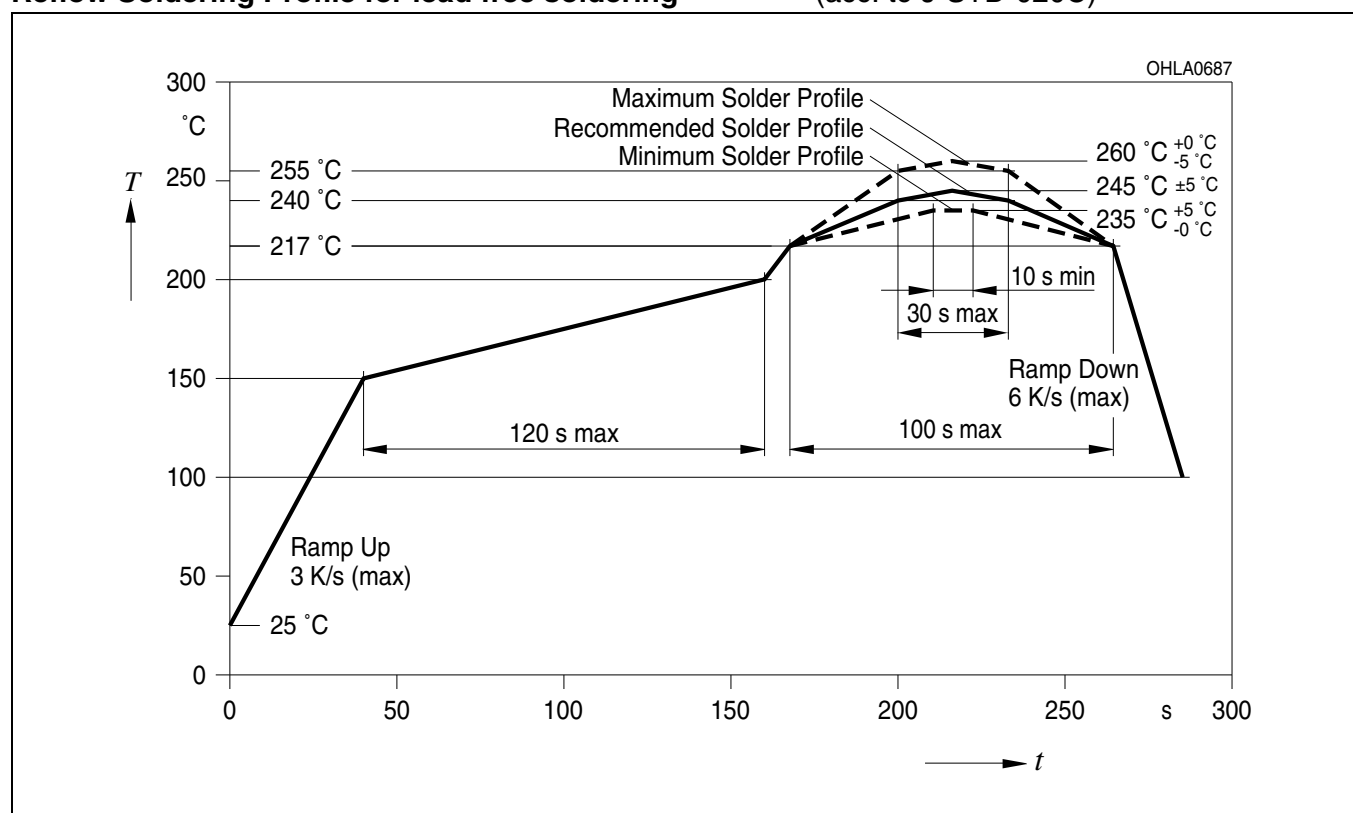
Lötbedingungen**Soldering Conditions****Reflow Lötprofil für bleifreies Löt****Reflow Soldering Profile for lead free soldering**

Vorbehandlung nach JEDEC Level 4

Preconditioning acc. to JEDEC Level 4

(nach J-STD-020C)

(acc. to J-STD-020C)



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EU RoHS and China RoHS compliant product



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