Infrared Emitter (850 nm)
Version 1.3

SFH 4356

Features:

- Wavelength 850nm
- Short switching times
- Good spectral match to silicon photodetectors
- package similar to SFH 309

Applications

- IR remote control
- Sensor technology
- Discrete optocouplers
- Discrete interrupters

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= 100 mA, t_p= 20 ms**	**Ordering Code**
SFH 4356	90 (≥ 40)	Q65111A6136
SFH 4356-UV	40 ... 125	Q65111A8863

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

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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
Reverse voltage	V_R	5	V
Forward current	I_F	100	mA
Surge current ($t_p \leq 200$ µs, D = 0)	I_{FSM}	1	A
Power consumption	P_{tot}	200	mW
ESD withstand voltage (acc. to ANSI/ ESDA/ JEDEC JS-001 - HBM)	V_{ESD}	2	kV
Thermal resistance junction - ambient [1) page 9]	R_{thJA}	350	K / W
Thermal resistance junction - soldering point	R_{thJS}	150	K / W

Characteristics (T_A = 25 °C)

Parameter		Symbol	Values	Unit
Peak wavelength (I_F = 100 mA, t_p = 20 ms)	(typ)	λ_{peak}	860	nm
Centroid wavelength (I_F = 100 mA, t_p = 20 ms)	(typ)	$\lambda_{centroid}$	850	nm
Spectral bandwidth at 50% of I_{max} (I_F = 100 mA, t_p = 20 ms)	(typ)	$\Delta\lambda$	30	nm
Half angle	(typ)	φ	± 20	°
Dimensions of active chip area	(typ)	L x W	0.3 x 0.3	mm x mm
Rise and fall time of I_e (10% and 90% of $I_{e\,max}$) (I_F = 100 mA, R_L = 50 Ω)	(typ)	t_r, t_f	12	ns
Forward voltage (I_F = 100 mA, t_p = 20 ms)	(typ (max))	V_F	1.7 (≤ 2)	V
Forward voltage (I_F = 1A, t_p = 100 µs)	(typ (max))	V_F	3.6 (≤ 4.6)	V
Reverse current (V_R = 5 V)		I_R	not designed for reverse operation	µA
Total radiant flux (I_F=100 mA, t_p=20 ms)	(typ)	Φ_e	80	mW

Parameter		Symbol	Values	Unit
Temperature coefficient of I_e or Φ_e (I_F = 100 mA, t_p = 20 ms)	(typ)	TC_I	-0.3	% / K
Temperature coefficient of V_F (I_F = 100 mA, t_p = 20 ms)	(typ)	TC_V	-0.6	mV / K
Temperature coefficient of wavelength (I_F = 100 mA, t_p = 20 ms)	(typ)	TC_λ	0.3	nm / K

Grouping (T_A = 25 °C)

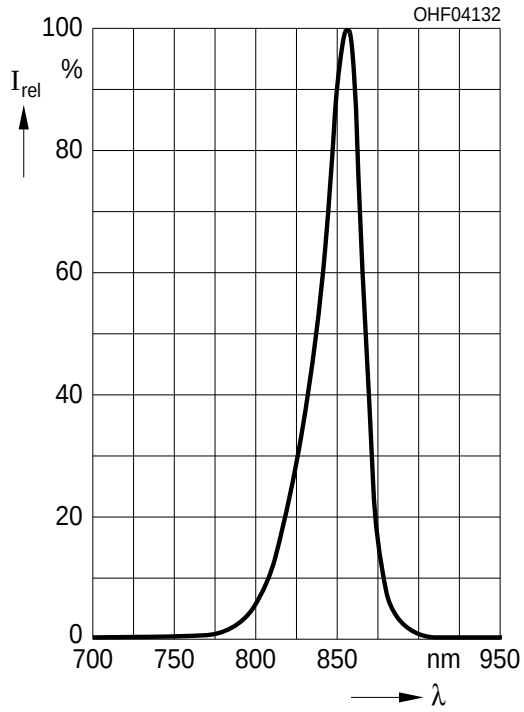
Group	Min Radiant Intensity I_F= 100 mA, t_p= 20 ms $I_{e, min}$ [mW / sr]	Max Radiant Intensity I_F= 100 mA, t_p= 20 ms $I_{e, max}$ [mW / sr]	Typ Radiant Intensity I_F = 1 A, t_p = 100 µs $I_{e, typ}$ [mW / sr]
SFH 4356-U	40	80	255
SFH 4356-V	63	125	395
SFH 4356-AW	100	200	630
SFH 4356-BW	160	320	1000

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

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

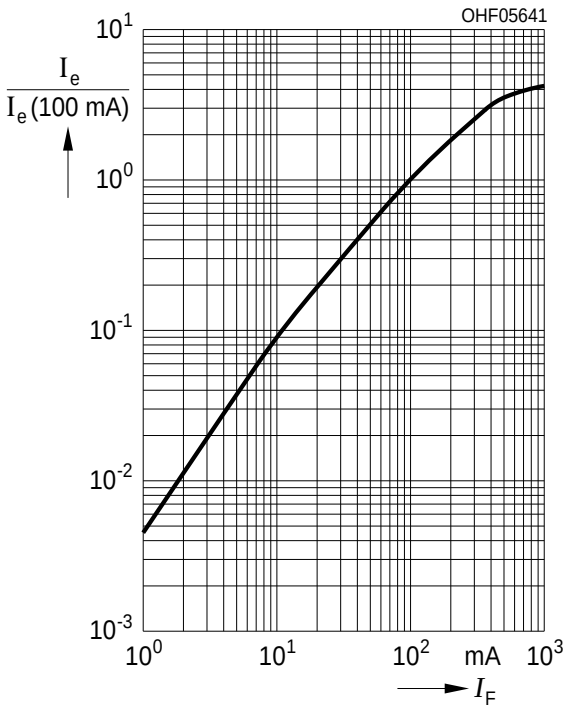
Relative Spectral Emission [2) page 9]

$I_{rel} = f(\lambda)$, $T_A = 25°C$



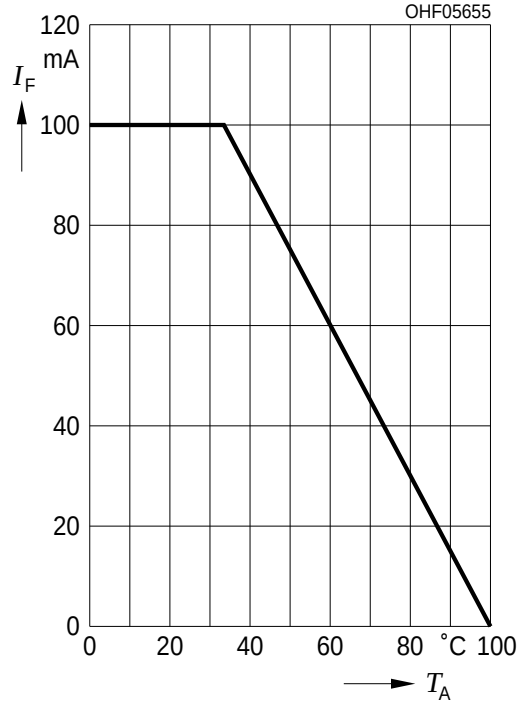
Radiant Intensity [2) page 9]

$I_e / I_e(100\ mA) = f(I_F)$, single pulse, $t_p = 100\ \mu s$, $T_A = 25°C$



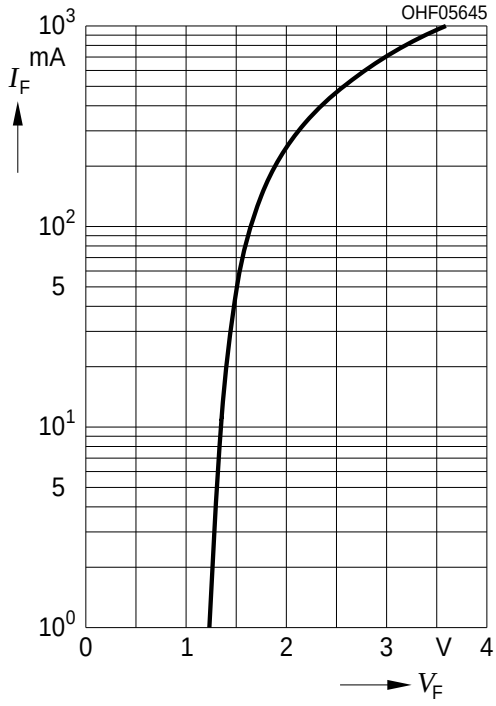
Max. Permissible Forward Current

$I_{F,\,max} = f(T_A)$, $R_{thJA} = 350\ K / W$



Forward Current [2) page 9]

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



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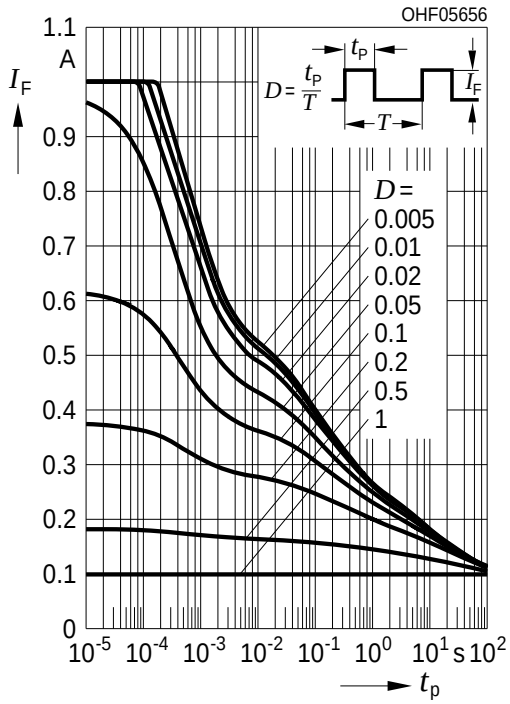
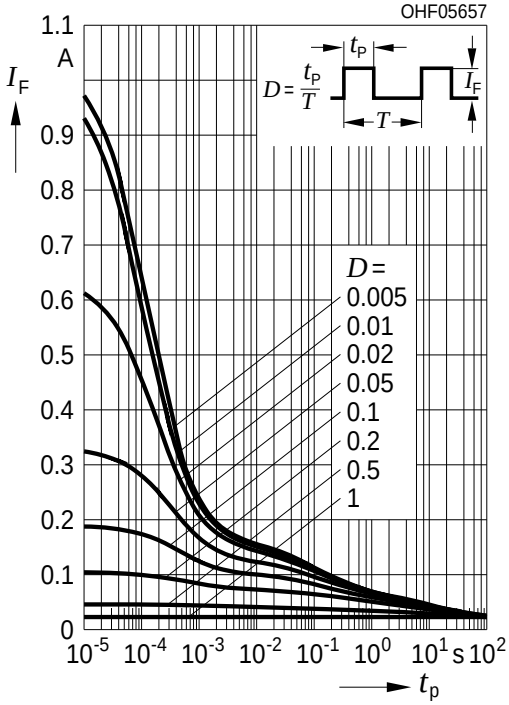
Permissible Pulse Handling Capability

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



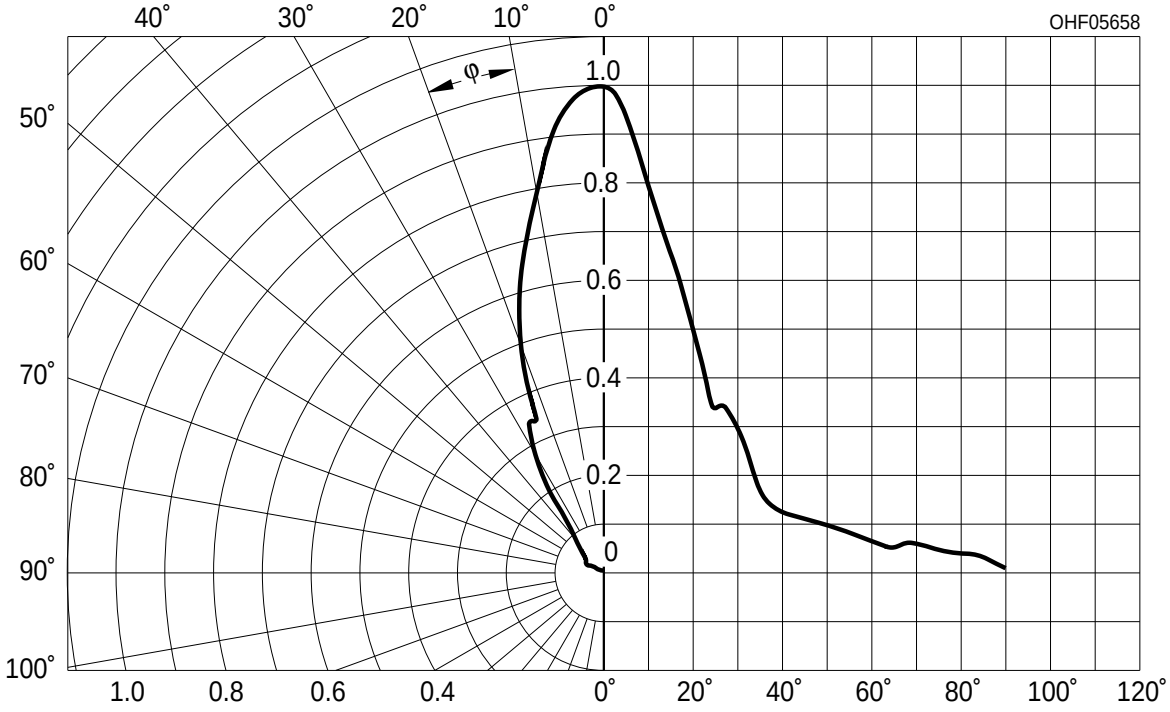
Permissible Pulse Handling Capability

$I_F = f(t_p)$, T_A = 85 °C, duty cycle D = parameter



Radiation Characteristics [2) page 9]

$I_{rel} = f(\phi)$, T_A= 25°C



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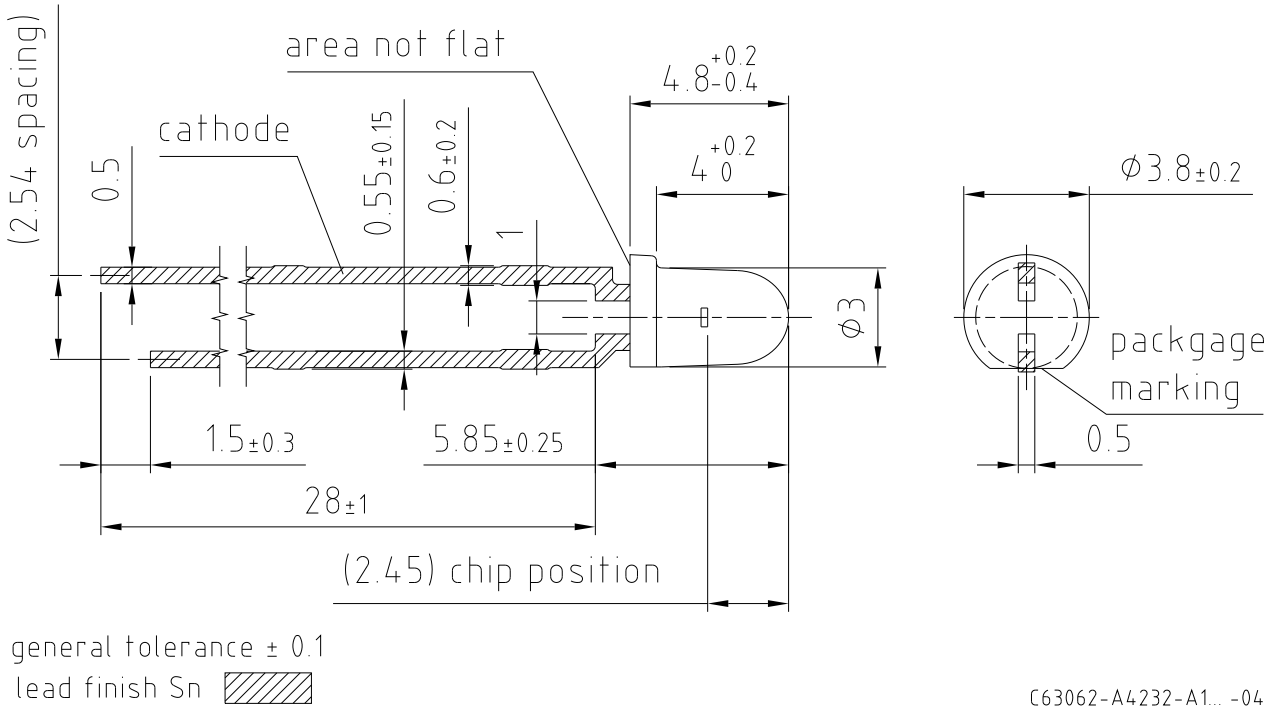
Package Outline



Dimensions in mm.

Package

3mm Radial (T 1), Epoxy, black

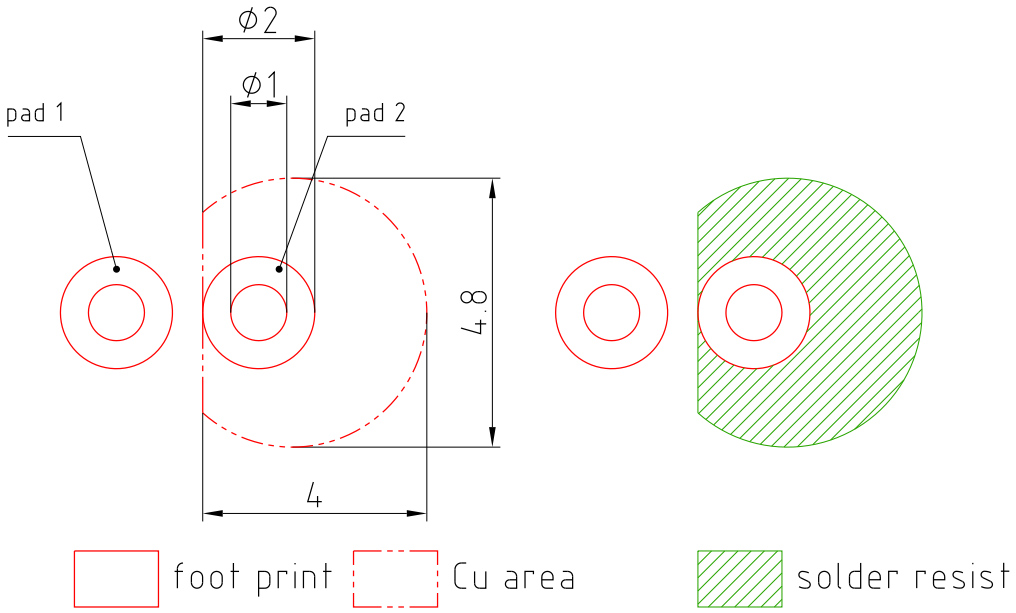
Approximate Weight:

0.2 g

Note

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

Recommended Solder Pad

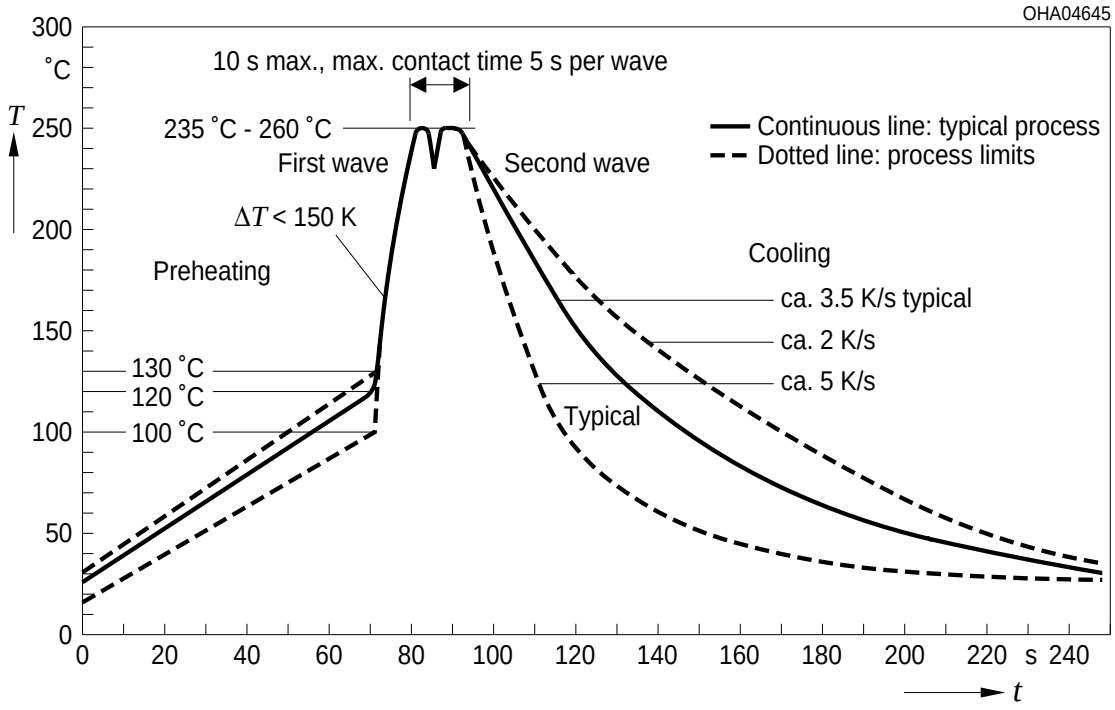


E062.3010.188-01

Dimensions in mm.

Note:
pad 1: cathode

TTW Soldering
IEC-61760-1 TTW



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Disclaimer

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

Attention please!
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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] **Thermal resistance:** junction -ambient, mounted on PC-board (FR4), padsize 16 mm^2 each

[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.

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OSRAM
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