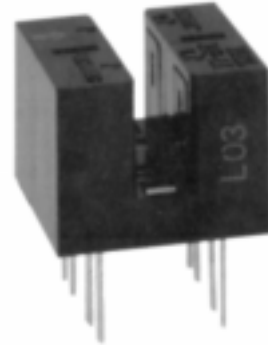



EE-SX1031

Dual Channel Phototransistor Output Ideal for Encoder Applications

- High resolution (0.5 mm) sensing
- Separate LED/Phototransistor combinations within a single housing
- PCB-mountable



Ordering Information

Appearance	Sensing method	Slot width	Slot depth	Sensing object	Output configuration	Part number
	Transmissive	3.4 mm	7.2 mm	Opaque, 0.5 x 2.1 mm min.	Phototransistor	EE-SX1031

Specifications

■ ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ (77°F))

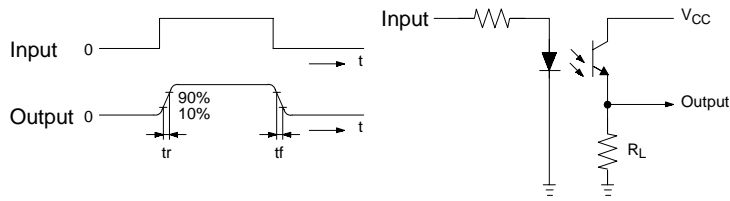
Item		Symbol	Rated value
Input	Forward current	I_F	50 mA*
	Reverse voltage	V_R	4 V
Output	Collector-emitter voltage	V_{CEO}	30 V
	Collector current	I_C	20 mA
	Collector dissipation	P_C	100 mW
Ambient temperature	Operating	T_{opr}	-25°C to 85°C (-13°F to 185°F)
	Storage	T_{stg}	-30°C to 100°C (-22°F to 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.
	Reverse current	I _R	0.01 μA typ.; 10 μA max.
	Peak emission wavelength	λ _{p(L)}	940 nm typ.
Detector	Dark current	I _D	2 nA typ.; 200 nA max.
	Peak spectral sensitivity wavelength	λ _{p(P)}	850 nm typ.
Combination	Light current (collector current)	I _L	0.5 to 14 mA
	Collector-emitter saturated voltage	V _{CE (sat)}	0.15 V typ.; 0.4 V max.
	Rising time*	t _r	4 μs typ.
	Falling time*	t _f	4 μs typ.

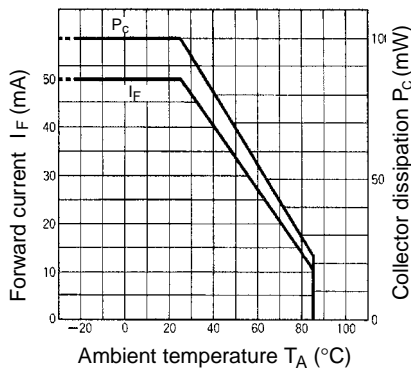
*The following illustrations show the rising time, t_r, and the falling time, t_f.



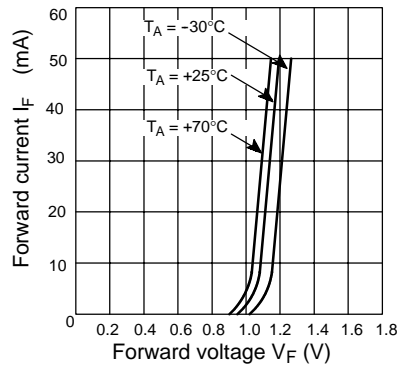
Engineering Data

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

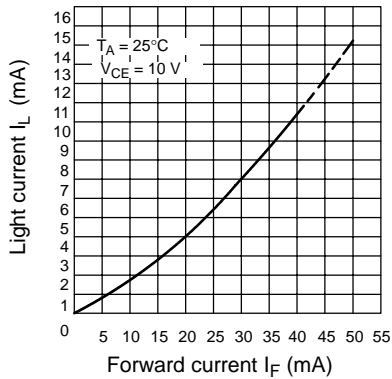
TEMPERATURE CHARACTERISTICS



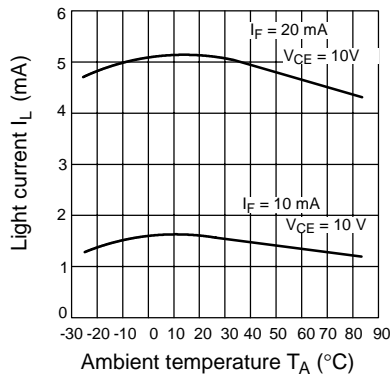
INPUT CHARACTERISTICS (TYPICAL)



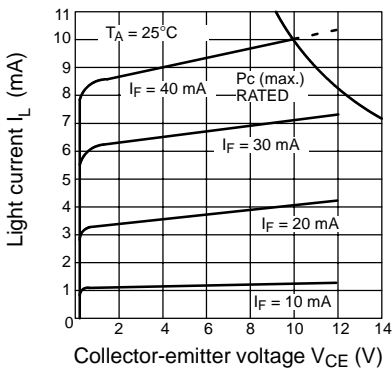
INPUT/OUTPUT CHARACTERISTICS (TYPICAL)



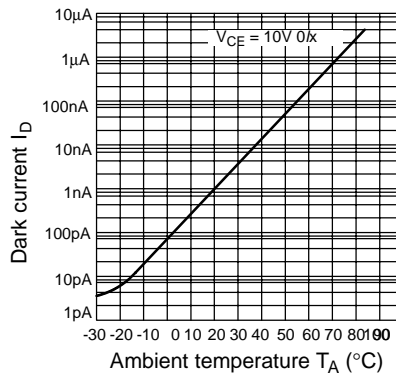
LIGHT CURRENT TEMPERATURE DEPENDENCY (TYPICAL)



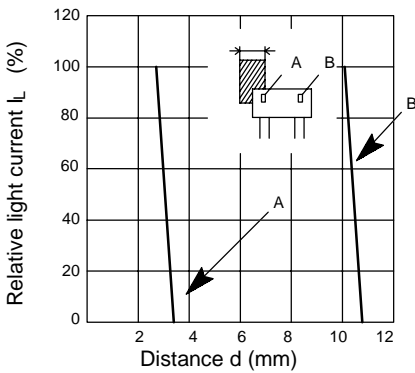
OUTPUT CHARACTERISTIC (TYPICAL)



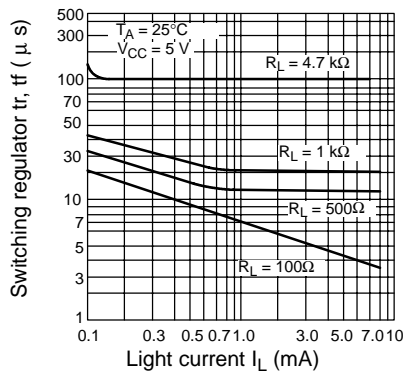
DARK CURRENT TEMPERATURE DEPENDENCY (TYPICAL)



SENSING POSITION CHARACTERISTICS (TYPICAL)



SWITCHING CHARACTERISTICS (TYPICAL)

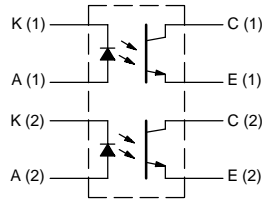
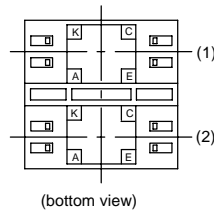
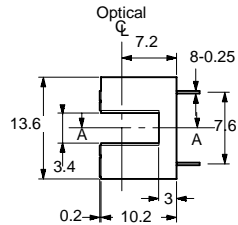
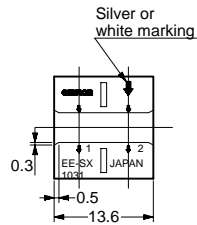
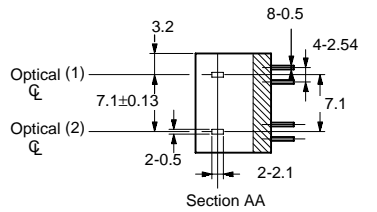
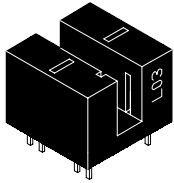


The t_r and t_f are almost the same in length.

Dimensions

Unit: mm (inch)

■ EE-SX1031



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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