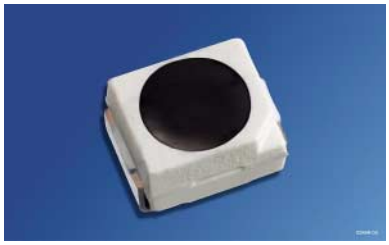
NPN-Silizium-Fototransistor im SMT TOPLED®-Gehäuse
Silicon NPN Phototransistor in SMT TOPLED®-Package
Lead (Pb) Free Product - RoHS Compliant

SFH 320
SFH 320 FA

SFH 320



SFH 320 FA

Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 450 nm bis 1150 nm (SFH 320) und 750 nm bis 1120 n (SFH 320 FA)
- Hohe Linearität
- P-LCC-2 Gehäuse
- Gruppiert lieferbar
- Für alle Lötverfahren geeignet.

Features

- Especially suitable for applications from 450 nm to 1150 nm (SFH 320) and 750 nm to 1120 nm (SFH 320 FA)
- High linearity
- P-LCC-2 package
- Available in groups
- Suitable for all soldering methods.

Anwendungen

- Miniaturlichtschranken für Gleich- und Wechsellichtbetrieb
- Industrieelektronik
- „Messen/Steuern/Regeln“

Applications

- Miniature photointerrupters
- Industrial electronics
- For control and drive circuits

Typ **Type**	**Bestellnummer** **Ordering Code**	**Fotostrom** , (E_e=0,1mW/cm^2,λ=950nm V_{CE} = 5 V) **Photocurrent** Ipce (µA)
SFH 320	Q65110A2471	> 16
SFH 320-3	Q65110A2469	25-50
SFH 320-3/-4	Q65110A1781	25-80
SFH 320-4	Q65110A2510	40-80
SFH 320 FA	Q65110A2472	> 16
SFH 320 FA-3	Q65110A2470	25-50
SFH 320 FA-3/-4	Q65110A2475	25-80
SFH 320 FA-4	Q65110A1836	40-80

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
Kollektor-Emitterspannung Collector-emitter voltage	V_{CE}	35	V
Kollektorstrom Collector current	I_C	15	mA
Kollektorspitzenstrom, $\tau < 10$ µs Collector surge current	I_{CS}	75	mA
Verlustleistung, $T_A = 25$ °C Total power dissipation	P_{tot}	165	mW
Wärmewiderstand für Montage auf PC-Board Thermal resistance for mounting on pcb	R_{thJA}	450	K/W

Kennwerte (T_A = 25 °C, λ = 950 nm)
Characteristics

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**		**Einheit** **Unit**
		SFH 320	**SFH 320 FA**	
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\ max}$	980	980	nm
Spektraler Bereich der Fotoempfindlichkeit S = 10% von S_{max} Spectral range of sensitivity S = 10% of S_{max}	λ	450 … 1150	750 … 1120	nm
Bestrahlungsempfindliche Fläche (∅ 220 µm) Radiant sensitive area	A	0.038	0.038	mm^2
Abmessung der Chipfläche Dimensions of chip area	$L \times B$ $L \times W$	0.45 × 0.45	0.45 × 0.45	mm × m m
Halbwinkel Half angle	φ	±60	±60	Grad deg.
Kapazität, V_{CE} = 0 V, f = 1 MHz, E = 0 Capacitance	C_{CE}	5.0	5.0	pF
Dunkelstrom Dark current V_{CE} = 20 V, E = 0	I_{CEO}	1 (≤50)	1 (≤50)	nA

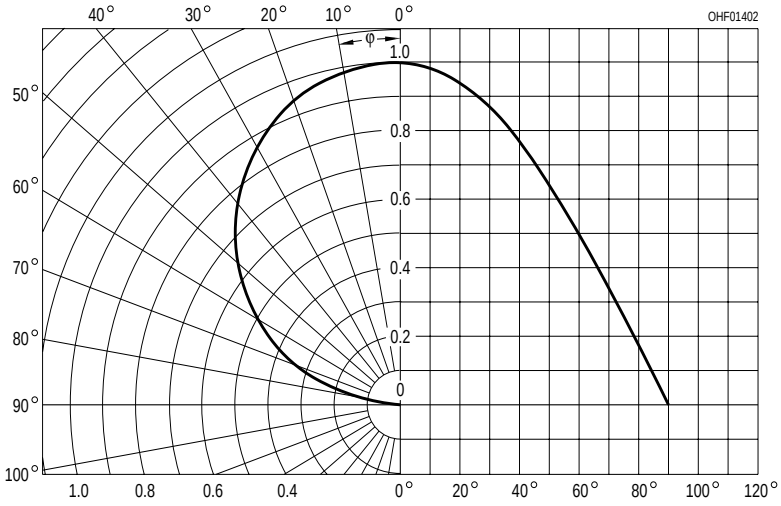
Die Fototransistoren werden nach ihrer Fotoempfindlichkeit gruppiert und mit arabischen Ziffern gekennzeichnet.
The phototransistors are grouped according to their spectral sensitivity and distinguished by arabian figures.

Bezeichnung Parameter	Symbol Symbol	Wert Value				Einheit Unit
		SFH 320 /FA	-2	-3	-4	
Fotostrom, λ = 950 nm Photocurrent E_e = 0.1 mW/cm², V_{CE} = 5 V	I_{PCE}	≥ 16	16 … 32	25 … 50	40 … 80	µA
SFH 320: E_v = 1000 lx, Normlicht/standard light A, V_{CE} = 5 V	I_{PCE}	–	420	650	1000	µA
Anstiegszeit/Abfallzeit Rise and fall time I_C = 1 mA, V_{CC} = 5 V, R_L = 1 kΩ	t_r, t_f	7	6	7	8	µs
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage $I_C = I_{PCEmin}$[1] × 0.3, E_e = 0.1 mW/cm²	V_{CEsat}	150	150	150	150	mV

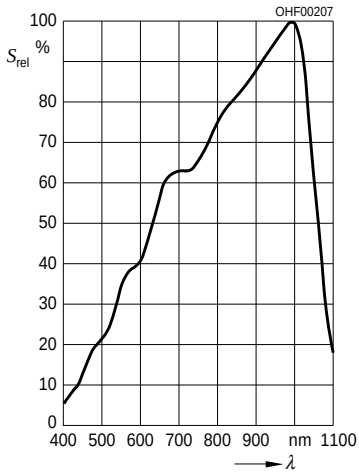
[1] I_{PCEmin} ist der minimale Fotostrom der jeweiligen Gruppe.

[1] I_{PCEmin} is the min. photocurrent of the specified group.

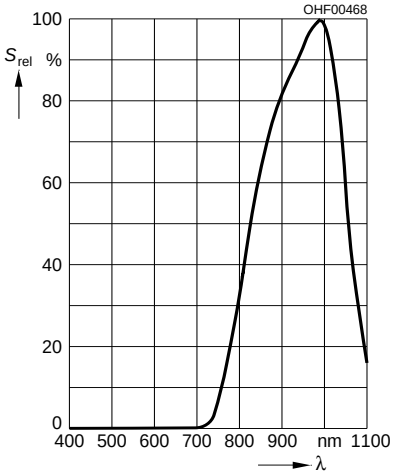
Directional Characteristics $S_{rel} = f(\varphi)$



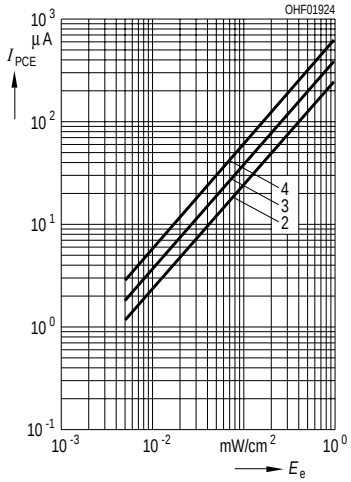
Relative Spectral Sensitivity,
SFH 320 $S_{rel} = f(\lambda)$



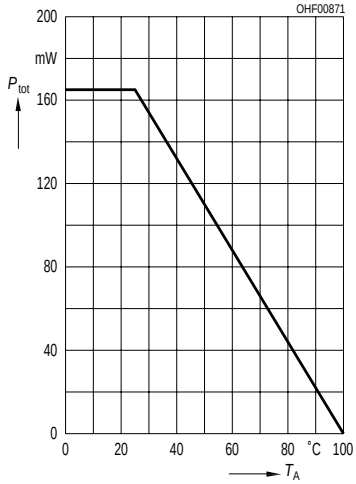
Relative Spectral Sensitivity,
SFH 320 FA $S_{rel} = f(\lambda)$



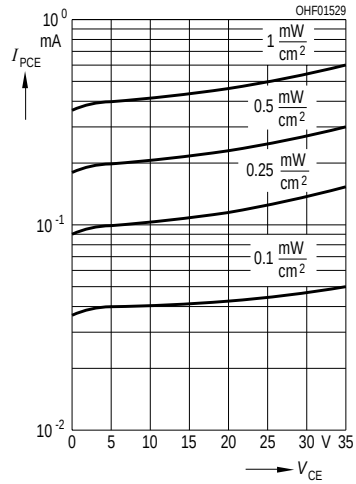
Photocurrent
$I_{PCE} = f(E_e)$, V_{CE} = 5 V



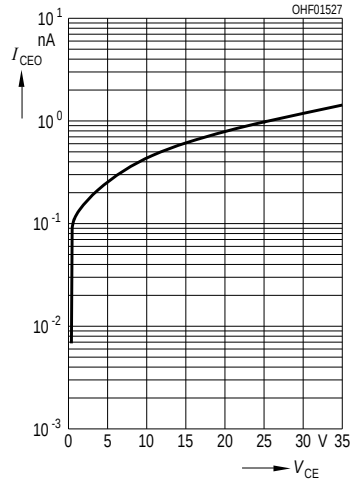
Total Power Dissipation
$P_{tot} = f(T_A)$



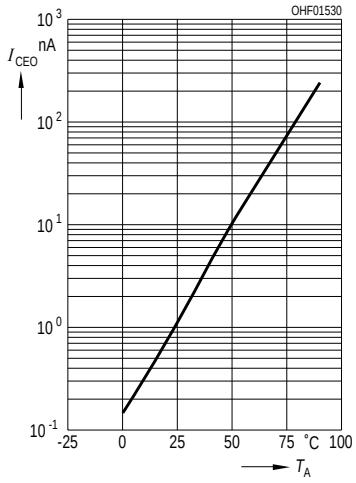
Photocurrent
$I_{PCE} = f(V_{CE})$, E_e = Parameter



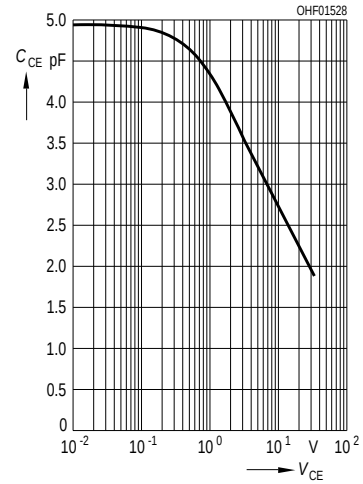
Dark Current
$I_{CEO} = f(V_{CE})$, E = 0



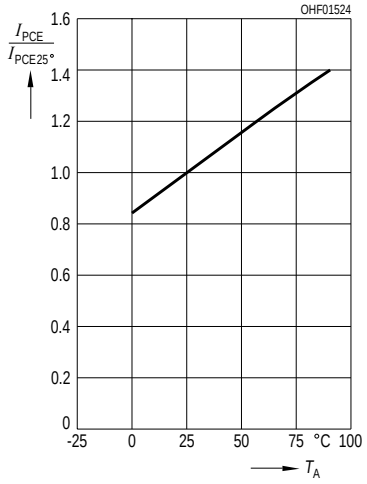
Dark Current
$I_{CEO} = f(T_A)$, V_{CE} = 5 V, E = 0



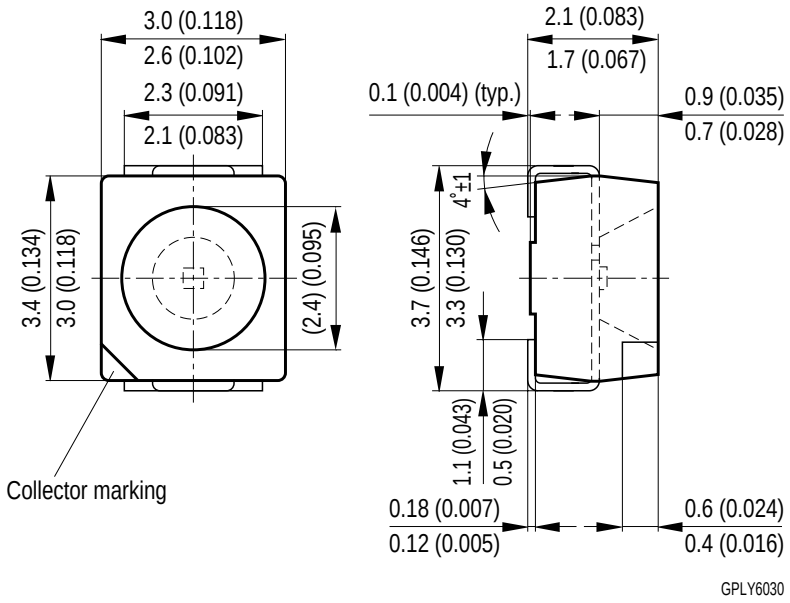
Capacitance
$C_{CE} = f(V_{CE})$, f = 1 MHz, E = 0



Photocurrent
$I_{PCE}/I_{PCE25°} = f(T_A)$, V_{CE} = 5 V

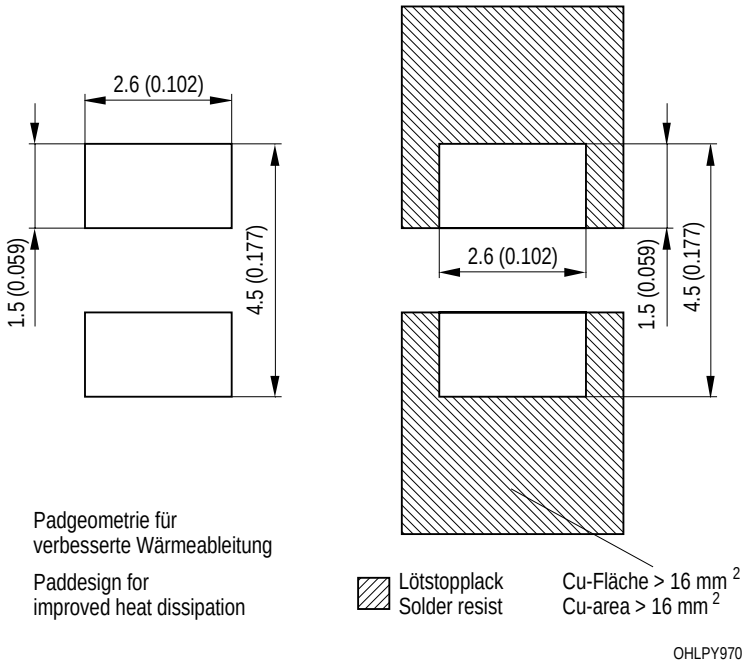


Maßzeichnung
Package Outlines



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

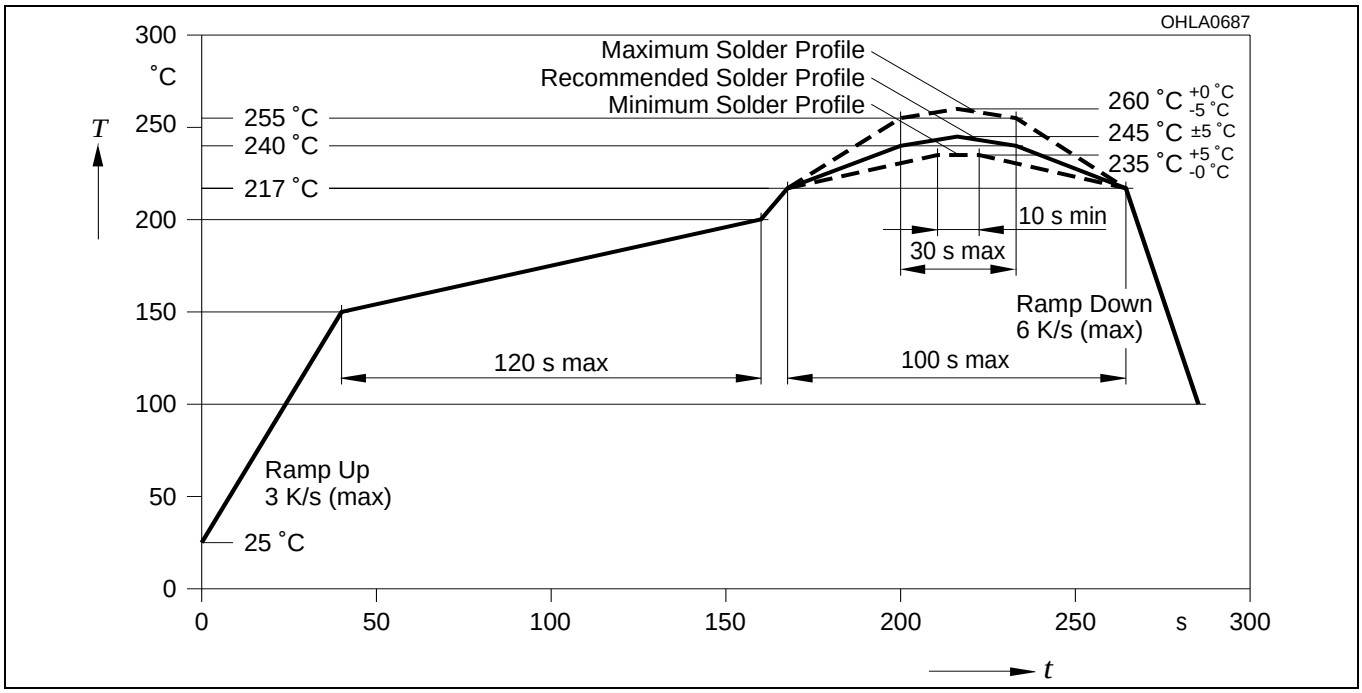
Empfohlenes Lötpaddesign
Recommended Solderpad Design



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

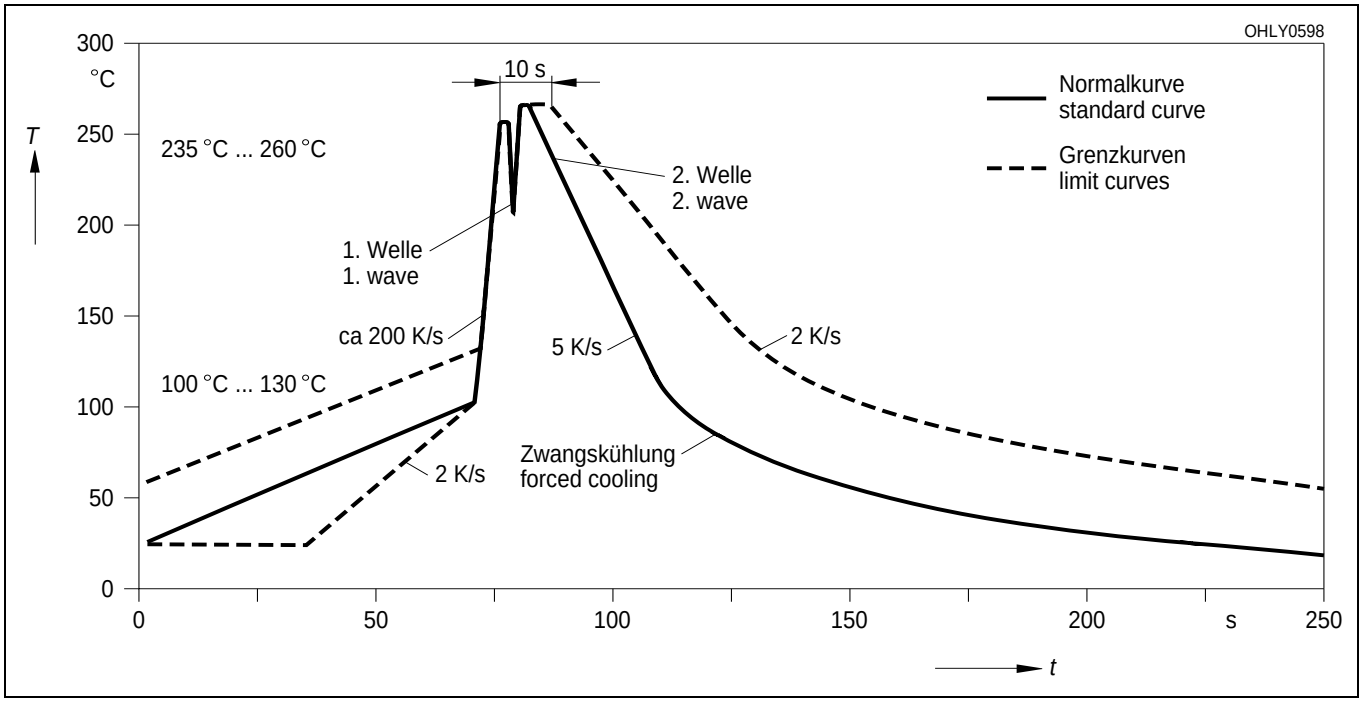
Lötbedingungen
Soldering Conditions
Reflow Lötprofil für bleifreies Löten
Reflow Soldering Profile for lead free soldering

Vorbehandlung nach JEDEC Level 2
Preconditioning acc. to JEDEC Level 2
(nach J-STD-020C)
(acc. to J-STD-020C)



Wellenlöten (TTW)
TTW Soldering

(nach CECC 00802)
(acc. to CECC 00802)



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