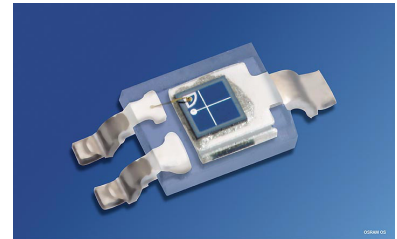


**NPN-Silizium-Fototransistor**  
**Silicon NPN Phototransistor**  
**Lead (Pb) Free Product - RoHS Compliant**

**SFH 3400**



**Wesentliche Merkmale**

- Speziell geeignet für Anwendungen im Bereich von 460 nm bis 1080 nm
- Hohe Linearität
- Nur gegurtet lieferbar

**Anwendungen**

- Umgebungslicht-Detektor
- Lichtschranken
- Industrieelektronik
- „Messen/Steuern/Regeln“

**Features**

- Especially suitable for applications from 460 nm to 1080 nm
- High linearity
- Available only on tape and reel

**Applications**

- Ambient light detector
- Photointerrupters
- Industrial electronics
- For control and drive circuits

Typ Type	Bestellnummer Ordering Code	Fotostrom , ( $E_e=0,1\text{mW/cm}^2, \lambda=950\text{nm}$ $V_{CE} = 5\text{ V}$ ) Photocurrent $I_{pce}$ ( $\mu\text{A}$ )
SFH 3400	Q65110A2629	63...320
SFH 3400-2/3	Q65110A2634	100...320

**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	$V_{CE}$ $V_{CE} (t < 2 \text{ min})$	20 70	V
Kollektorstrom Collector current	$I_C$	50	mA
Kollektorspitzenstrom, $\tau < 10 \mu\text{s}$ Collector surge current	$I_{CS}$	100	mA
Emitter-Kollektorspannung Emitter-collector voltage	$V_{EC}$	7	V
Verlustleistung, $T_A = 25 \text{ °C}$ Total power dissipation	$P_{tot}$	120	mW
Wärmewiderstand für Montage auf PC-Board Thermal resistance for mounting on pcb	$R_{thJA}$	450	K/W

**Kennwerte** ( $T_A = 25 \text{ }^\circ\text{C}$ ,  $\lambda = 950 \text{ nm}$ )

**Characteristics**

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S \text{ max}}$	850	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von $S_{\text{max}}$ Spectral range of sensitivity $S = 10\%$ of $S_{\text{max}}$	$\lambda$	460 ...1080	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	$A$	0.55	mm <sup>2</sup>
Abmessungen der Chipfläche Dimensions of chip area	$L \times B$ $L \times W$	1 × 1	mm × mm
Halbwinkel Half angle	$\varphi$	± 60	Grad deg.
Kapazität, $V_{\text{CE}} = 5 \text{ V}$ , $f = 1 \text{ MHz}$ , $E = 0$ Capacitance	$C_{\text{CE}}$	10	pF
Dunkelstrom Dark current $V_{\text{CE}} = 10 \text{ V}$ , $E = 0$	$I_{\text{CEO}}$	3 ( $\leq 100$ )	nA

Die Fototransistoren werden nach ihrer Fotoempfindlichkeit gruppiert und mit arabischen Ziffern gekennzeichnet.

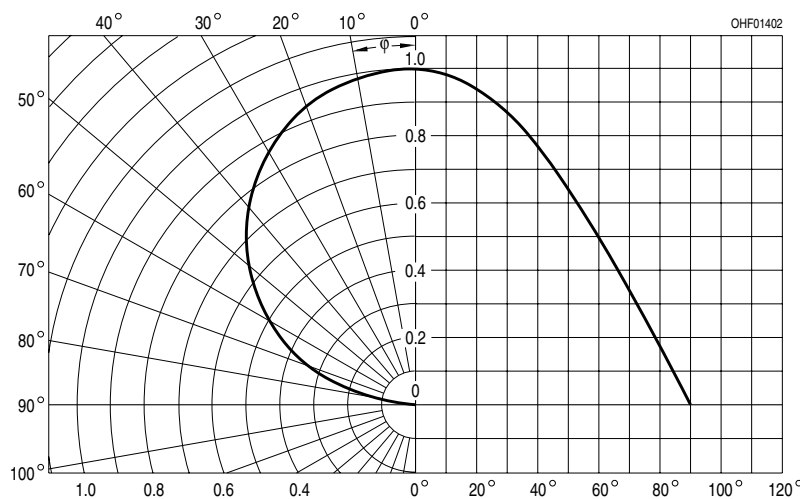
The phototransistors are grouped according to their spectral sensitivity and distinguished by arabian figures.

Bezeichnung Parameter	Symbol Symbol	Wert Value			Einheit Unit
		-1	-2	-3	
Fotostrom, $\lambda = 950 \text{ nm}$ Photocurrent $E_e = 0.1 \text{ mW/cm}^2$ , $V_{CE} = 5 \text{ V}$ $E_v = 1000 \text{ lx}$ , Normlicht A/ standard light A, $V_{CE} = 5 \text{ V}$	$I_{PCE}$	63 ...125	100 ...200	160 ...320	$\mu\text{A}$
	$I_{PCE}$	1.65	2.6	4.2	mA
Anstiegszeit/Abfallzeit Rise and fall time $I_C = 1 \text{ mA}$ , $V_{CC} = 5 \text{ V}$ , $R_L = 1 \text{ k}\Omega$	$t_r$ , $t_f$	16	24	34	$\mu\text{s}$
Kollektor-Emitter- Sättigungsspannung Collector-emitter saturation voltage $I_C = I_{PCEmin}^{1)} \times 0.3$ , $E_e = 0.1 \text{ mW/cm}^2$	$V_{CEsat}$	170	170	170	mV

1)  $I_{PCEmin}$  ist der minimale Fotostrom der jeweiligen Gruppe.

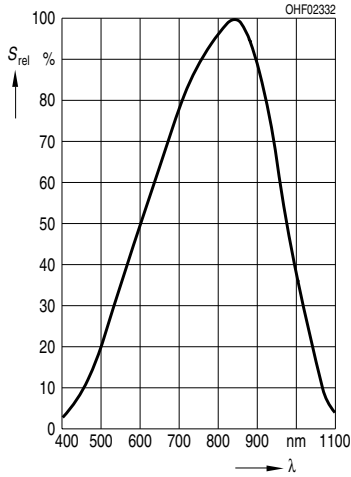
1)  $I_{PCEmin}$  is the min. photocurrent of the specified group.

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



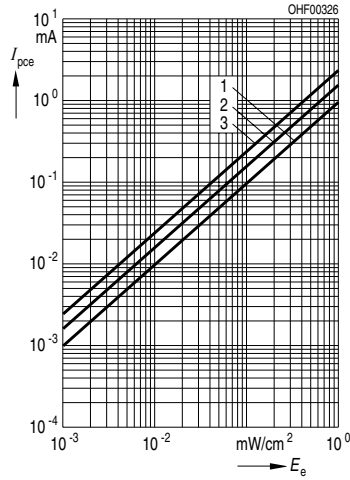
**Rel. Spectral Sensitivity,**

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



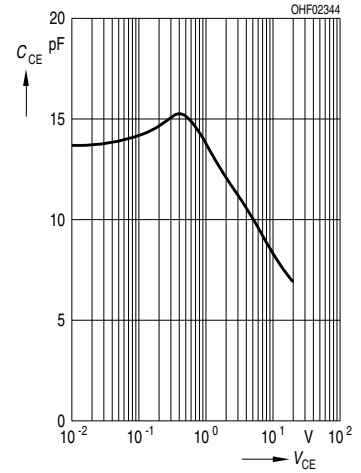
**Photocurrent**

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

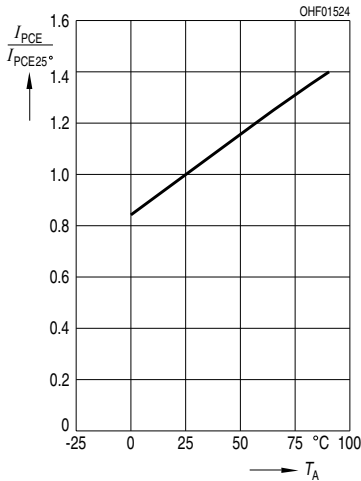


**Collector-Emitter Capacitance**

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

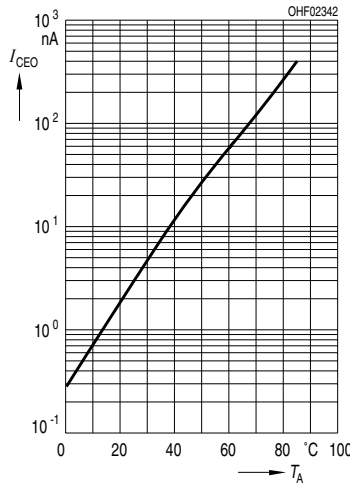


**Photocurrent  $I_{PCE} = f(T_A)$ ,  
 $V_{CE} = 5 V$ , normalized to 25 °C**



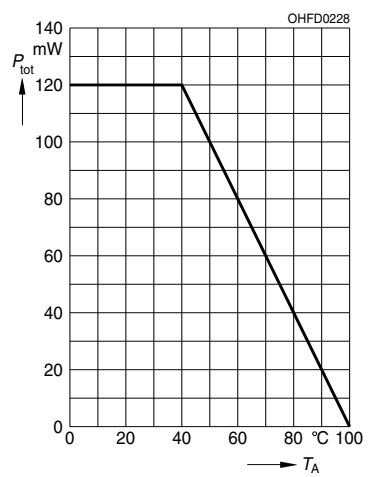
**Dark Current**

$I_{CEO} = f(T_A), V_{CE} = 10 V, E = 0$



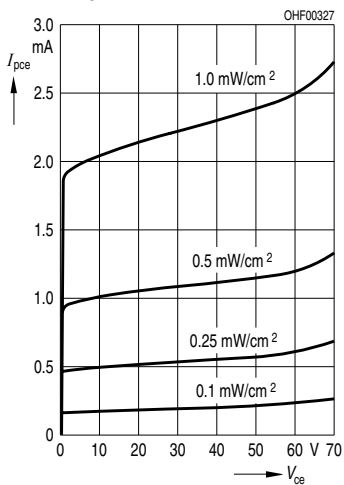
**Total Power Dissipation**

$P_{tot} = f(T_A)$



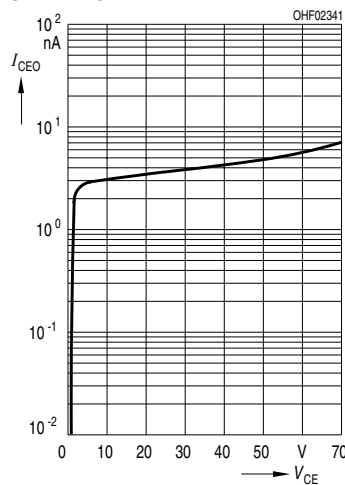
**Photocurrent**

$I_{PCE} = f(V_{CE})$

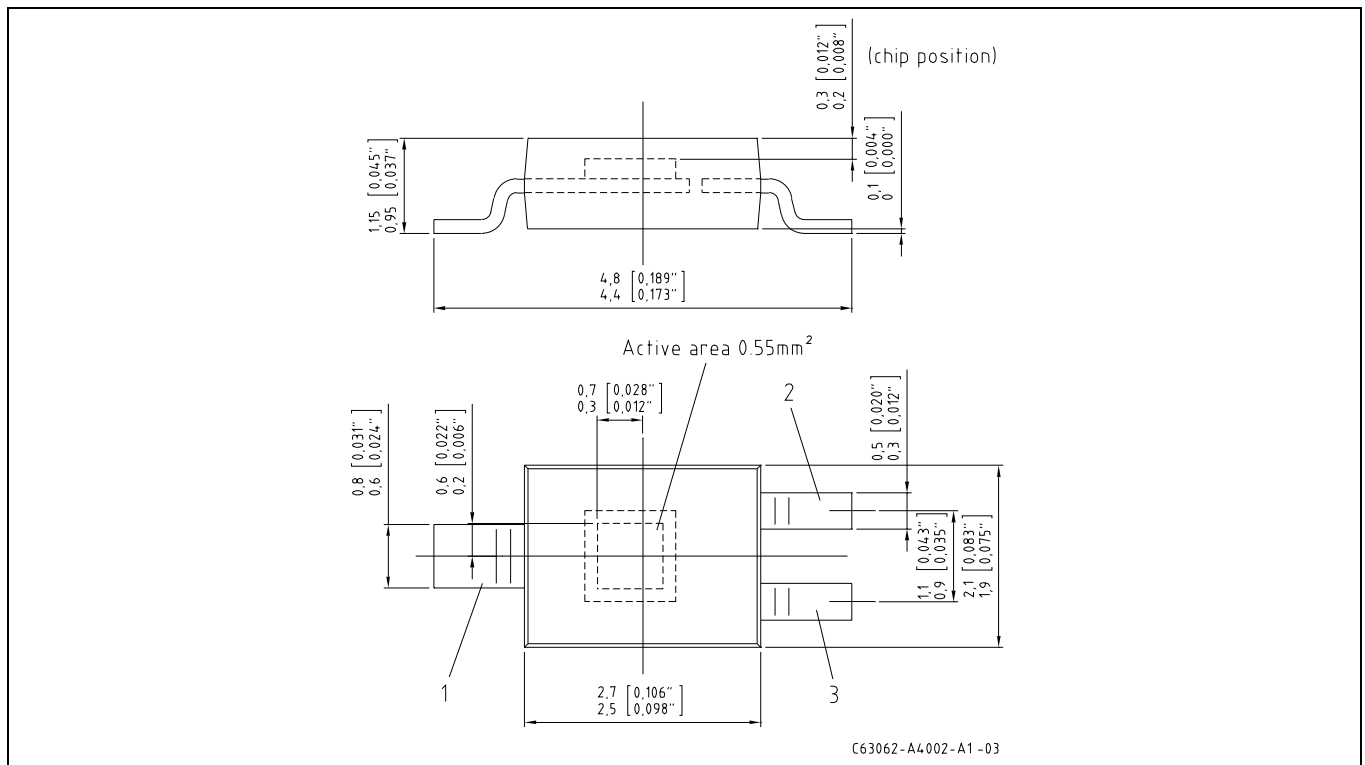


**Dark Current**

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



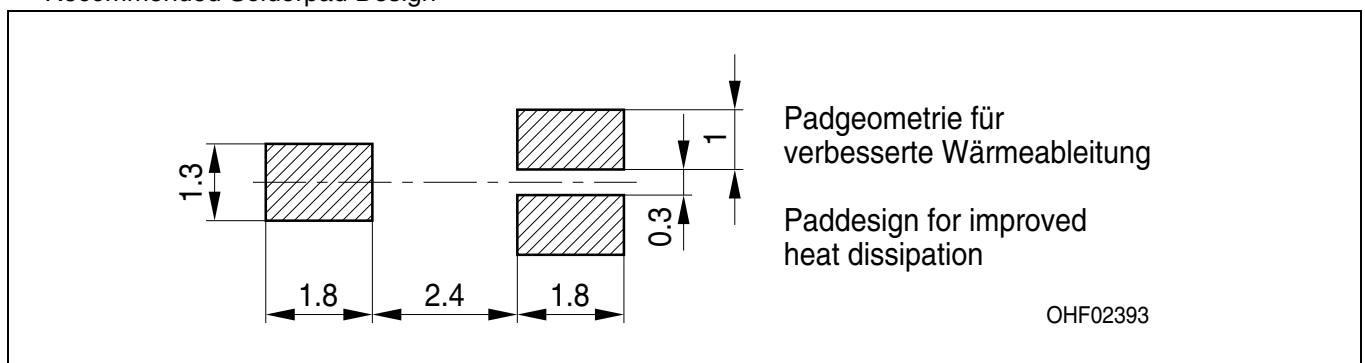
**Maßzeichnung  
Package Outlines**



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

<b>Anschlussbelegung</b>	Pin 1 = Kollektor / collector
<b>Pin configuration</b>	Pin 2 = n.c.
	Pin 3 = Emitter / emitter

Empfohlenes Lötpad Design  
Recommended Solderpad Design



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

## Lötbedingungen Soldering Conditions

### Reflow Lötprofil für bleifreies Lötén

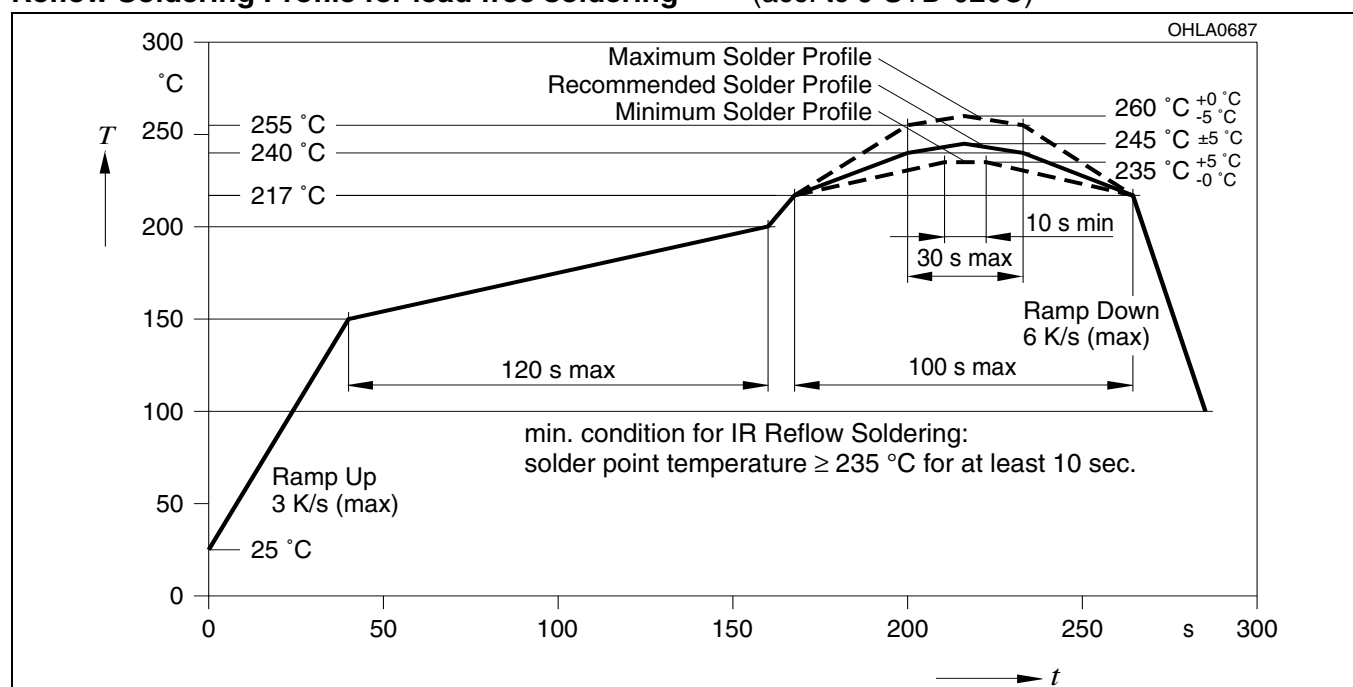
### Reflow Soldering Profile for lead free soldering

Vorbehandlung nach JEDEC Level 4

Preconditioning acc. to JEDEC Level 4

(nach J-STD-020C)

(acc. to J-STD-020C)



Published by  
OSRAM Opto Semiconductors GmbH  
Wernerwerkstrasse 2, D-93049 Regensburg  
[www.osram-os.com](http://www.osram-os.com)  
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