THE DATASHEET OF

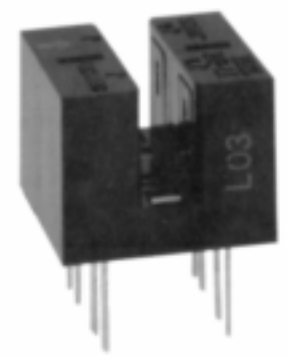
EE-SX1031

OMRON

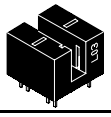
EE-SX1031

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°C (77°F))

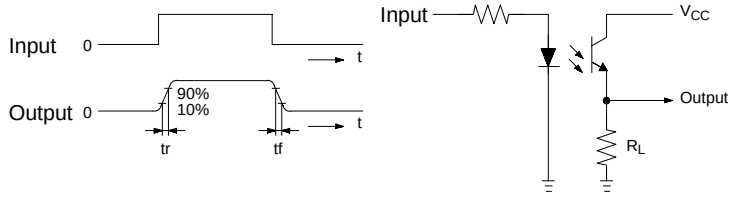
Item		Symbol	Rated value
Input	Forward current	I_F	50 mA*
	Reverse voltage	V_R	4 V
Output	Collector-emitter voltage	V_{CEO}	30 V
	Collector current	I_C	20 mA
	Collector dissipation	P_C	100 mW
Ambient temperature	Operating	Topr	-25°C to 85°C (-13°F to 185°F)
	Storage	Tstg	-30°C to 100°C (-22°F to 212°F)

*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=30mA
	Reverse current	I_R	0.01 μA typ.; 10 μA max.	V_R=4 V
	Peak emission wavelength	λp(L)	940 nm typ.	I_F=20 mA
Detector	Dark current	I_D	2 nA typ.; 200 nA max.	V_{CE}=10 V 0 *lx*
	Peak spectral sensitivity wavelength	λp(P)	850 nm typ.	V_{CE}=10 V
Combination	Light current (collector current)	I_L	0.5 to 14 mA	I_F=20 mA V_{CE}=10 V
	Collector-emitter saturated voltage	V_{CE} (sat)	0.15 V typ.; 0.4 V max.	I_F=20 mA I_L=0.1 mA
	Rising time*	tr	4 μs typ.	V_{CC}=5 V I_L=5 mA R_L=100 Ω
	Falling time*	tf	4 μs typ.	

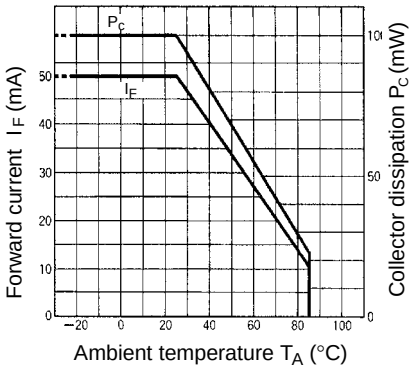
*The following illustrations show the rising time, tr, and the falling time, tf.



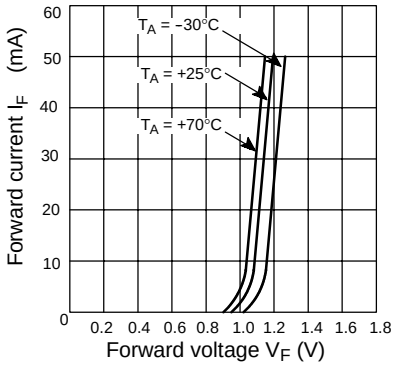
Engineering Data

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

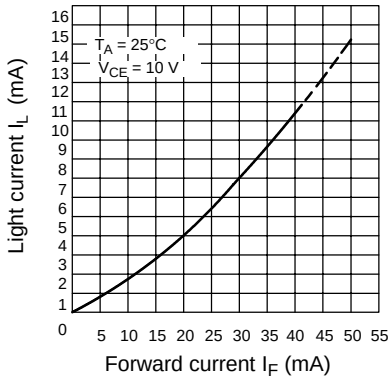
■ TEMPERATURE CHARACTERISTICS



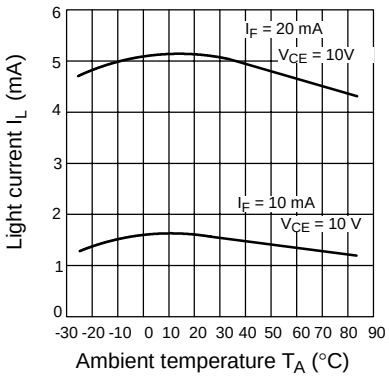
■ INPUT CHARACTERISTICS (TYPICAL)



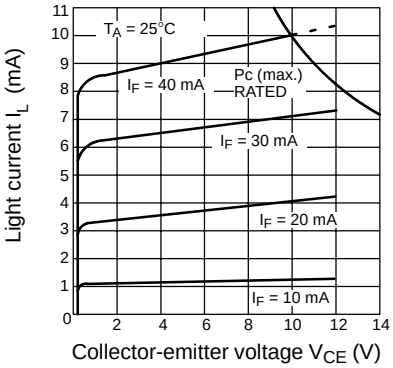
INPUT/OUTPUT CHARACTERISTICS (TYPICAL)



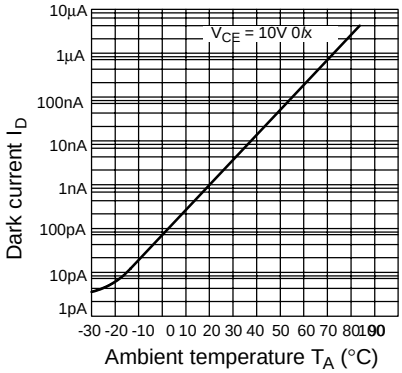
LIGHT CURRENT TEMPERATURE DEPENDENCY (TYPICAL)



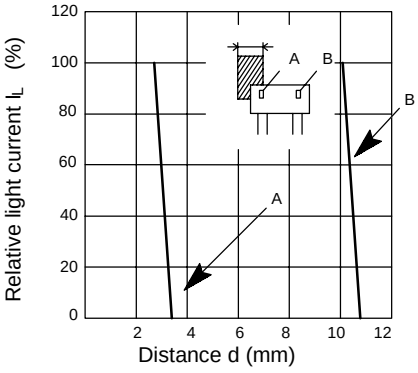
OUTPUT CHARACTERISTIC (TYPICAL)



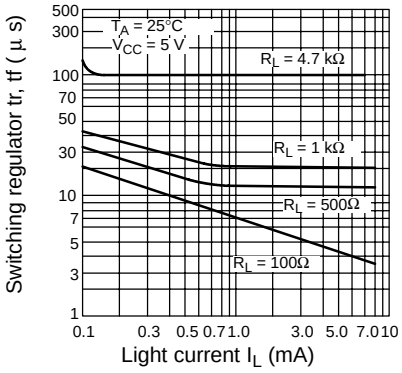
DARK CURRENT TEMPERATURE DEPENDENCY (TYPICAL)



SENSING POSITION CHARACTERISTICS (TYPICAL)



SWITCHING CHARACTERISTICS (TYPICAL)

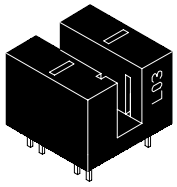


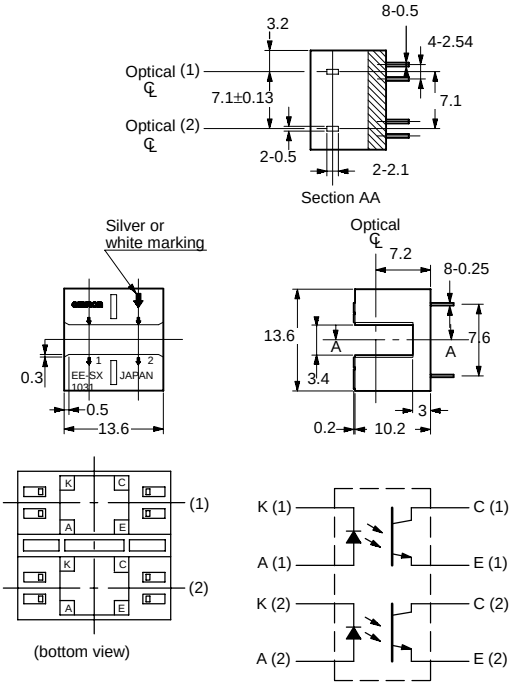
The tr and tf are almost the same in length.

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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