Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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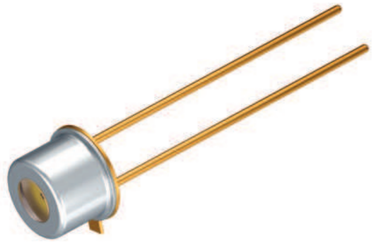
GaAIAs Light Emitting Diode (660 nm)
Version 1.3

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 (≥ 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 ≤ 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)	Δλ	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 (≤ 2.8)	V
Reverse current (V_R = 3 V)		I_R	0.01 (≤ 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

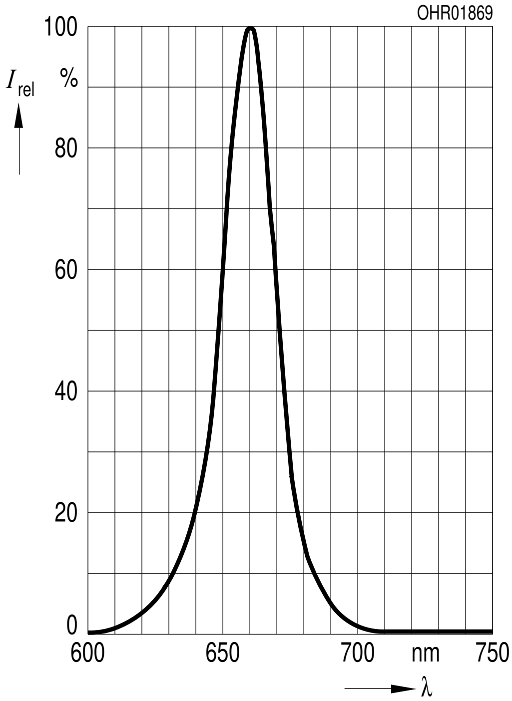
Grouping (T_A = 25 °C)

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

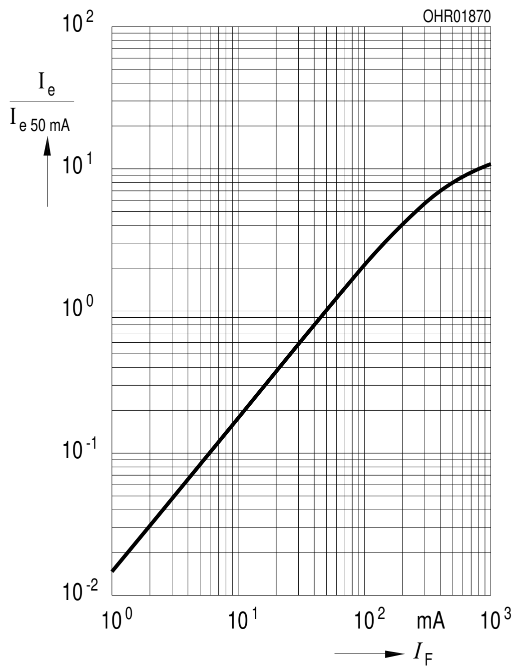
Relative Spectral Emission [1) page 8]

$I_{rel} = f(\lambda)$, 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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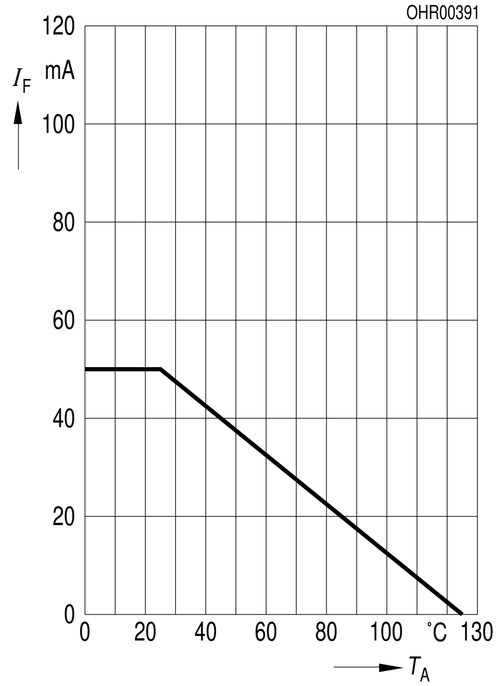
Max. Permissible Forward Current

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

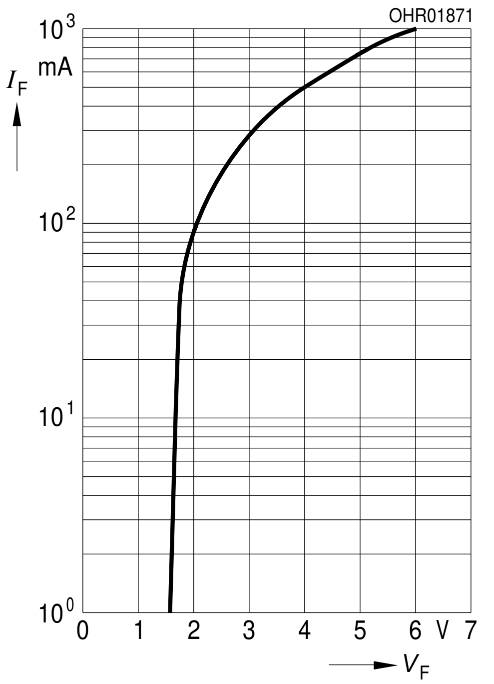
Max. Permissible Forward Current

$I_{F,\ max} = f(T_A)$, R_{thJA} = 450 K / W



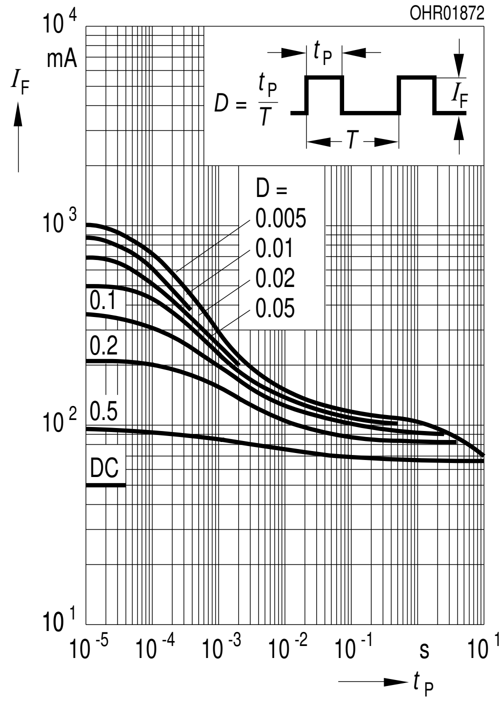
Forward Current [1) page 8]

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



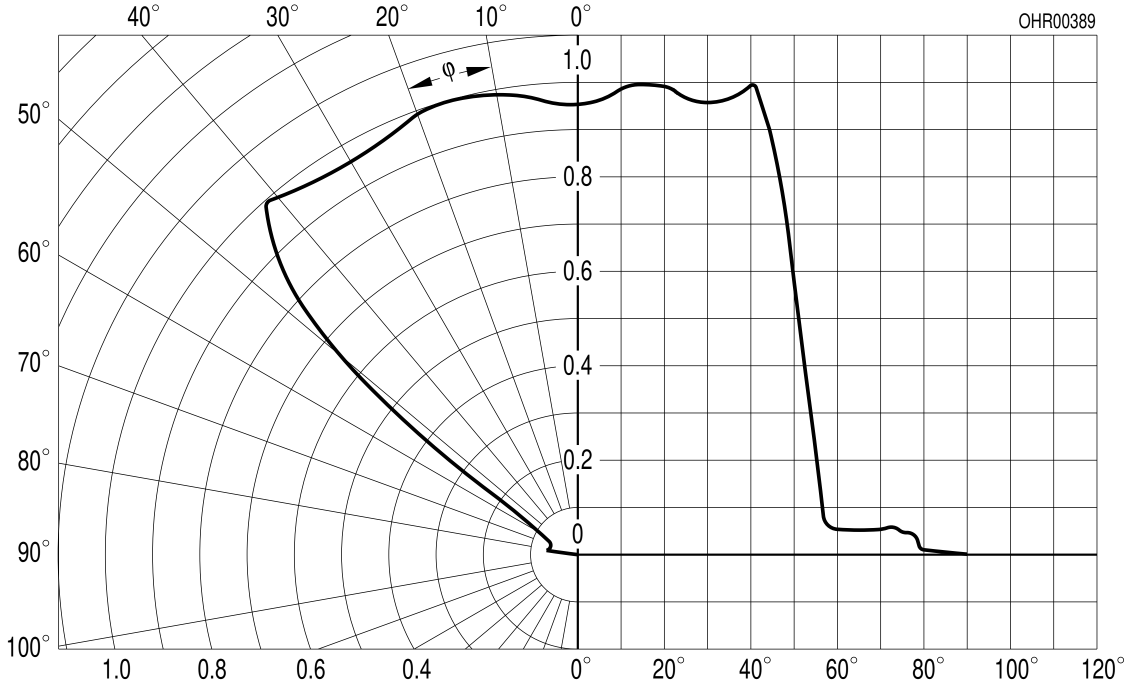
Permissible Pulse Handling Capability

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

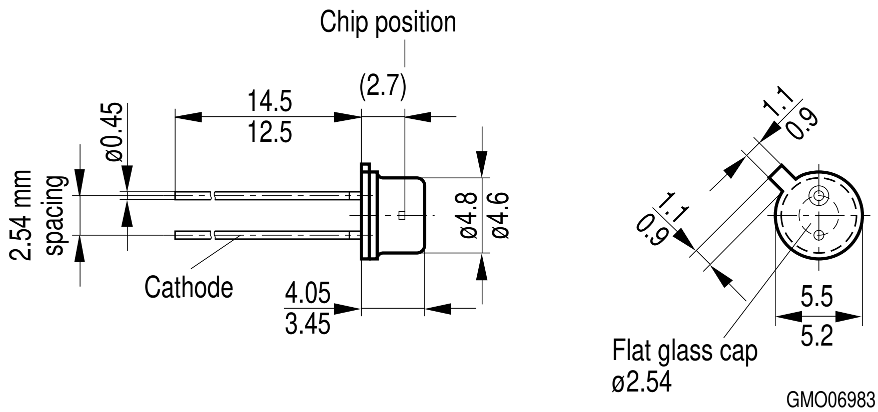


Radiation Characteristics [1)] *page 8*

$I_{rel} = f(\phi)$, $T_A = 25°C$



Package Outline



Dimensions in mm (inch).

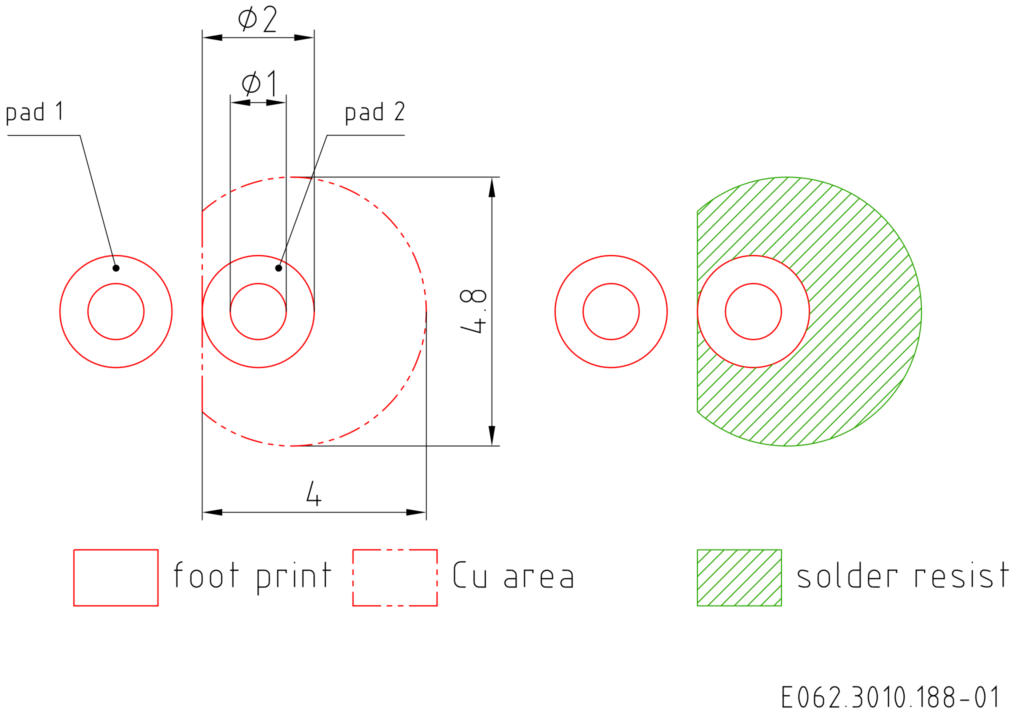
Package

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

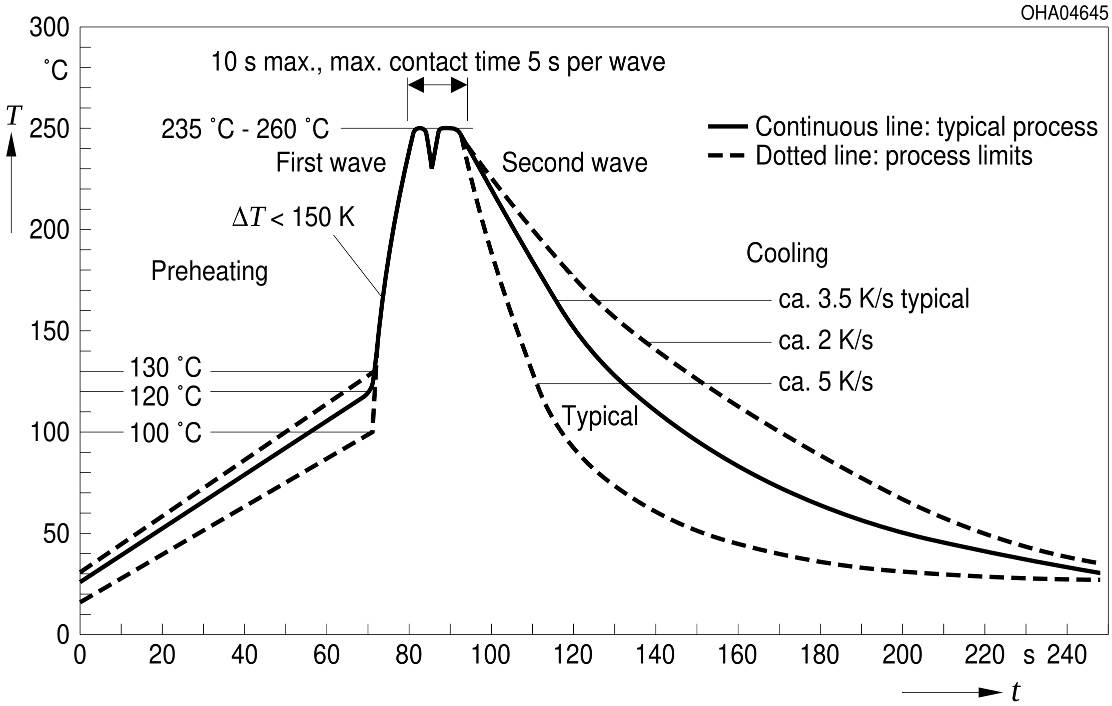


Dimensions in mm.

Note:

pad 1: anode

TTW Soldering
IEC-61760-1 TTW



Disclaimer

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

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**) 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.

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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