Silicon NPN Phototransistor with V_λ Characteristics
Version 1.3

SFH 3310

Features:

- **Spectral range of sensitivity:** (typ) 350 ... 970 nm
- **Package:** 3mm Radial (T 1), Epoxy
- **Special:** Adapted to human eye sensitivity (V_λ)

Applications

- For control and drive circuits
- Ambient light detector
- Exposure meter for daylight and artificial light
- Sensor for backlight-dimming

Ordering Information

Type:	Photocurrent I_{PCE} [µA] **λ = 560 nm, E_e = 10 µW/cm², V_{CE} = 5 V**	Ordering Code
SFH 3310	2.5 ... 8	Q65110A5343

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Maximum Ratings (T_A = 25 °C)

Parameter	Symbol	Values	Unit
Operating and storage temperature range	T_{op}; T_{stg}	-40 ... 100	°C
Collector-emitter voltage	V_{CE}	5.5	V
Collector current	I_C	20	mA
Emitter-collector voltage	V_{EC}	0.5	V
ESD withstand voltage (acc. to ANSI/ ESDA/ JEDEC JS-001 - HBM)	V_{ESD}	2000	V

Characteristics (T_A = 25 °C)

Parameter		Symbol	Values	Unit
Wavelength of max. sensitivity	(typ)	$\lambda_{S\ max}$	570	nm
Spectral range of sensitivity	(typ)	$\lambda_{10\%}$	(typ) 350 ... 970	nm
Radiant sensitive area	(typ)	A	0.29	mm^2
Dimensions of chip area	(typ)	L x W	(typ) 0.75 x 0.75	mm x mm
Half angle	(typ)	φ	± 75	°
Capacitance (V_{CE} = 0 V, f = 1 MHz, E = 0)	(typ)	C_{CE}	16	pF
Dark current (V_{CE} = 5 V, E = 0)	(typ (max))	I_{CE0}	3 (≤ 50)	nA

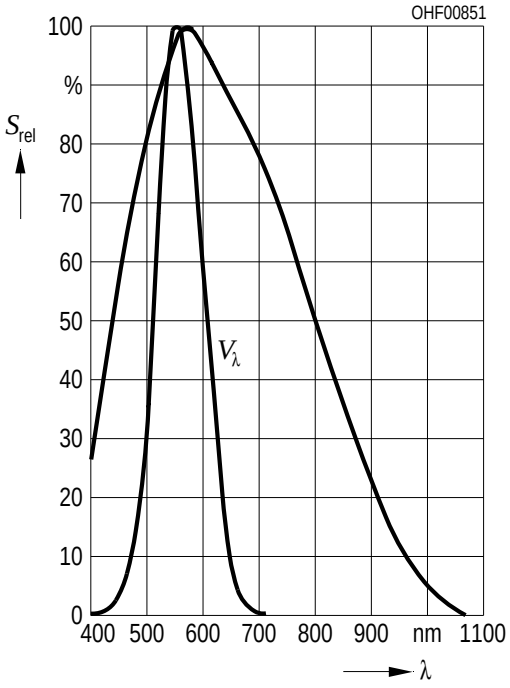
Grouping (T_A = 25 °C, λ = 560 nm)

Group	Min Photocurrent E_e = 10 µW/cm², V_{CE} = 5 V $I_{PCE, min}$ [µA]	Max Photocurrent E_e = 10 µW/cm², V_{CE} = 5 V $I_{PCE, max}$ [µA]	Typ Photocurrent E_V = 1000 lx, Std. Light A, V_{CE} = 5 V I_{PCE} [µA]	Collector-emitter saturation voltage $I_C = I_{PCEmin}$ x 0.3, E_e = 10 µW/cm² V_{CEsat} [mV]
SFH 3310-2	2.5	5	290	100
SFH 3310-3	4	8	460	100

Note.: I_{PCEmin} *is the min. photocurrent of the specified group*

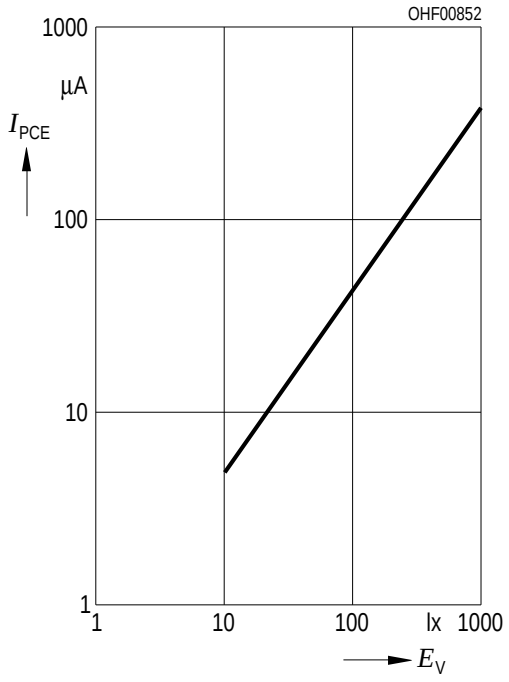
Relative Spectral Sensitivity [1] *page 8*

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



Photocurrent [1] *page 8*

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



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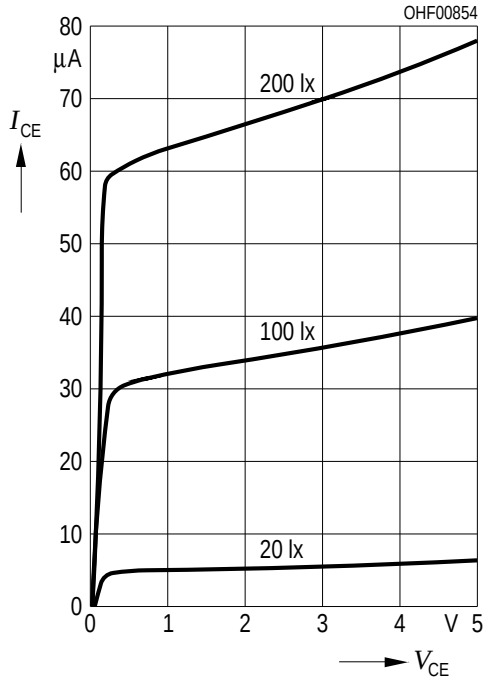
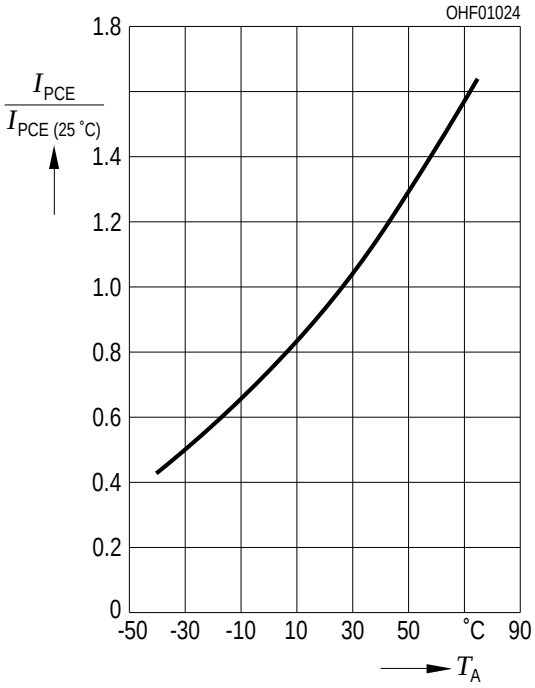
Collector Current [1] *page 8*

$I_C = f(V_{CE})$, I_B = Parameter



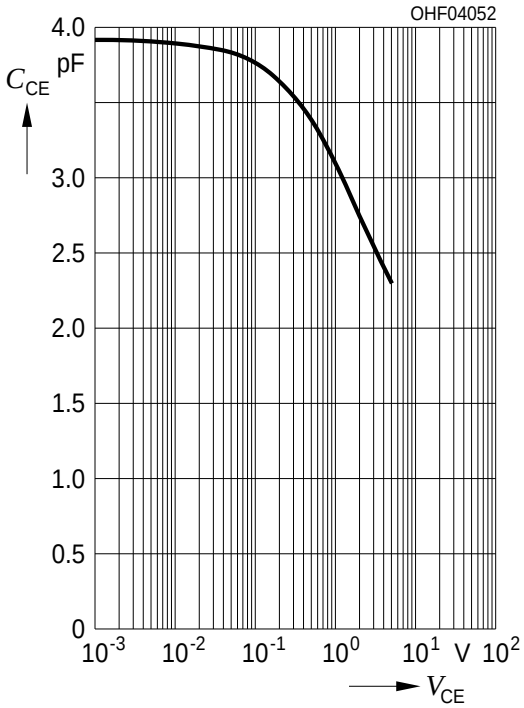
Photocurrent [1] *page 8*

$I_{PCE} / I_{PCE}(25°C) = f(T_A)$, V_{CE} = 5 V



Collector-Emitter Capacitance [1] *page 8*

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



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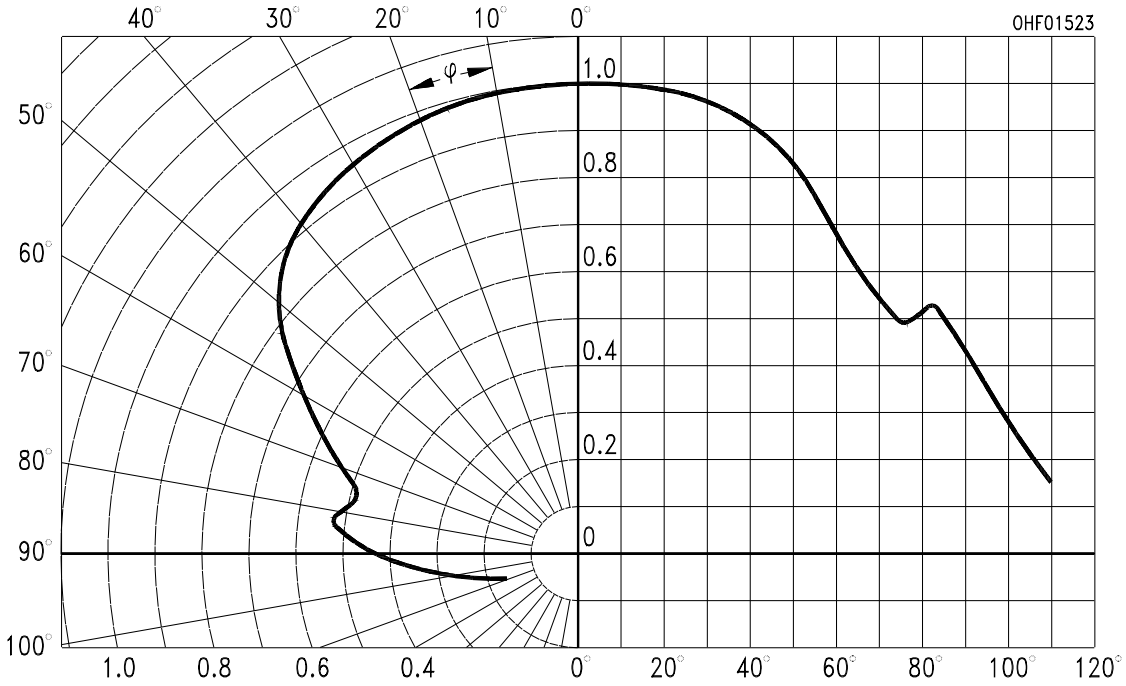
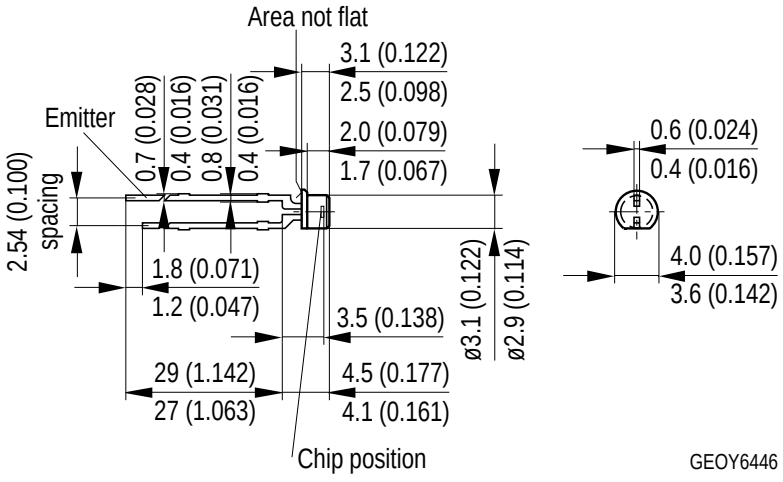
Directional Characteristics [1] *page 8*

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



Package Outline



Dimensions in mm (inch).

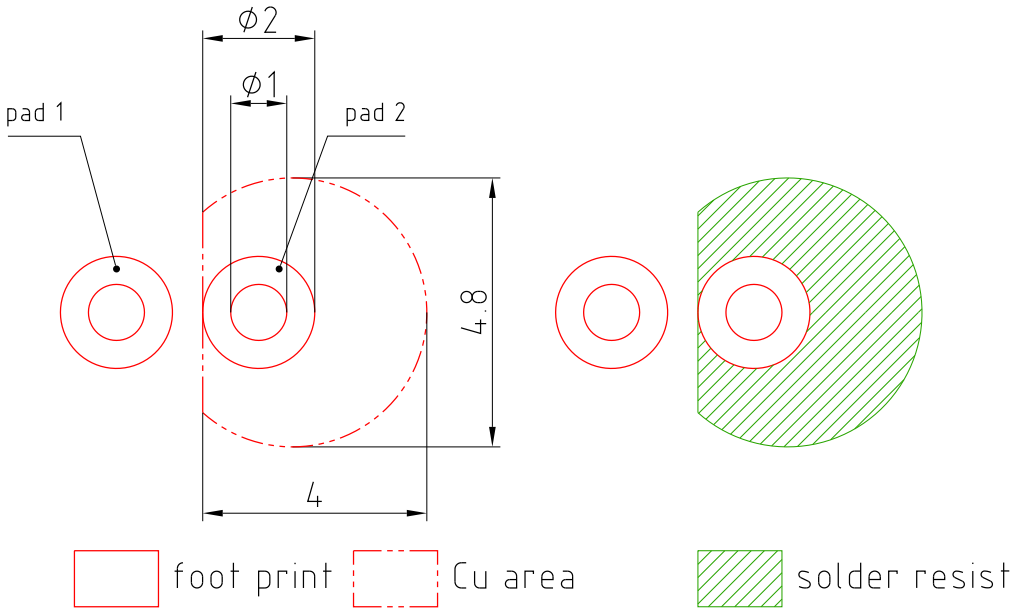
Package

3mm Radial (T 1), Epoxy

Approximate Weight:
0.2 g

Note
Packing information is available on the internet (online product catalog).

Recommended Solder Pad



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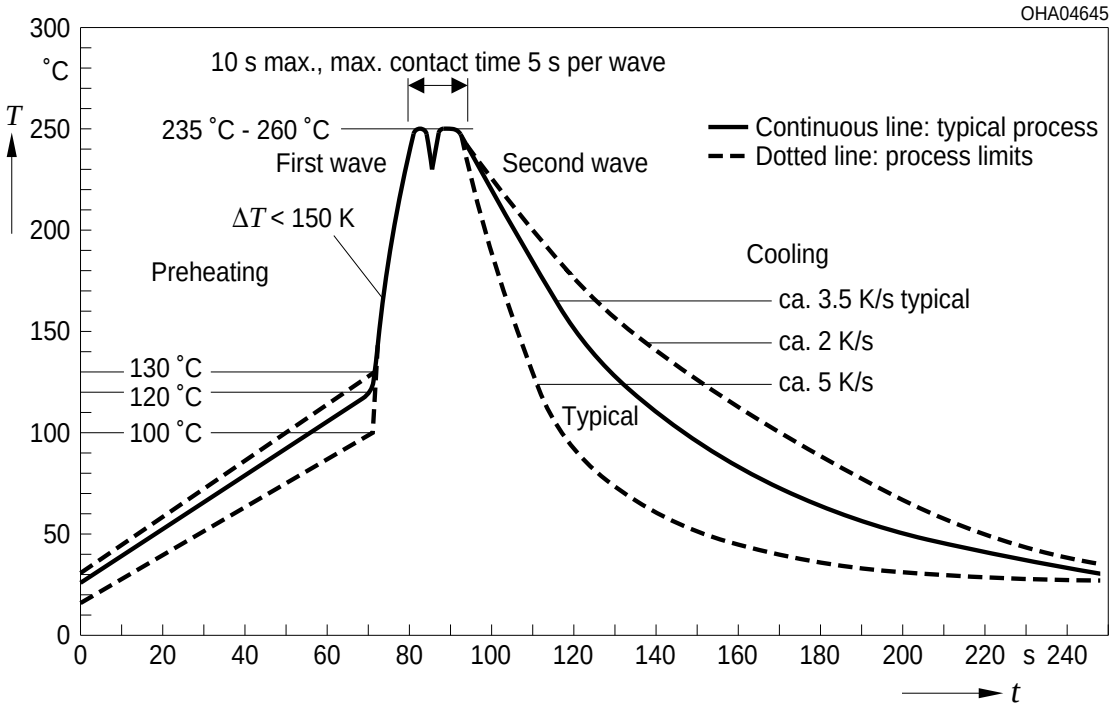
Dimensions in mm.

Note:
pad 1: emitter

TTW Soldering
IEC-61760-1 TTW



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Language english will prevail in case of any discrepancies or deviations between the two language wordings.

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Glossary

[1] **Typical Values:** Due to the special conditions of the manufacturing processes of LED, the typical data or calculated correlations of technical parameters can only reflect statistical figures. These do not necessarily correspond to the actual parameters of each single product, which could differ from the typical data and calculated correlations or the typical characteristic line. If requested, e.g. because of technical improvements, these typ. data will be changed without any further notice.

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