

EE-SG3/SG3-B

Phototransistor Output, Available with Solder or PCB Terminals

- Compact model with excellent output characteristics
- Both infrared LED emitter and phototransistor receiver assure long life and high reliability
- Designed to effectively reduce influence of external light interference
- Dust-proof construction



Ordering Information

Appearance	Sensing method	Slot width	Slot depth	Sensing object	Output configuration	Weight	Part number
	Transmissive	3.6 mm	9 mm	Opaque, 2.0 x 2.0 mm min.	Phototransistor	Approx. 1.1 g	EE-SG3
							EE-SG3-B

Specifications

■ ABSOLUTE MAXIMUM RATINGS (T_A = 25°C (77°F))

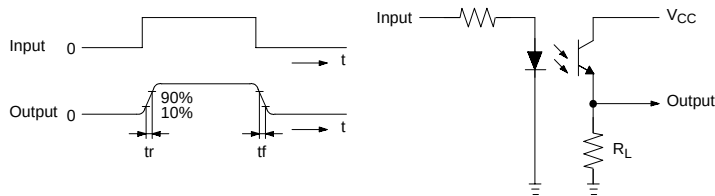
Item		Symbol	Rated value
Input	Forward current	I _F	50 mA*
	Reverse voltage	V _R	4 V
Output	Collector-emitter voltage	V _{CEO}	30 V
	Collector current	I _C	20 mA
	Collector dissipation	P _C	100 mW*
Ambient temperature	Operating	T _{opr}	-25°C to 85°C (-13°F to 185°F)
	Storage	T _{stg}	-30°C to 100°C (-22°F to 212°F)

*Refer to Engineering Data if the ambient temperature is not within the normal room temperature range.

CHARACTERISTICS (T_A = 25°C (77°F))

Item		Symbol	Value	Condition
Emitter	Forward voltage	V _F	1.2 V typ.; 1.5 V max.	I _F = 30 mA
	Reverse current	I _R	10 μA max.	V _R = 4 V
	Peak emission wavelength	λ _p (L)	940 nm typ.	I _F = 20 mA
Detector	Dark current	I _D	10 nA typ.; 200 nA max.	V _{CE} = 10 V, 0 lx
	Peak spectral sensitivity wavelength	λ _p (P)	850 nm typ.	V _{CE} = 10 V
Combination	Light current (collector current)	I _L	2 to 40 mA	I _F = 15 mA; V _{CE} = 10 V
	Collector-emitter saturated voltage	V _{CE} (sat)	0.4 V max.	I _F = 30 mA; I _L = 1 mA
	Rising time*	t _r	4 μs typ.	V _{CC} = 10 V; R _L = 0.1 kΩ
	Falling time*	t _f	4 μs typ.	I _L = 5 mA

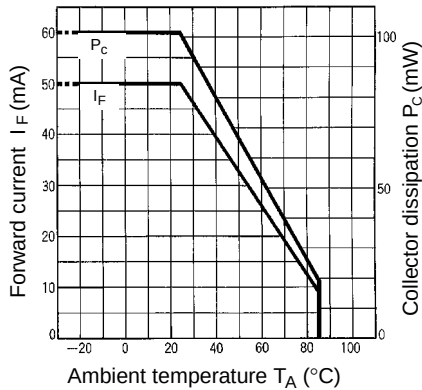
*The following illustrations show the rising time, t_r, and the falling time, t_f.



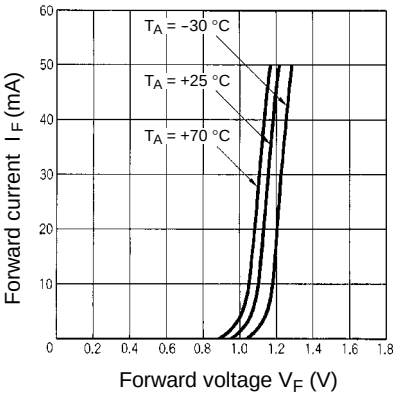
Engineering Data

Note: The operating conditions of the photomicrosensor must be within the absolute maximum rating ranges.

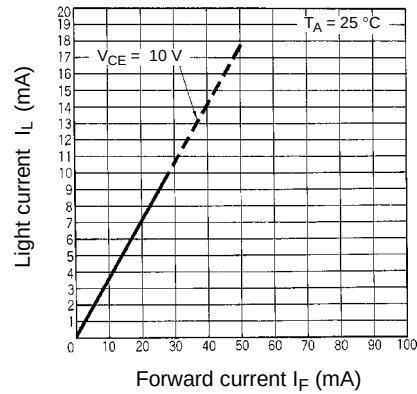
TEMPERATURE CHARACTERISTICS



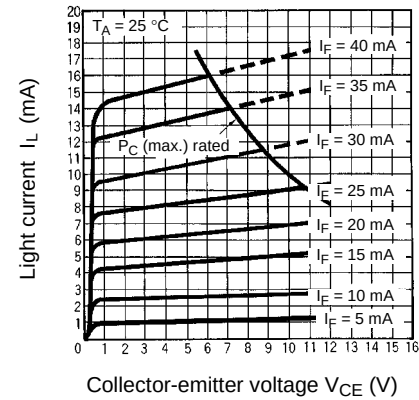
INPUT CHARACTERISTICS (TYPICAL)



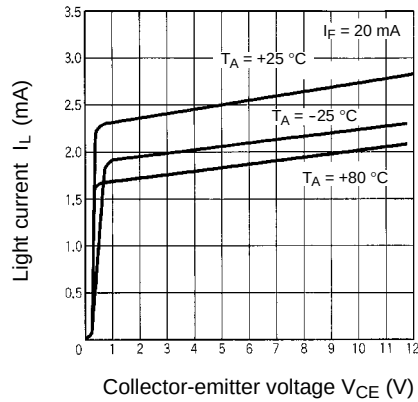
INPUT/OUTPUT CHARACTERISTICS (TYPICAL)



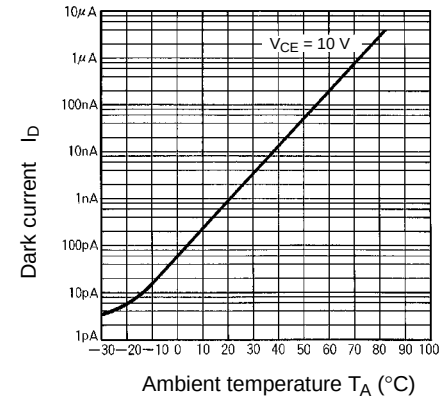
OUTPUT CHARACTERISTICS (TYPICAL)



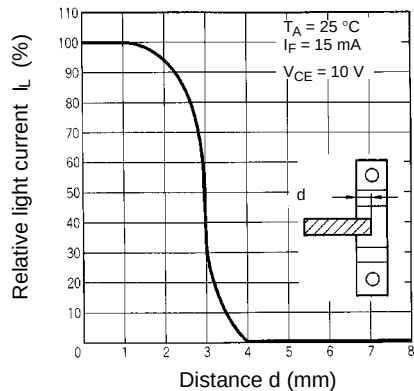
OUTPUT CHARACTERISTICS TEMPERATURE DEPENDENCY (TYPICAL)



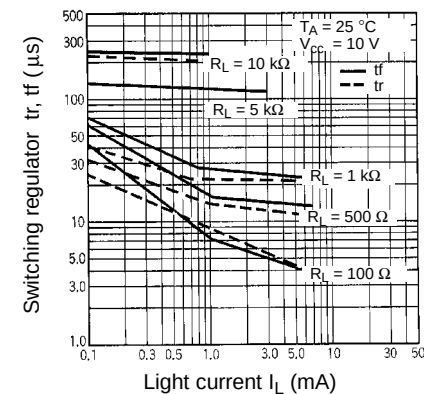
DARK CURRENT TEMPERATURE DEPENDENCY (TYPICAL)



SENSING POSITION CHARACTERISTICS (TYPICAL)



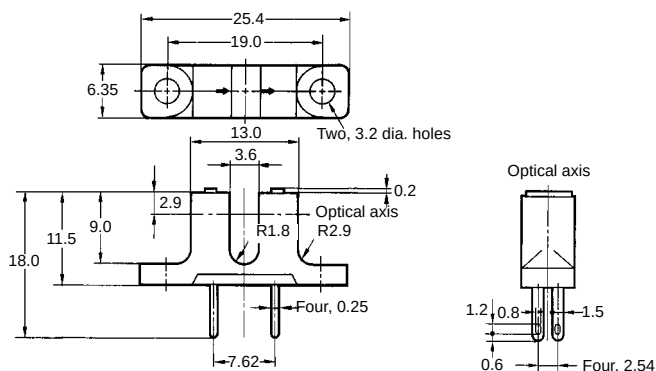
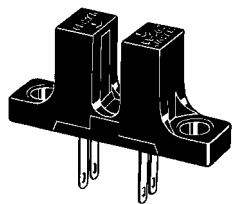
SWITCHING CHARACTERISTICS (TYPICAL)



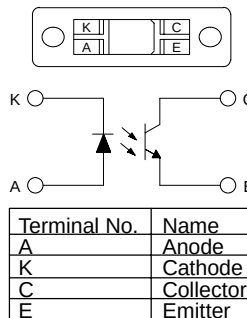
Dimensions

Unit: mm (inch)

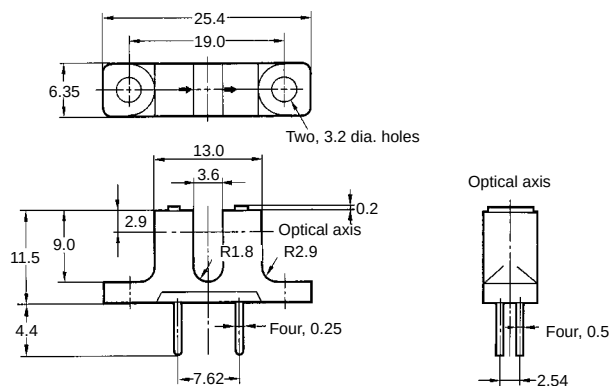
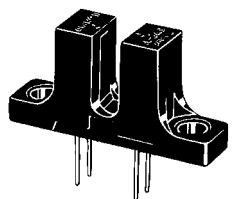
■ EE-SG3



Terminal Arrangement
(Bottom View)



■ EE-SG3-B



Precautions

Refer to the Technical Information Section for general precautions.

NOTE: DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

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