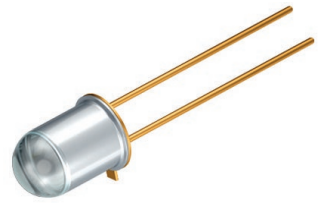


# SFH 4855

## TO18

Infrared Emitter (850 nm)



## Applications

- Industrial Automation (Machine controls, Light barriers, Vision controls)

## Features:

- Package: hermetically sealed
- ESD: 2 kV acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)
- Wavelength 850nm
- Short switching times
- Spectral match with silicon photodetectors

## Ordering Information

Type	Radiant intensity <sup>1)</sup> $I_e$ $I_F = 100 \text{ mA}; t_p = 20 \text{ ms}$	Radiant intensity <sup>1)</sup> typ. $I_e$ $I_F = 100 \text{ mA}; t_p = 20 \text{ ms}$	Ordering Code
SFH 4855	40 ... 320 mW/sr	110 mW/sr	Q65111A6128
SFH 4855-VAW	63 ... 200 mW/sr	110 mW/sr	Q65111A9675

## Maximum Ratings

$T_A = 25\text{ °C}$

Parameter	Symbol		Values
Operating temperature	$T_{op}$	min. max.	-40 °C 125 °C
Storage temperature	$T_{stg}$	min. max.	-40 °C 125 °C
Reverse voltage <sup>2)</sup>	$V_R$	max.	12 V
Forward current	$I_F$	max.	100 mA
Surge current $t_p \leq 200\ \mu\text{s}; D = 0$	$I_{FSM}$	max.	1 A
Power consumption	$P_{tot}$	max.	200 mW
ESD withstand voltage acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)	$V_{ESD}$	max.	2 kV

## Characteristics

$I_F = 100 \text{ mA}$ ;  $t_p = 20 \text{ ms}$ ;  $T_A = 25 \text{ °C}$

Parameter	Symbol		Values
Peak wavelength	$\lambda_{\text{peak}}$	typ.	860 nm
Centroid wavelength	$\lambda_{\text{centroid}}$	typ.	850 nm
Spectral bandwidth at 50% $I_{\text{rel,max}}$	$\Delta\lambda$	typ.	30 nm
Half angle	$\varphi$	typ.	8 °
Dimensions of active chip area	L x W	typ.	0.3 x 0.3 mm x mm
Distance chip surface to lens top	H	min. max.	4 mm 4.8 mm
Rise time (10% / 90%) $I_F = 100 \text{ mA}$ ; $R_L = 50 \text{ } \Omega$	$t_r$	typ.	12 ns
Fall time (10% / 90%) $I_F = 100 \text{ mA}$ ; $R_L = 50 \text{ } \Omega$	$t_f$	typ.	12 ns
Forward voltage	$V_F$	typ. max.	1.7 V 2 V
Forward voltage $I_F = 1 \text{ A}$ ; $t_p = 100 \text{ } \mu\text{s}$	$V_F$	typ. max.	3.6 V 4.6 V
Reverse current <sup>2)</sup> $V_R = 5 \text{ V}$	$I_R$	max. typ.	10 $\mu\text{A}$ 0.01 $\mu\text{A}$
Total radiant flux <sup>3)</sup>	$\Phi_e$	typ.	35 mW
Radiant intensity <sup>1)</sup> $I_F = 1 \text{ A}$ ; $t_p = 100 \text{ } \mu\text{s}$	$I_e$	typ.	515 mW/sr
Temperature coefficient of brightness	$TC_I$	typ.	-0.3 % / K
Temperature coefficient of voltage	$TC_V$	typ.	-0.6 mV / K
Temperature coefficient of wavelength	$TC_\lambda$	typ.	0.3 nm / K
Thermal resistance junction ambient real	$R_{\text{thJA}}$	max.	500 K / W
Thermal resistance junction case real	$R_{\text{thJC}}$	max.	350 K / W

### Brightness Groups

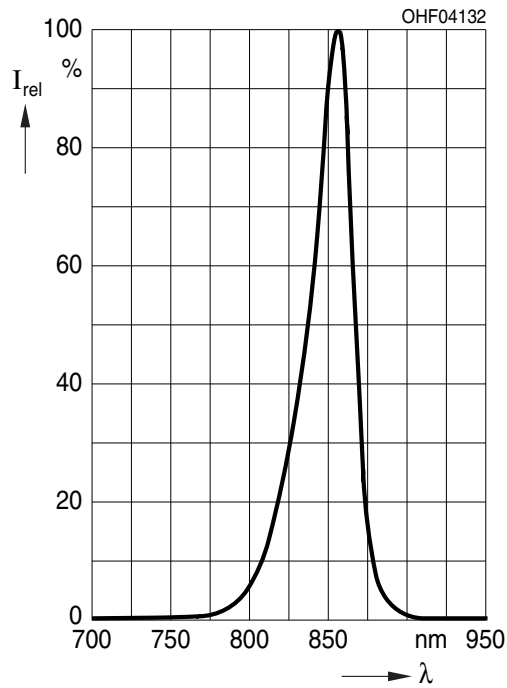
$T_A = 25\text{ }^\circ\text{C}$

Group	Radiant intensity	Radiant intensity
	$I_F = 100\text{ mA}; t_p = 20\text{ ms}$ min. $I_e$	$I_F = 100\text{ mA}; t_p = 20\text{ ms}$ max. $I_e$
U	40 mW/sr	80 mW/sr
V	63 mW/sr	125 mW/sr
AW	100 mW/sr	200 mW/sr
BW	160 mW/sr	320 mW/sr

Only one group in one packing unit (variation lower 2:1).

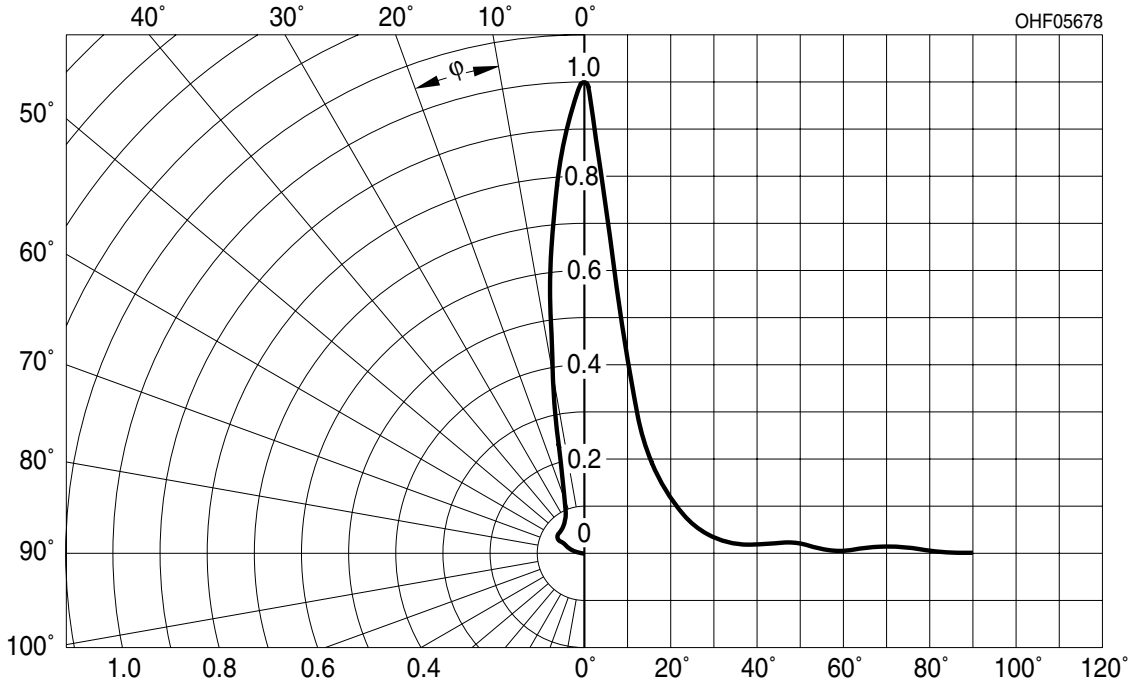
### Relative Spectral Emission <sup>4), 5)</sup>

$I_{rel} = f(\lambda); I_F = 100\text{ mA}; t_p = 20\text{ ms}$



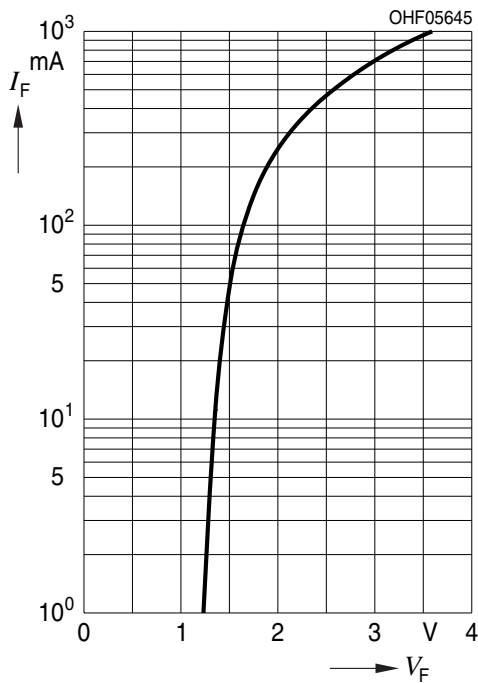
**Radiation Characteristics** 4), 5)

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



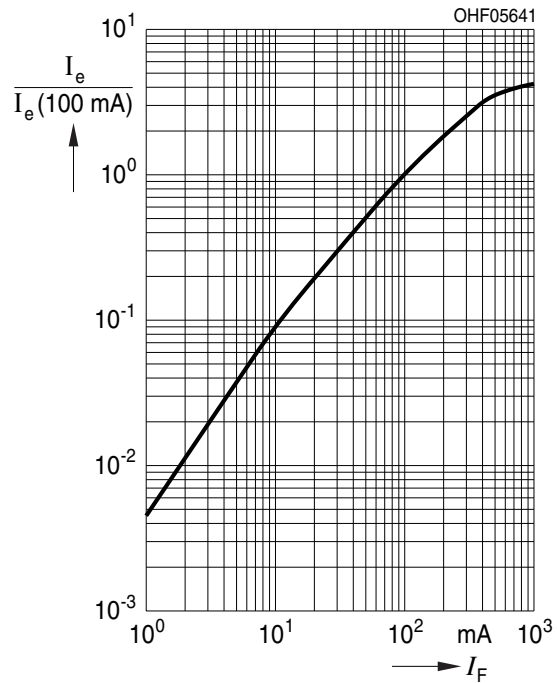
**Forward current** 4), 5)

$I_F = f(V_F)$ ; single pulse;  $t_p = 100 \mu s$



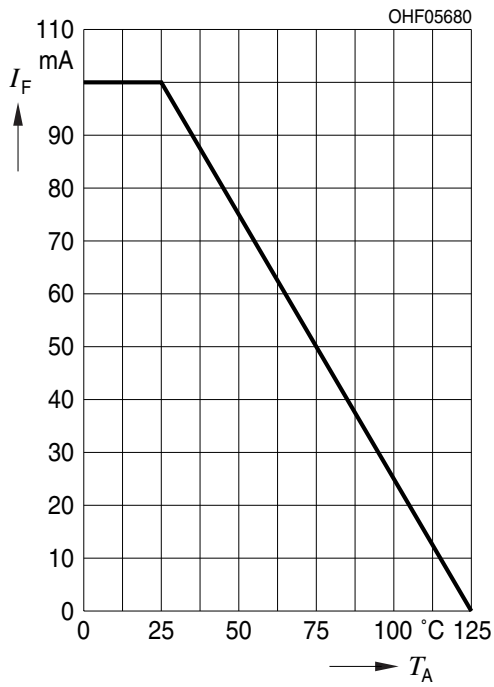
**Relative Radiant Intensity** 4), 5)

$I_e/I_e(100mA) = f(I_F)$ ; single pulse;  $t_p = 100 \mu s$



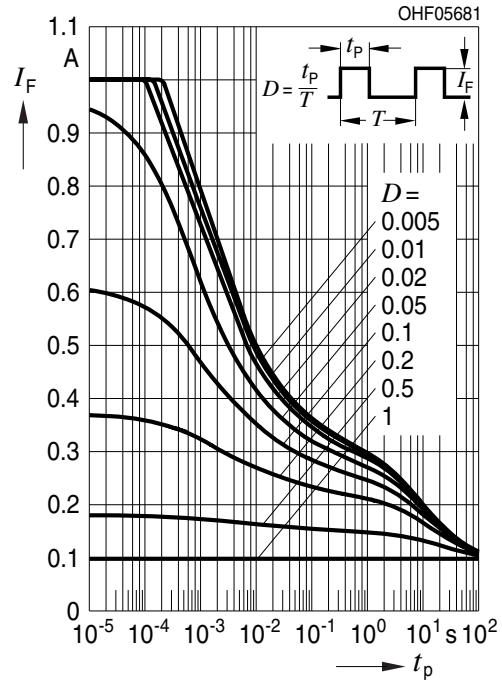
### Max. Permissible Forward Current

$I_{F,max} = f(T_A); R_{thJA} = 500 \text{ K/W}$



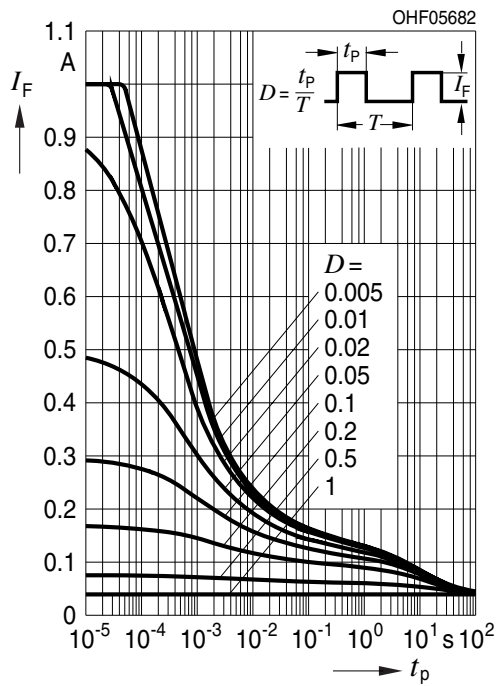
### Permissible Pulse Handling Capability

$I_F = f(t_p); \text{duty cycle } D = \text{parameter}; T_A = 25^\circ\text{C}$

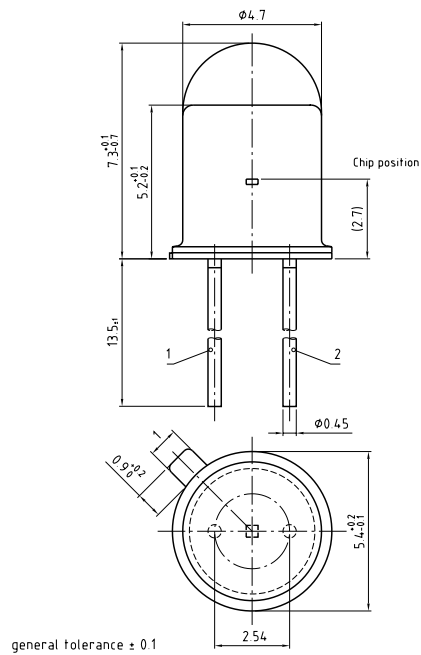


### Permissible Pulse Handling Capability

$I_F = f(t_p); \text{duty cycle } D = \text{parameter}; T_A = 85^\circ\text{C}$



Dimensional Drawing <sup>6)</sup>



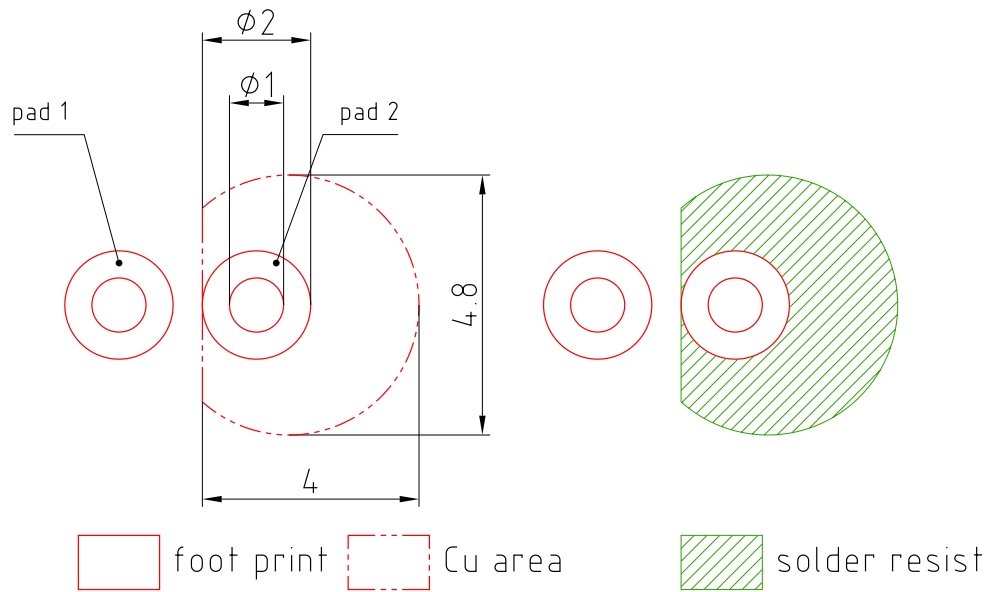
C63062-A4266-A1 -02

**Approximate Weight:** 380.0 mg

**Package marking:** Cathode

Pin	Description
1	Cathode
2	Anode

**Recommended Solder Pad** <sup>6)</sup>



E062.3010.188-01

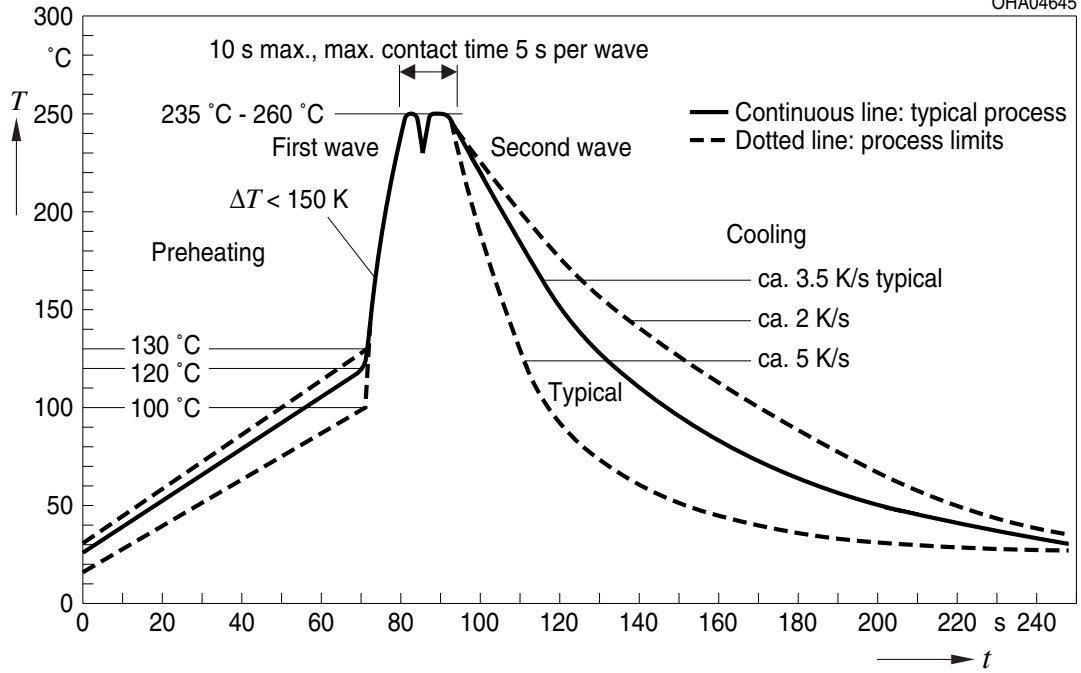
Pad 1: cathode



## TTW Soldering

IEC-61760-1 TTW

OHA04645



## Disclaimer

### Disclaimer

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

### Attention please!

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## Glossary

- 1) **Radiant intensity:** Measured at a solid angle of  $\Omega = 0.01$  sr
- 2) **Reverse Operation:** Reverse Operation of 10 hours is permissible in total. Continuous reverse operation is not allowed.
- 3) **Total radiant flux:** Measured with integrating sphere.
- 4) **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.
- 5) **Testing temperature:**  $T_A = 25^\circ\text{C}$
- 6) **Tolerance of Measure:** Unless otherwise noted in drawing, tolerances are specified with  $\pm 0.1$  and dimensions are specified in mm.

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