

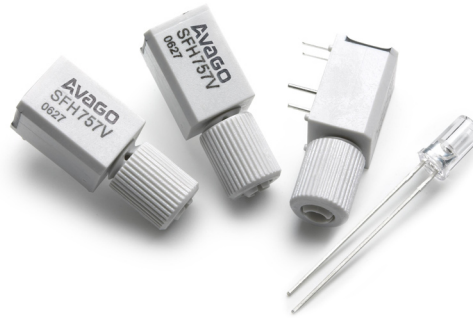
SFH757 / SFH757V

Plastic Fiber Optic Transmitter Diode

Plastic Connector Housing



Data Sheet



Description

The SFH757 is a low-cost transmitter for simple optical data transmission with polymer optical fiber. This very robust 650nm LED can be used for speeds up to 100MBd.

The transparent plastic package has an aperture where the 2.2mm fiber-end can be inserted and fixed with glue. This easy coupling method is extremely cost-effective.

The V-housing allows easy coupling of unconnectorized 2.2mm plastic optical fiber by means of an axial locking screw.

Ordering Information

Type	Ordering Code
SFH757	SP000063871
SFH757V	SP000063858

Features

- High speed transmitter for about 50 Mbit/s up to 100 Mbit/s (with peaking circuit)
- 2.2 mm aperture holds standard 1000 micron plastic fiber
- No fiber stripping required
- Molded microlens for efficient coupling

Plastic Connector Housing

- Mounting screw attached to the connector
- Interference-free transmission from light-tight housing
- Transmitter and receiver can be flexibly positioned
- No cross talk
- Auto insertable and wave solderable
- Supplied in tubes

Applications

- Household electronics
- Power electronics
- Optical networks
- Light barriers

Technical Data

Absolute Maximum Ratings

Parameter	Symbol	Limit Values		Unit
		min.	max.	
Operating Temperature Range	T_{OP}	-40	+80	°C
Storage Temperature Range	T_{STG}	-40	+100	°C
Junction Temperature	T_J		100	°C
Soldering Temperature(2 mm from case bottom, $t \leq 5$ s)	T_S		260	°C
Reverse Voltage	V_R		3	V
Forward Current	I_F		50	mA
Surge Current ($t \leq 10 \mu\text{s}$, $D = 0$)	I_{FSM}		1	A
Power Dissipation	P_{tot}		120	mW
Thermal Resistance, Junction/Air	R_{thJA}		450	K/W

Characteristics ($T_A = 25^\circ\text{C}$)

Parameter	Symbol	Typical Value	Unit
Peak Wavelength	λ_{Peak}	650	nm
Spectral Bandwidth (FWHM)	$\Delta\lambda$	25	nm
Switching Times ($R_L = 50 \Omega$, $I_F = 30\text{mA}$)			ns
10% ...90%	t_R	15 (< 17)	
90% ...10%	t_F	18 (< 20)	
Capacitance ($f = 1 \text{ MHz}$, $V_R = 0 \text{ V}$)	C_0	30	pF
Forward Voltage ($I_F = 50 \text{ mA}$)	V_F	2.1 (≤ 2.8)	V
Output Power Coupled into Plastic Fiber ($I_F = 10 \text{ mA}$) ^[1]	Φ_{IN}	150 (≥ 100)	μW
Temperature Coefficient Φ_{IN}	TC_Φ	-0.4	%/K
Temperature Coefficient V_F	TC_V	-3	mV/K
Temperature Coefficient λ_{Peak}	TC_λ	0.16	nm/K

Notes:

1. The output power coupled into plastic fiber is measured with a large area detector at the end of a short length of fiber (about 30 cm). This value must not be used for calculating the power budget for a fiber optic system with a long fiber because the numerical aperture of plastic fibers decreases on the first meters. Therefore the fiber seems to have a higher attenuation over the first few meters compared with the specified value.

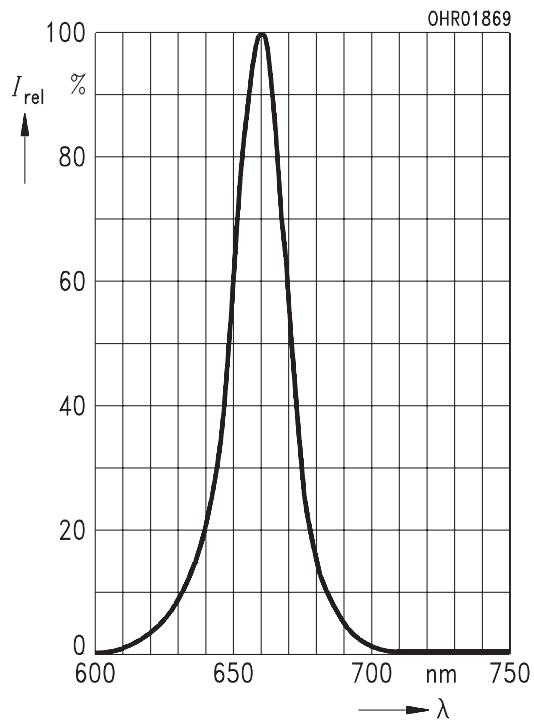


Figure 1. Relative Spectral Emission $I_{rel} = f(\lambda)$

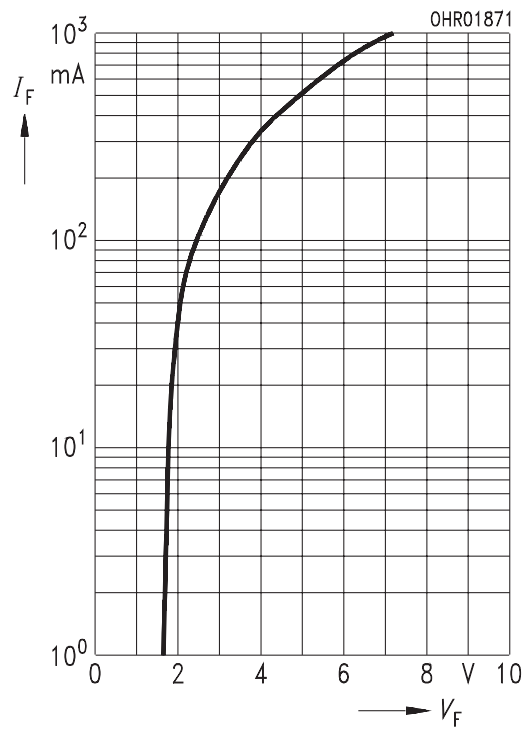


Figure 2. Forward Current $I_F = f(V_F)$ single pulse, duration = 20 μ s

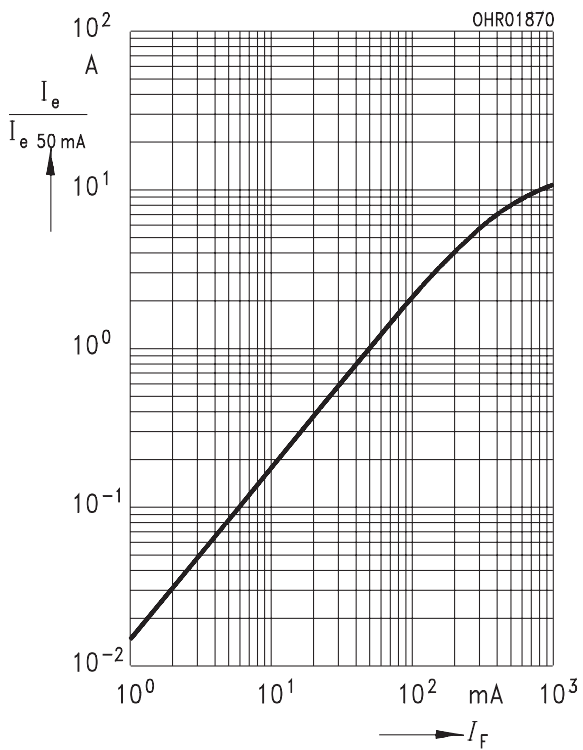


Figure 3. Relative Output Power $I_e/I_{e(50\text{ mA})} = f(I_F)$ single pulse, duration = 20 μ s

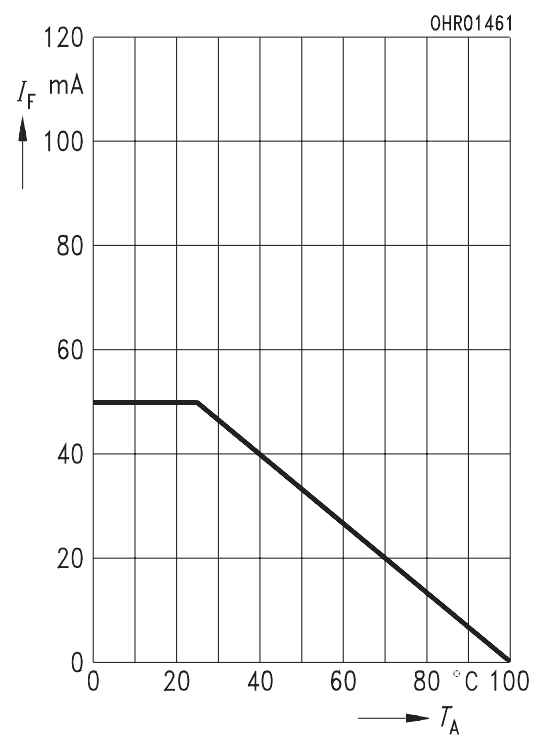


Figure 4. Maximum Permissible Forward Current, $I_F = f(T_A)$, $R_{\theta JA} = 450\text{ K/W}$

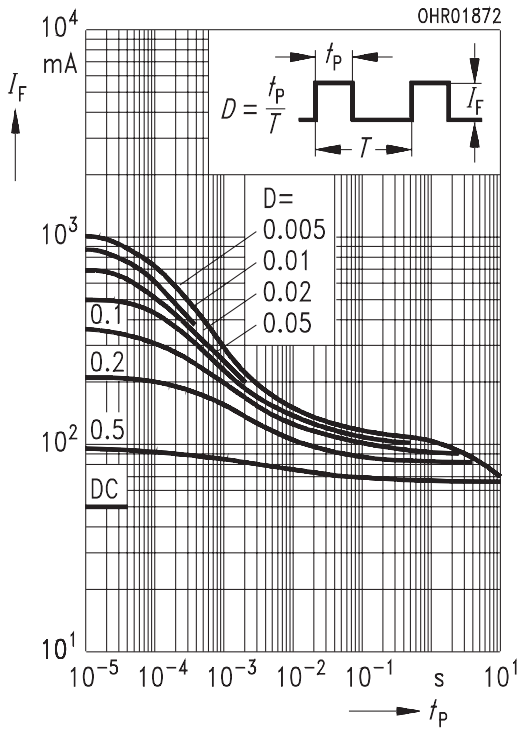
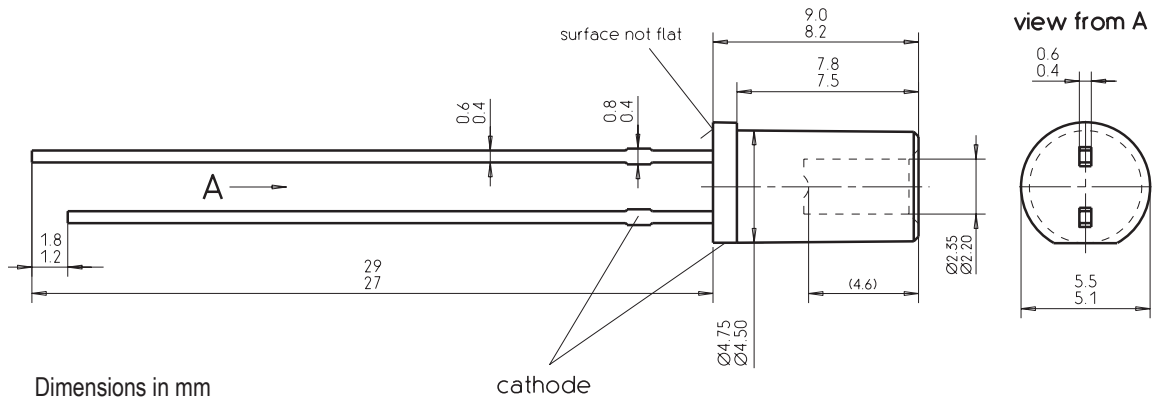


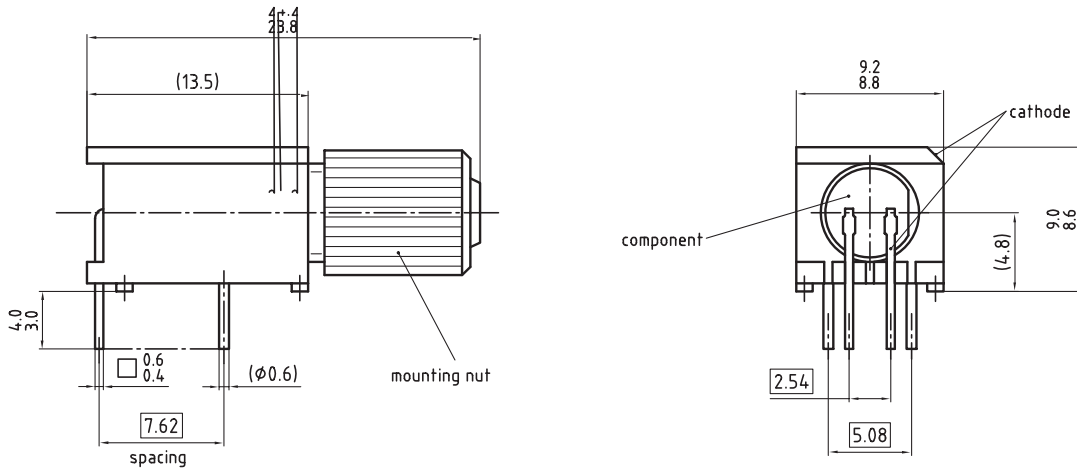
Figure 5. Permissible Pulse Handling Capability, $I_F = f(t_P)$, duty cycle $D =$ parameter, $T_A = 25^\circ\text{C}$

Package Outlines



Dimensions in mm

Figure 6. SFH757



Dimensions in mm

Figure 7. SFH757V

Disclaimer

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