

Photomicrosensor (Reflective)

EE-SF5/EE-SF5-B

Reflective/Terminal Type with Visible Light Cut Filter (Standard Sensing Distance = 5 mm)

- Dust resistant structure
- Includes screw mounting holes (M2)
- Two types of terminals (terminal for cord soldering, terminal for PCB mounting)



⚠ Be sure to read *Safety Precautions* on Page 3.

Ordering Information

Photomicrosensor

Appearance	Sensing method	Connecting method	Standard sensing distance	Output type	Model	Minimum packing unit (Unit: pcs)
	Reflective	Terminal for cord soldering	5 mm	Phototransistor	EE-SF5	1
		Terminal for PCB mounting			EE-SF5-B	

Note: Order in multiples of minimum packing unit.

Ratings, Characteristics and Exterior Specifications

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rated value	Unit
Emitter			
Forward current	I_F	50*1	mA
Pulse forward current	I_{FP}	1*2	A
Reverse voltage	V_R	4	V
Detector			
Collector-Emitter voltage	V_{CEO}	30	V
Emitter-Collector voltage	V_{ECO}	—	V
Collector current	I_C	20	mA
Collector dissipation	P_C	100*1	mW
Operating temperature	T_{opr}	-25 to 80	°C
Storage temperature	T_{stg}	-30 to 80	°C
Soldering temperature	T_{sol}	260*3	°C

*1. Refer to the temperature rating chart if the ambient temperature exceeds 25°C.

*2. Pulse width $\leq 10 \mu s$, Repeated 100 Hz

*3. Complete soldering within 10 seconds.

Exterior Specifications

Connecting method	Weight (g)	Material
		Case
Terminal for cord soldering	0.7	Polycarbonate
Terminal for PCB mounting		

Electrical and Optical Characteristics (Ta = 25°C)

Item	Symbol	Value			Unit	Condition
		MIN.	TYP.	MAX.		
Emitter						
Forward voltage	V_F	—	1.2	1.5	V	$I_F = 30 \text{ mA}$
Reverse current	I_R	—	0.01	10	μA	$V_R = 4 \text{ V}$
Peak emission wavelength	λ_P	—	940	—	nm	$I_F = 20 \text{ mA}$
Detector						
Light current	I_L	200	—	2000	μA	$I_F = 20 \text{ mA}$, $V_{CE} = 10 \text{ V}$ Reflectance 90% White paper $d = 5 \text{ mm}$ *
Dark current	I_D	—	2	200	nA	$V_{CE} = 10 \text{ V}$, 0 lx
Leakage current	I_{LEAK}	—	—	2	μA	$I_F = 20 \text{ mA}$, $V_{CE} = 10 \text{ V}$ Non-reflective state
Collector-Emitter saturated voltage	$V_{CE(sat)}$	—	—	—	V	—
Peak spectral sensitivity wavelength	λ_P	—	850	—	nm	$V_{CE} = 10 \text{ V}$
Rising time	t_r	—	30	—	μs	$V_{CC} = 5 \text{ V}$, $R_L = 1 \text{ k}\Omega$ $I_L = 1 \text{ mA}$
Falling time	t_f	—	30	—	μs	$V_{CC} = 5 \text{ V}$, $R_L = 1 \text{ k}\Omega$ $I_L = 1 \text{ mA}$

* "d" is the distance from the top of the sensor to the reflective surface