LPT 80 A

Radial Sidelooker

Silicon NPN Phototransistor

Applications

- Electronic Equipment
- Highbay Industrial
- Industrial Automation (Machine Controls, Light Barriers, Vision Controls)
- White Goods

Features:

- Package: clear epoxy
- ESD: 2 kV acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)
- Spectral range of sensitivity: (typ) 450 ... 1100 nm
- High photosensitivity
- Same package as IR emitter IRL 81 A

Ordering Information

Type	Photocurrent [1] V_{CE} = 5 V; λ = 950 nm; E_e = 0.5 mW/cm² I_{PCE}	Photocurrent [2] typ. V_{CE} = 5 V; λ = 950 nm; E_e = 0.5 mW/cm² I_{PCE}	Ordering Code
LPT 80A	≥ 280 µA	700 µA	Q68000A7852

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
Collector-emitter voltage	V_{CE}	max.	30 V
Collector current	I_C	max.	50 mA
Collector surge current τ ≤ 10 µs	I_{CS}	max.	100 mA
Emitter-collector voltage	V_{EC}	max.	7 V
Total power dissipation	P_{tot}	max.	100 mW
ESD withstand voltage acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)	V_{ESD}	max.	2 kV

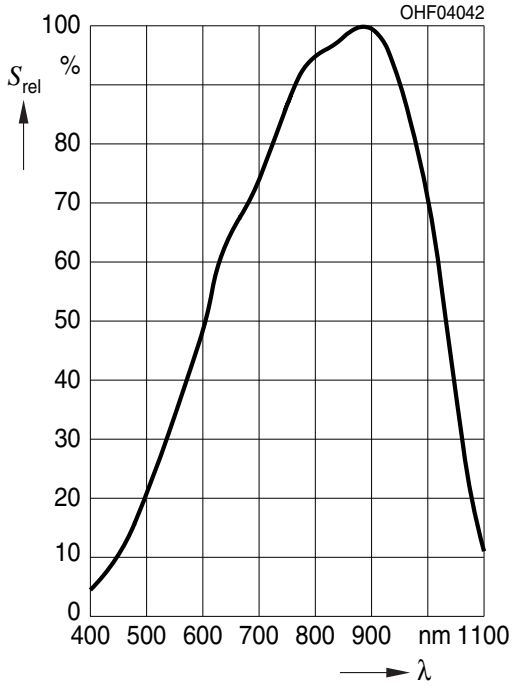
Characteristics

T_A = 25 °C

Parameter	Symbol		Values
Wavelength of max sensitivity	$\lambda_{S\ max}$	typ.	880 nm
Spectral range of sensitivity	$\lambda_{10\%}$	typ.	450 ... 1100 nm
Dimensions of chip area	L x W	typ.	0.55 x 0.55 mm x mm
Radiant sensitive area	A	typ.	0.11 mm²
Half angle	φ	typ.	35 °
Photocurrent V_{CE} = 5 V; Std. Light A; E_v = 1000 lx	I_{PCE}	typ.	3200 µA
Dark current V_{CE} = 20 V; E = 0	I_{CE0}	typ. max.	1 nA 50 nA
Rise time I_C = 1 mA; λ = 0 nm; V_{CC} = 5 V; R_L = 1 kΩ	t_r	typ.	10 µs
Fall time I_C = 1 mA; λ = 0 nm; V_{CC} = 5 V; R_L = 1 kΩ	t_f	typ.	10 µs
Collector-emitter saturation voltage [3)] Threefold saturated	V_{CEsat}	typ.	150 mV
Capacitance V_{CE} = 0 V; f = 1 MHz; E = 0	C_{CE}	typ.	7.5 pF
Thermal resistance junction ambient real	R_{thJA}	max.	750 K / W

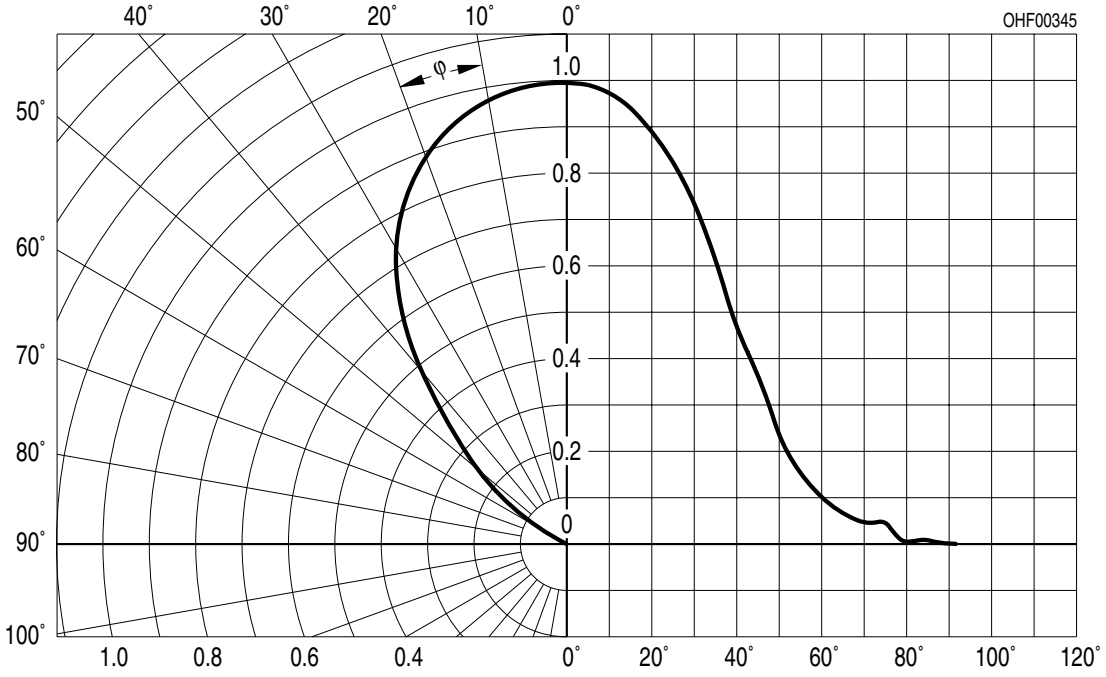
Relative Spectral Sensitivity [4), 5)]

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



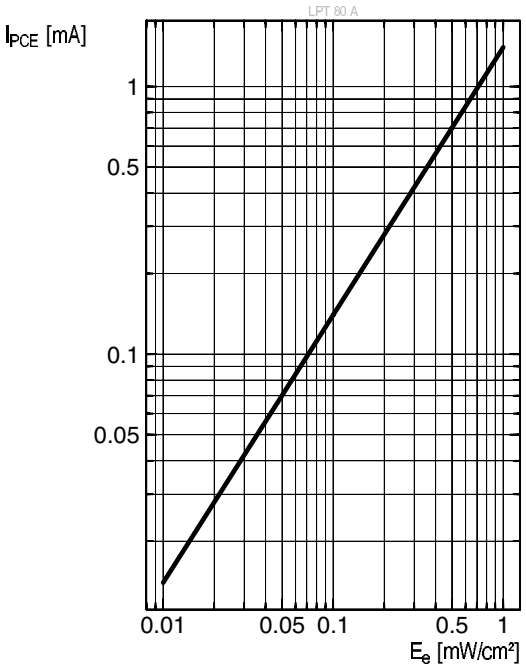
Directional Characteristics [4), 5)]

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



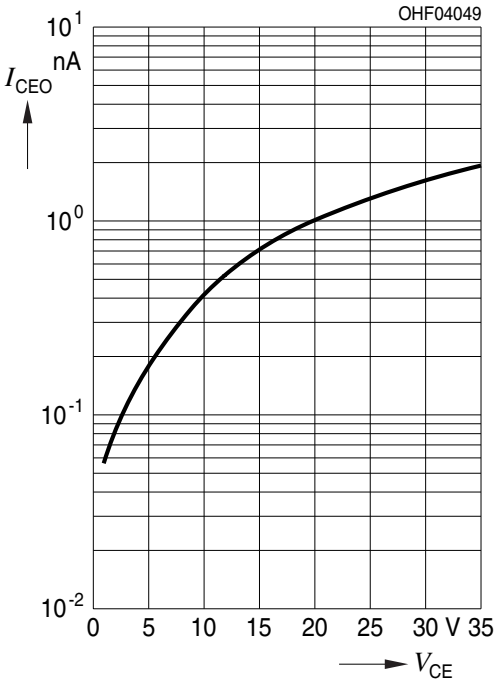
Photocurrent 4), 5)

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



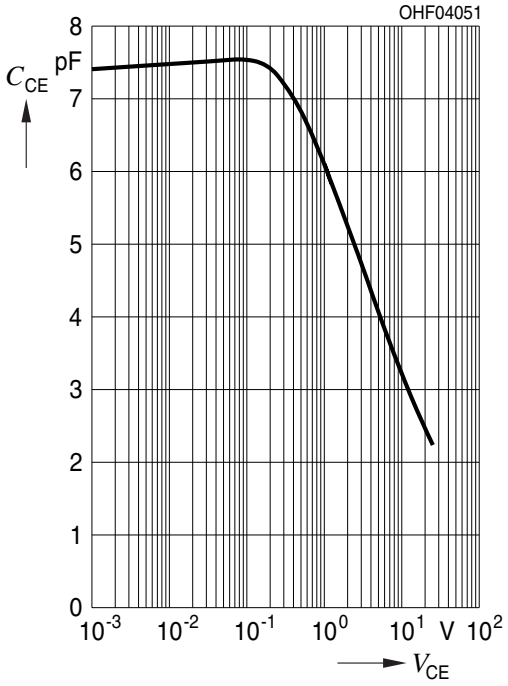
Dark Current 4), 5)

$I_{CE0} = f(V_{CE})$; E = 0



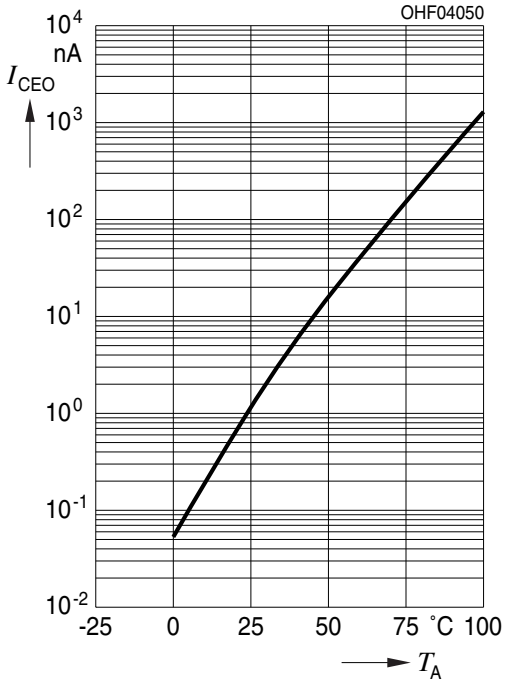
Collector-Emitter Capacitance 4), 5)

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



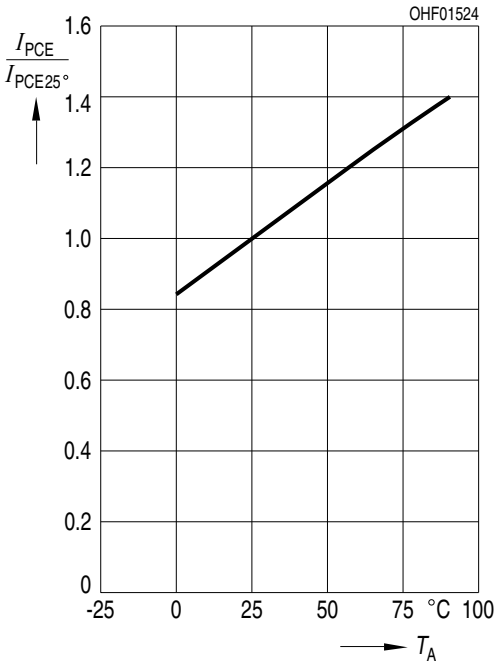
Dark Current [4)]

$I_{CE0} = f(T_A)$; V_{CE} = 5 V; E_e = 0 mW/cm²



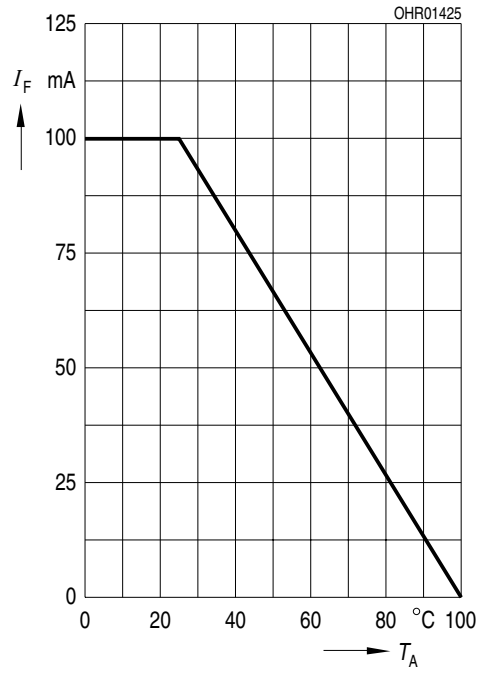
Photocurrent [4)]

$I_{PCE,rel} = f(T_A)$; V_{CE} = 5 V; E_v = 1000 lx

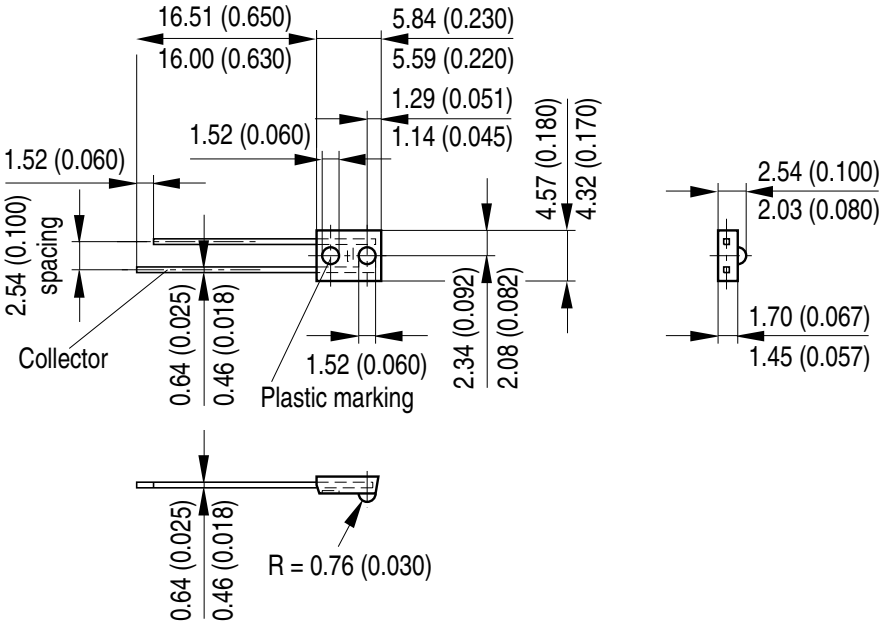


Power Consumption

$P_{tot} = f(T_A)$



Dimensional Drawing [6)]



Approx. weight 0.2 g

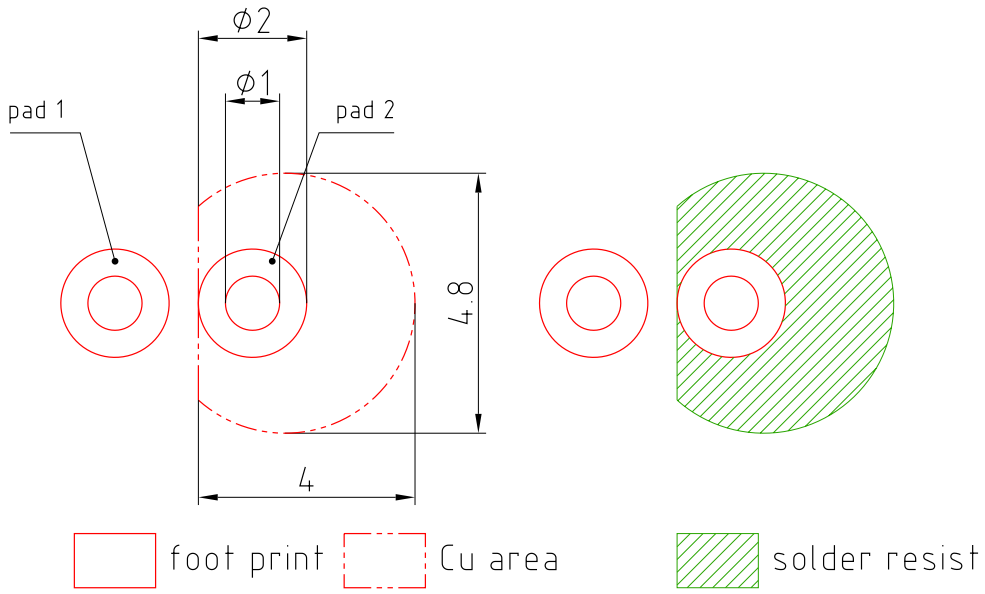
GEOY6391

Further Information:

Approximate Weight: 157.0 mg

Package marking: Collector

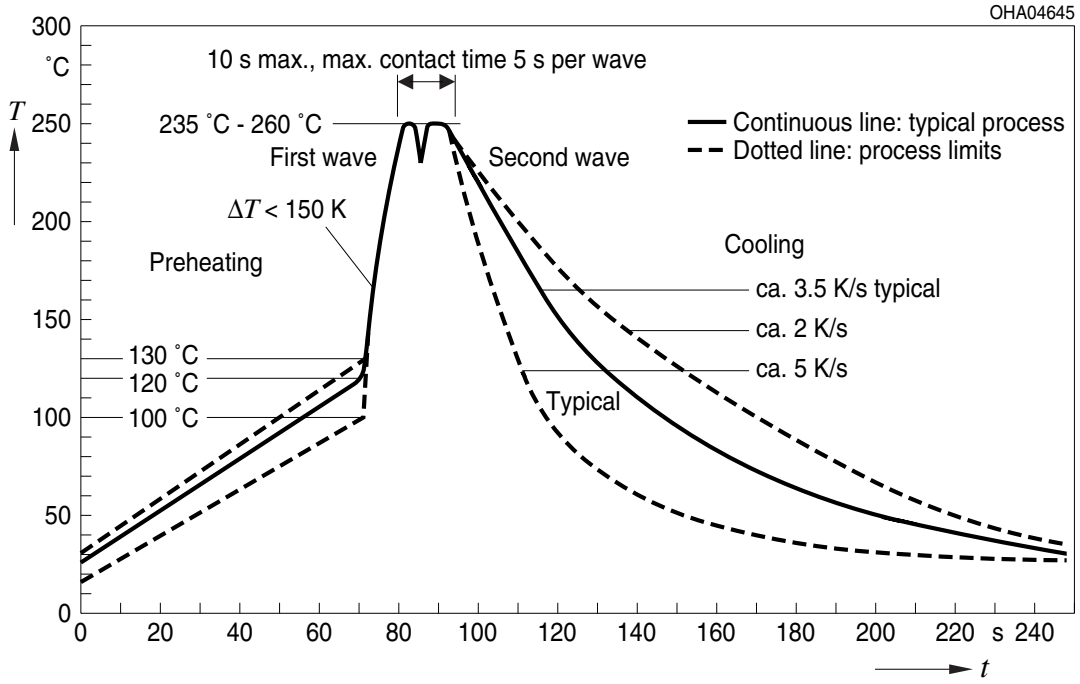
Recommended Solder Pad [6)]



E062.3010.188-01

TTW Soldering

IEC-61760-1 TTW



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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 device specified in this data sheet falls 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.

Subcomponents of this device contain, in addition to other substances, metal filled materials including silver. Metal filled materials can be affected by environments that contain traces of aggressive substances. Therefore, we recommend that customers minimize device exposure to aggressive substances during storage, production, and use. Devices that showed visible discoloration when tested using the described tests above did show no performance deviations within failure limits during the stated test duration. Respective failure limits are described in the IEC60810.

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

Disclaimer

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.
For information on the types in question please contact our Sales Organization.
If printed or downloaded, please find the latest version on the OSRAM OS website.

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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OSRAM OS components are not developed, constructed or tested for the application as safety relevant component or for the application in medical devices.
OSRAM OS products are not qualified at module and system level for such application.

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Glossary

1) **Photocurrent:** The photocurrent values are measured (by irradiating the devices with a homogenous light source and applying a voltage to the device) with a tolerance of ±11 %.

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

3) **IPCEmin:** IPCEmin is the min. photocurrent of the specified group.

4) **Typical Values:** Due to the special conditions of the manufacturing processes of semiconductor devices, 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.

5) **Testing temperature:** TA = 25°C (unless otherwise specified)

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

Revision History

Version	Date	Change
1.4	2019-12-20	Electro - Optical Characteristics (Diagrams)

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