SFH 2504

Radial T1 3/4

Silicon PIN Photodiode with integrated Temperature Sensor

Applications

- Electronic Equipment

Features:

- Package: black epoxy
- ESD: 2 kV acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)
- Especially suitable for applications from 740 nm to 1100 nm
- 5 mm LED plastic package
- Integrated NTC thermistor, R_{25}=10kΩ

Ordering Information

Type	Photocurrent E_e = 1 mW/cm²; λ = 870 nm; V_R = 5 V I_P	Photocurrent typ. E_e = 1 mW/cm²; λ = 870 nm; V_R = 5 V I_P	Ordering Code
SFH 2504 AN23	≥ 1.9 µA	2.7 µA	Q65110A3986

Maximum Ratings

T_A = 25 °C

Parameter	Symbol		Values
Operating Temperature	T_{op}	min. max.	-40 °C 100 °C
Storage temperature	T_{stg}	min. max.	-40 °C 100 °C
Reverse voltage	V_R	max.	30 V
Total power dissipation	P_{tot}	max.	30 mW
ESD withstand voltage acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)	V_{ESD}		2 kV

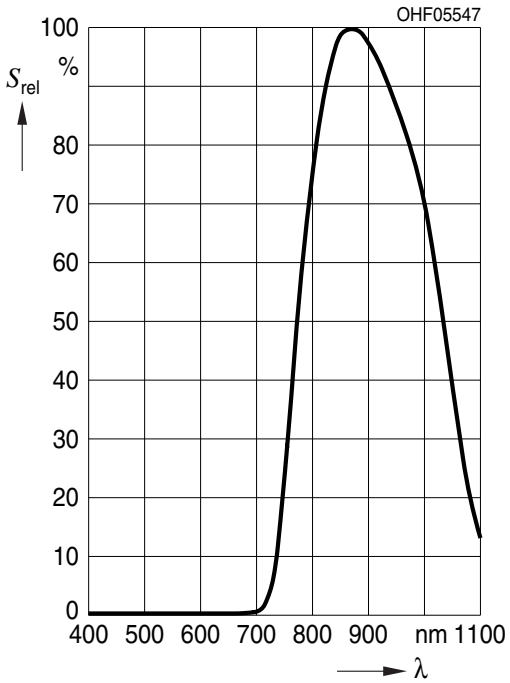
Characteristics

T_A = 25 °C

Parameter	Symbol		Values
Wavelength of max sensitivity	$\lambda_{S\ max}$	typ.	870 nm
Spectral range of sensitivity	$\lambda_{10\%}$	typ.	740 ... 1100 nm
Radiant sensitive area	A	typ.	0.31 mm²
Dimensions of active chip area	L x W	typ.	0.56 x 0.56 mm x mm
Half angle	φ	typ.	60 °
Dark current V_R = 10 V	I_R	typ. max.	0.05 nA 5 nA
Rise time V_R = 10 V; R_L = 50 Ω; λ = 850 nm	t_r	typ.	0.01 µs
Fall time V_R = 10 V; R_L = 50 Ω; λ = 850 nm	t_f	typ.	0.01 µs
Forward voltage I_F = 100 mA; E = 0	V_F	typ.	1.2 V
Capacitance V_R = 0 V; f = 1 MHz; E = 0	C_0	max.	13 pF
Temperature coefficient of voltage	TC_V	typ.	-2.6 mV / K
Resistance Thermistor (EPCOS B57860S0103A002)	R_{25}	typ.	10 kΩ
Tolerance of resistance Thermistor (EPCOS B57860S0103A002)	R_{tol}	typ.	3 %
Rated temperature Thermistor (EPCOS B57860S0103A002)	T_n	typ.	25 °C

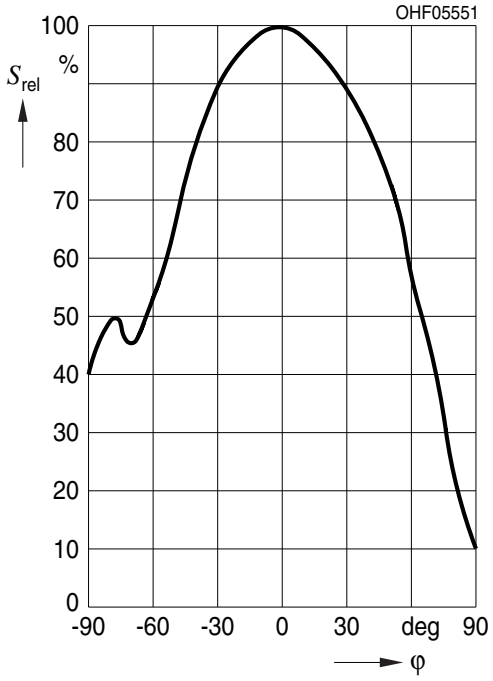
Relative Spectral Sensitivity [1), 2)]

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



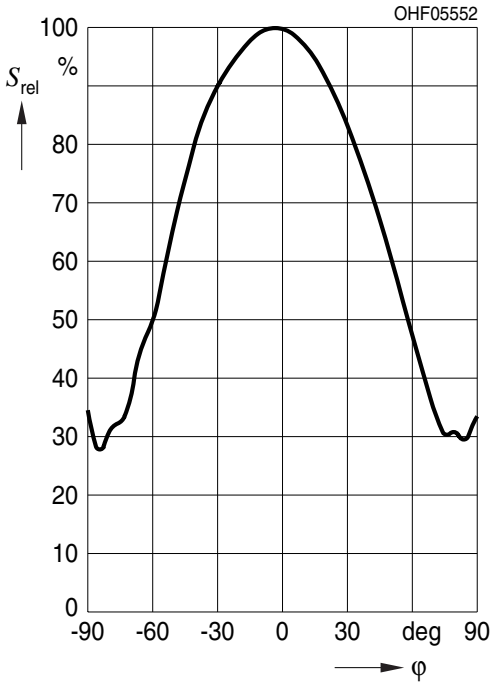
Directional Characteristics [1), 2)]

$S_{rel} = f(\varphi)$ perpendicular to leads



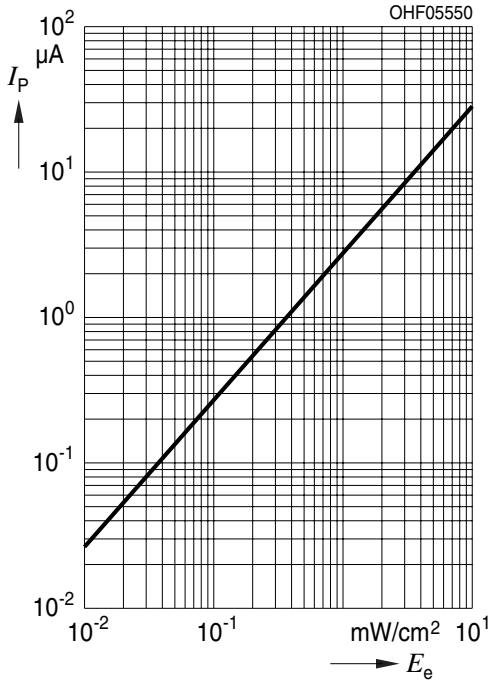
Directional Characteristics [1), 2)]

$S_{rel} = f(\varphi)$ parallel to leads



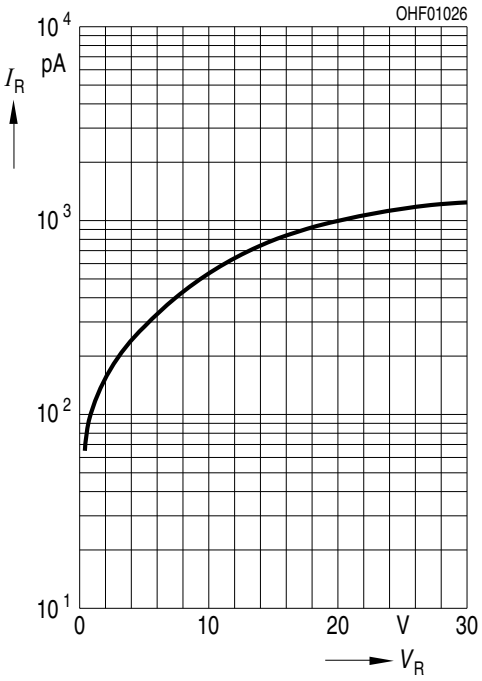
Photocurrent/Open-Circuit Voltage [1), 2)]

$I_P = f(E_e)$, λ = 870 nm, V_R = 5 V



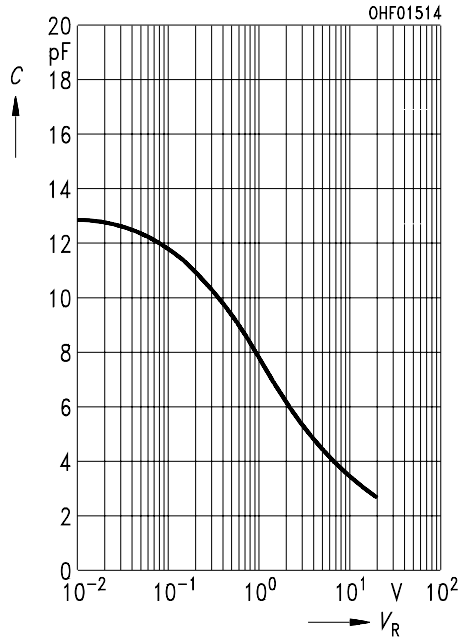
Dark Current [1), 2)]

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



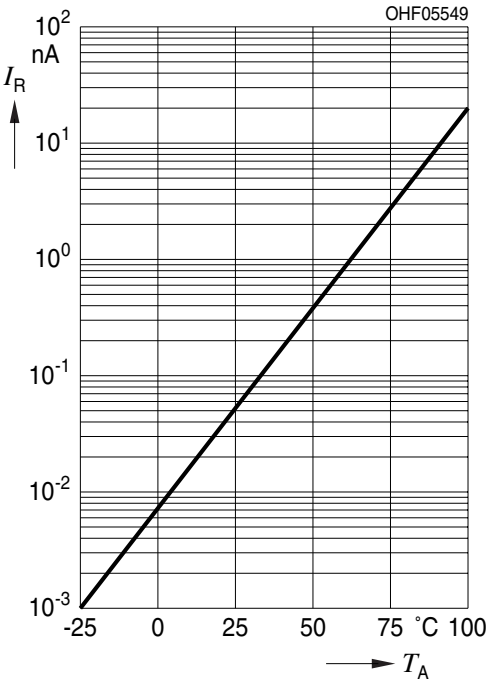
Capacitance [1), 2)]

C = f (V_R); f = 1 MHz; E = 0;



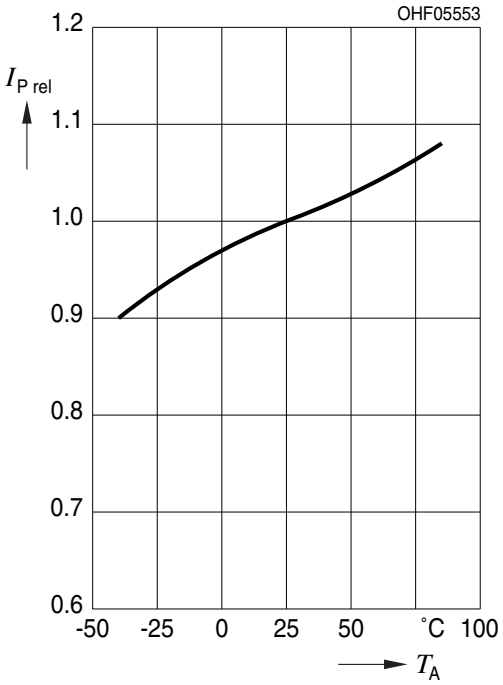
Dark Current [2)]

I_R = f (T_A); E = 0; V_R = 10 V



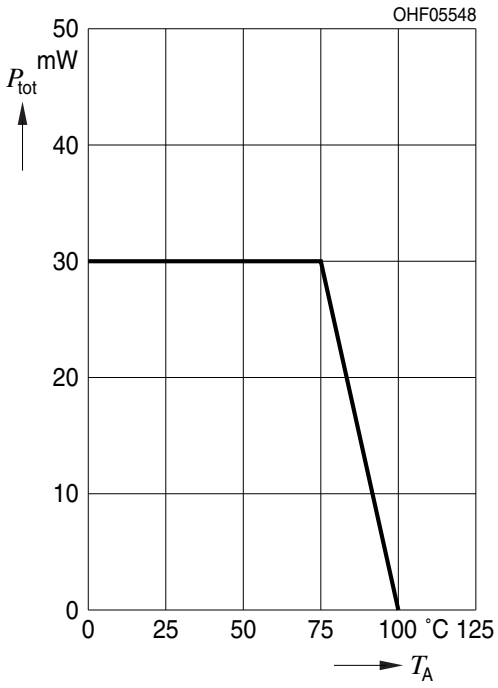
Photocurrent

$I_P/I_P(25°C)$ = f(T_A), λ = 870 nm, V_{CE} = 5 V

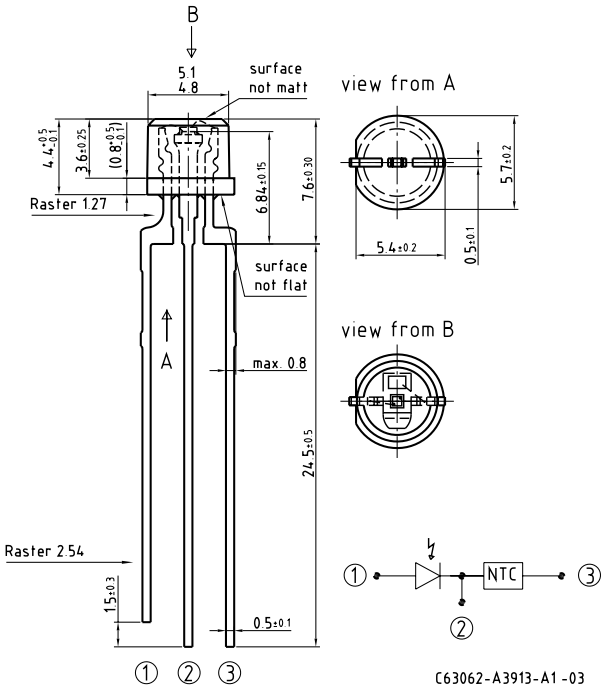


Power Consumption

$P_{tot} = f(T_A)$;

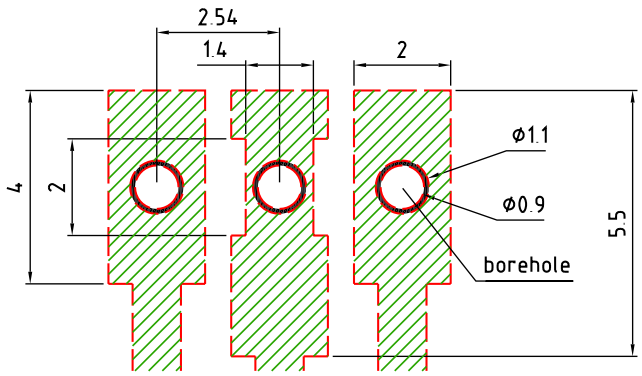


Dimensional Drawing [3)]



Approximate Weight: 337.0 mg

Recommended Solder Pad [3)]



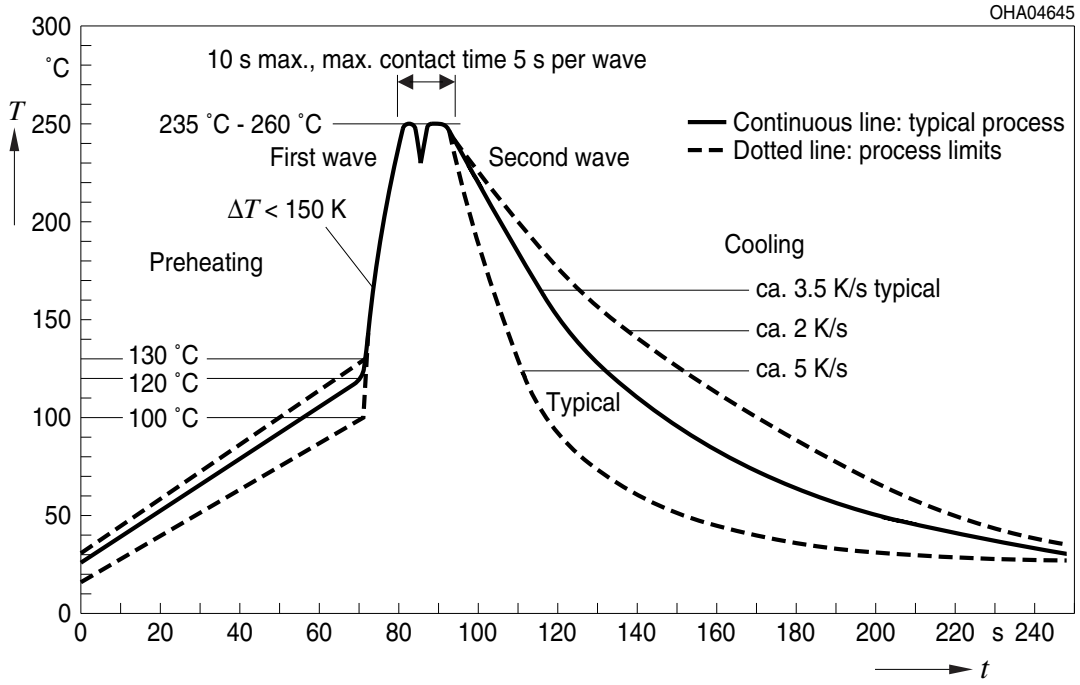
Cu area appr. 8mm² per pad and side with solder resist

Cu without solder resist

E062.3010.24-01

TTW Soldering

IEC-61760-1 TTW



Notes

The evaluation of eye safety occurs according to the standard IEC 62471:2006 (photo biological safety of lamps and lamp systems). Within the risk grouping system of this IEC standard, the LED specified in this data sheet fall into the class **exempt group (exposure time 10000 s)**. Under real circumstances (for exposure time, conditions of the eye pupils, observation distance), it is assumed that no endangerment to the eye exists from these devices. As a matter of principle, however, it should be mentioned that intense light sources have a high secondary exposure potential due to their blinding effect. When looking at bright light sources (e.g. headlights), temporary reduction in visual acuity and afterimages can occur, leading to irritation, annoyance, visual impairment, and even accidents, depending on the situation.

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

For further application related informations please visit www.osram-os.com/appnotes

Disclaimer

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

Attention please!
The information describes the type of component and shall not be considered as assured characteristics.
Terms of delivery and rights to change design reserved. Due to technical requirements components may contain dangerous substances.
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Packing
Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office.
By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

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Glossary

1) **Testing temperature**: T_A = 25°C

2) **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.

3) **Tolerance of Measure**: Unless otherwise noted in drawing, tolerances are specified with ±0.1 and dimensions are specified in mm.

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EU RoHS and China RoHS compliant product

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