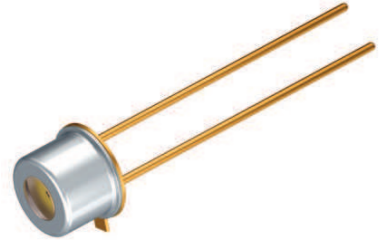# GaAlAs Light Emitting Diode (660 nm)
Version 1.3

SFH 4860

Features:

- Fabricated in a liquid phase epitaxy process
- Cathode is electrically connected to the case
- High reliability
- Spectral match with silicon photodetectors
- Hermetically sealed package

Applications

- Photointerrupters
- IR remote control
- Sensor technology
- Light curtains

Notes

Depending on the mode of operation, these devices emit highly concentrated non visible infrared light which can be hazardous to the human eye. Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1 and IEC 62471.

Ordering Information

Type:	Radiant Intensity I_e [mW/sr] $I_F = 50$ mA, $t_p = 20$ ms	Ordering Code
SFH 4860	1.3 ($\geq$ 0.63)	Q62702P5053

Note: *18 A3 DIN 870 (TO-18), flat glass cap, lead spacing 2.54 mm (1/10'') anode making: projection at package bottom*

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Maximum Ratings (T_A = 25 °C)

Parameter	Symbol	Values	Unit
Operation and storage temperature range	T_{op}; T_{stg}	-40 ... 100	°C
Junction temperature	T_j	125	°C
Reverse voltage	V_R	3	V
Forward current	I_F	50	mA
Surge current ($t_p \leq 10$ µs, D = 0)	I_{FSM}	1	A
Power consumption	P_{tot}	140	mW
Thermal resistance junction - ambient	R_{thJA}	450	K / W
Thermal resistance junction - case	R_{thJC}	160	K / W

Characteristics (T_A = 25 °C)

Parameter		Symbol	Values	Unit
Peak wavelength (I_F = 50 mA, t_P = 20 ms)	(typ)	λ_{peak}	660	nm
Spectral bandwidth at 50% of I_{max} (I_F = 50 mA, t_p = 20 ms)	(typ)	$\Delta\lambda$	25	nm
Half angle	(typ)	φ	± 50	°
Dimensions of active chip area	(typ)	L x W	0.325 x 0.325	mm x mm
Rise and fall time of I_e (10% and 90% of $I_{e\,max}$) (I_F = 50 mA, R_L = 50 Ω)	(typ)	t_r, t_f	100	ns
Capacitance (V_R = 0 V, f = 1 MHz)	(typ)	C_0	25	pF
Forward voltage (I_F = 50 mA, t_P = 20 ms)	(typ (max))	V_F	2 ($\leq$ 2.8)	V
Reverse current (V_R = 3 V)		I_R	0.01 ($\leq$ 10)	µA
Total radiant flux (I_F=50 mA, t_p=20 ms)	(typ)	Φ_e	3	mW
Temperature coefficient of I_e or Φ_e (I_F = 50 mA, t_p = 20 ms)	(typ)	TC_I	-0.4	% / K
Temperature coefficient of V_F (I_F = 50 mA, t_p = 20 ms)	(typ)	TC_V	-3	mV / K
Temperature coefficient of wavelength (I_F = 50 mA, t_p = 20 ms)	(typ)	TC_λ	0.16	nm / K

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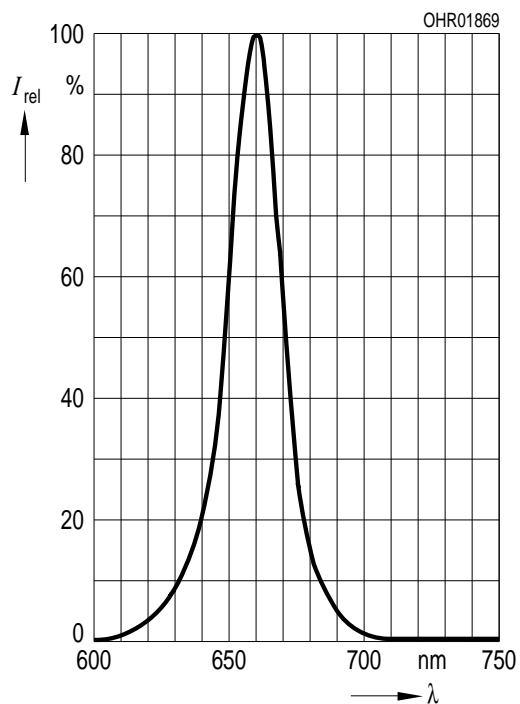## Grouping (T_A = 25 °C)

Group	Min Radiant Intensity I_F = 50 mA, t_p = 20 ms $I_{e, min}$ [mW / sr]	Typ Radiant Intensity I_F = 1 A, t_p = 100 µs $I_{e, typ}$ [mW / sr]
SFH 4860	0.63	15

Note: measured at a solid angle of Ω = 0.01 sr

Relative Spectral Emission [1) page 8]
I_{rel} = f(λ), T_A = 25°C

Radiant Intensity [1) page 8]
I_e / I_e(50mA) = f(I_F), single pulse, t_p = 20 µs, T_A = 25°C

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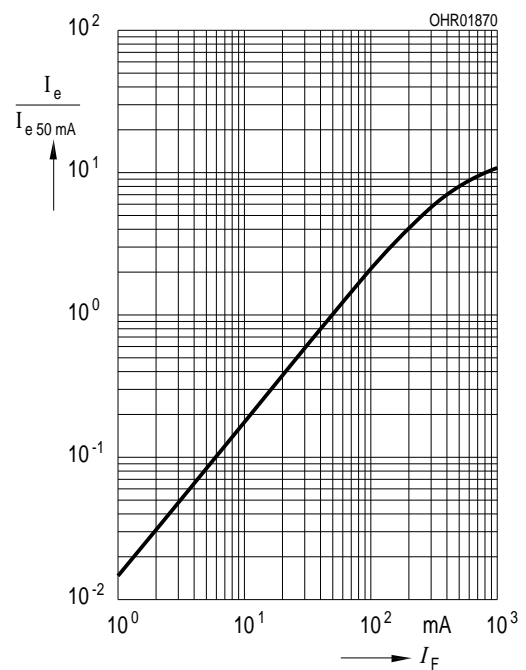
Max. Permissible Forward Current

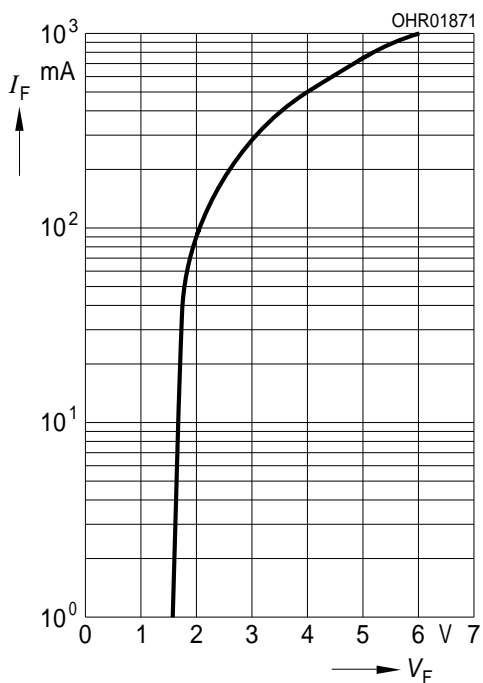$I_{F, max} = f(T_C)$, $R_{thJC} = 160$ K / W

Max. Permissible Forward Current
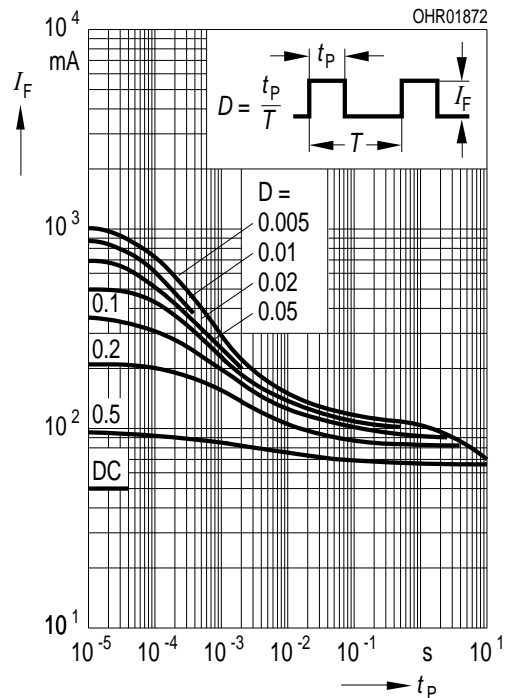
$I_{F, max} = f(T_A)$, $R_{thJA} = 450$ K / W

Forward Current [1] *page 8*

$I_F = f(V_F)$, single pulse, $t_p = 100$ µs, $T_A = 25°C$

Permissible Pulse Handling Capability

$I_F = f(t_p)$, $T_A = 25$ °C, duty cycle D = parameter

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Radiation Characteristics [1] *page 8*

$I_{rel} = f(\phi)$, $T_A = 25°C$
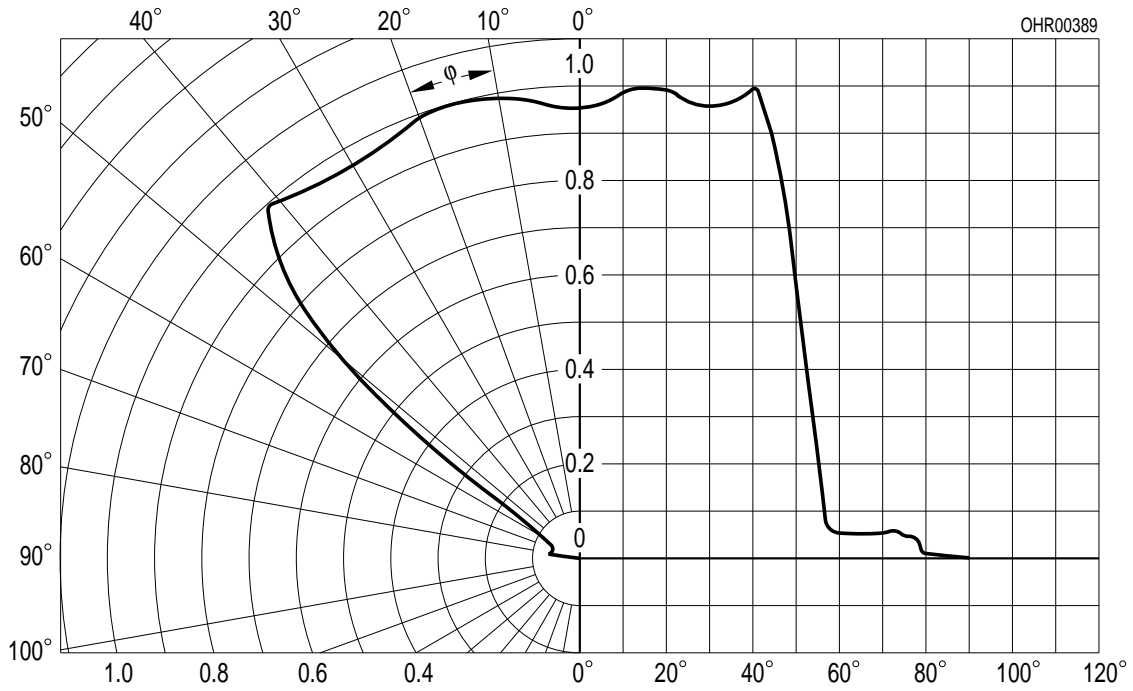
Package Outline
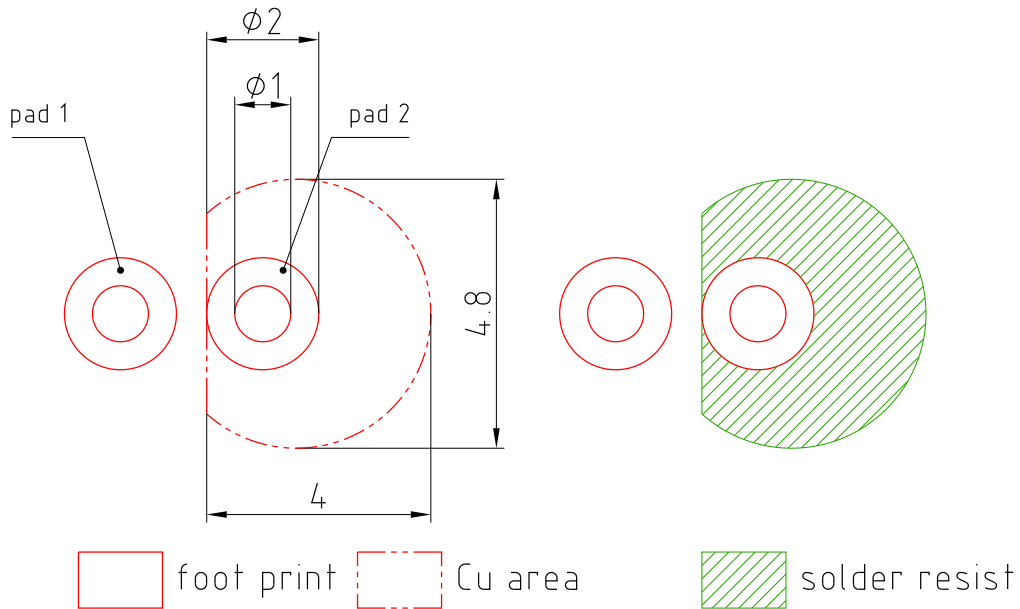

Dimensions in mm (inch).

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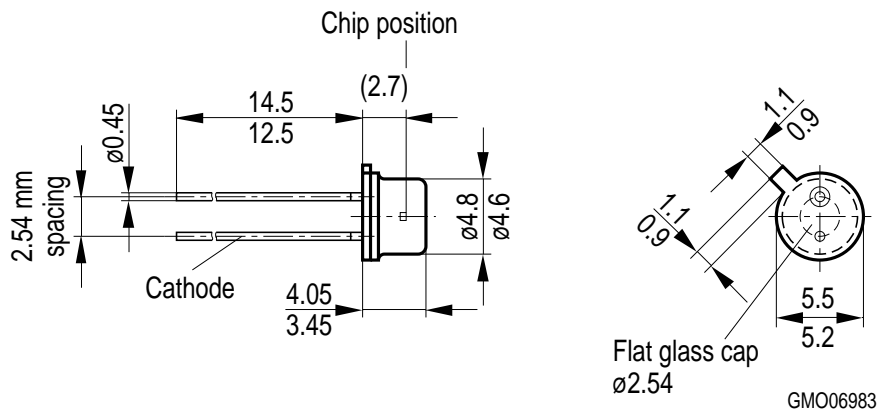
Package

Metal Can (TO-18), solder tabs lead spacing 2.54 mm ($^1/_{10}$"), anode marking: projection at package bottom

Approximate Weight:

25.0 mg

Recommended Solder Pad

E062.3010.188-01

Dimensions in mm.

Note:

pad 1: anode

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TTW Soldering

IEC-61760-1 TTW

OHA04645

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.

For information on the types in question please contact our Sales Organization.

If printed or downloaded, please find the latest version in the Internet.

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.

Components used in life-support devices or systems must be expressly authorized for such purpose!

Critical components* may only be used in life-support devices** or systems with the express written approval of OSRAM OS.

*) A critical component is a component used in a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or the effectiveness of that device or system.

**) Life support devices or systems are intended (a) to be implanted in the human body, or (b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health and the life of the user may be endangered.

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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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EU RoHS and China RoHS compliant product

此产品符合欧盟 RoHS 指令的要求；

按照中国的相关法规和标准，不含有毒有害物质或元素。

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