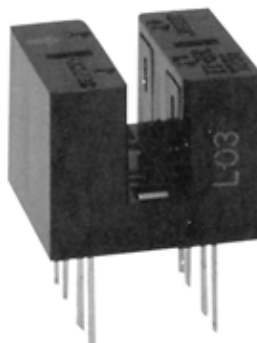


EE-SX1031

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	Sensing object	Output configuration	Part Number
	Transmissive	3.4 mm	Opaque, 0.5 x 2.1 mm min.	Phototransistor	EE-SX1031

Specifications

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

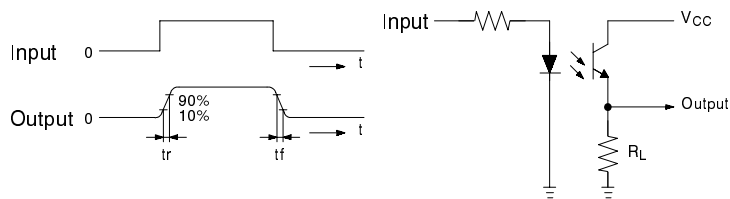
Item		Symbol	Rated value
Input	Forward current	I_F	50 mA*
	Reverse voltage	V_R	4 V
Output	Collector-emitter voltage	V_{CEO}	30 V
	Collector current	I_C	20 mA
	Collector dissipation	P_C	100 mW
Ambient temperature	Operating	T_{opr}	-25°C to 85°C
	Storage	T_{stg}	-30°C to 100°C

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

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

Item		Symbol	Value	Condition
Emitter	Forward voltage	V_F	1.2 V typ.; 1.5 V max.	$I_F = 30\text{ mA}$
	Reverse current	I_R	0.01 μA typ.; 10 μA max.	$V_R = 4\text{ V}$
	Peak emission wavelength	$\lambda_p(L)$	940 nm typ.	$I_F = 20\text{ mA}$
Detector	Dark current	I_D	2 nA typ.; 200 nA max.	$V_{CE} = 10\text{ V}$ 0 lx
	Peak spectral sensitivity wavelength	$\lambda_p(P)$	850 nm typ.	$V_{CE} = 10\text{ V}$
Combination	Light current (collector current)	I_L	0.5 to 14 mA	$I_F = 20\text{ mA}$ $V_{CE} = 10\text{ V}$
	Collector-emitter saturated voltage	$V_{CE}(\text{sat})$	0.15 V typ.; 0.4 V max.	$I_F = 20\text{ mA}$ $I_L = 0.1\text{ mA}$
	Rising time*	t_r	4 μs typ.	$V_{CC} = 5\text{ V}$ $I_L = 5\text{ mA}$
	Falling time*	t_f	4 μs typ.	$R_L = 100\ \Omega$

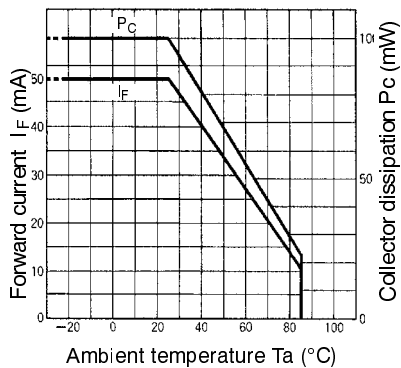
*The following illustrations show the rising time, t_r , and the falling time, t_f .



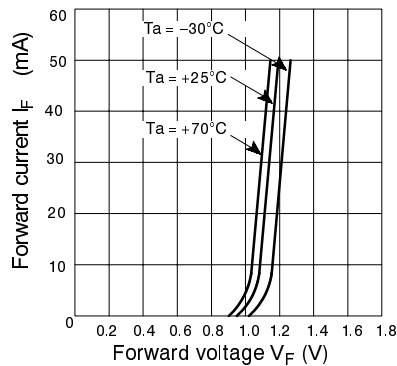
Engineering Data

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

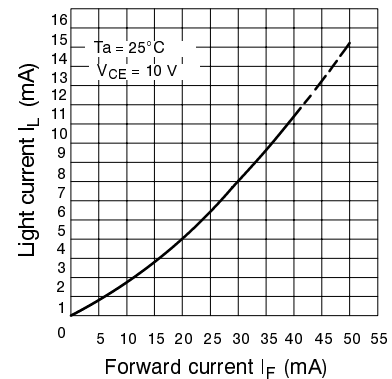
■ TEMPERATURE CHARACTERISTICS



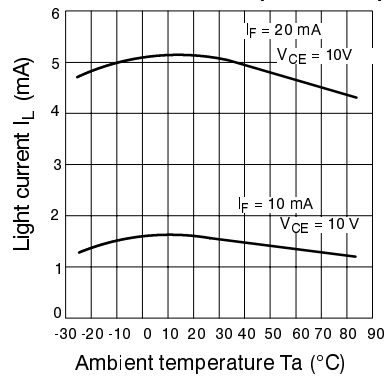
■ INPUT CHARACTERISTICS (TYPICAL)



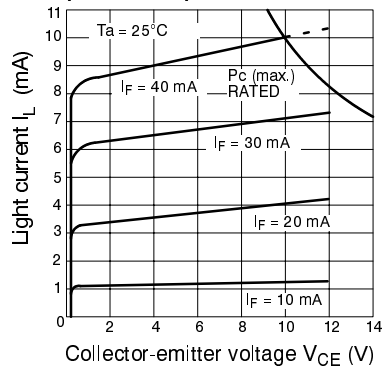
■ INPUT/OUTPUT CHARACTERISTICS (TYPICAL)



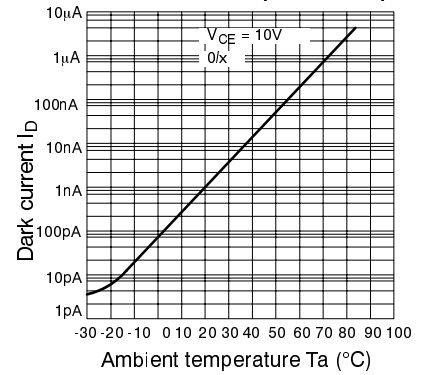
■ LIGHT CURRENT TEMPERATURE DEPENDENCY (TYPICAL)



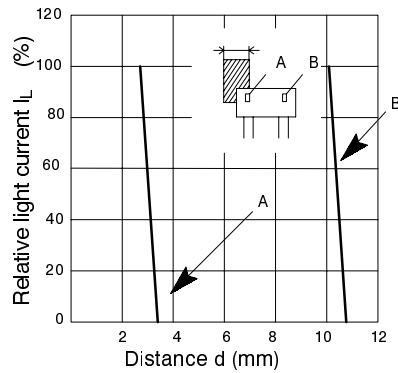
■ OUTPUT CHARACTERISTIC (TYPICAL)



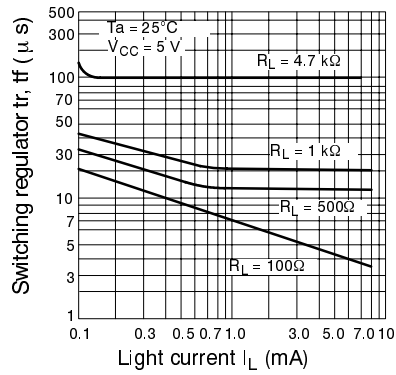
■ DARK CURRENT TEMPERATURE DEPENDENCY (TYPICAL)



■ SENSING POSITION CHARACTERISTICS (TYPICAL)



■ SWITCHING CHARACTERISTICS (TYPICAL)

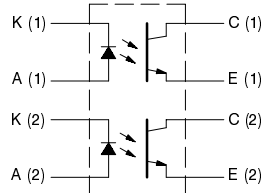
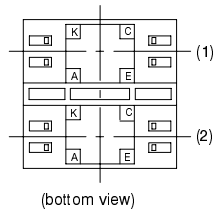
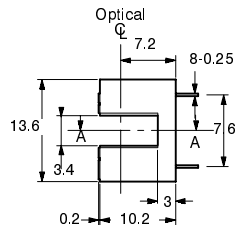
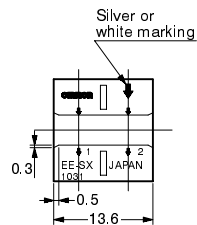
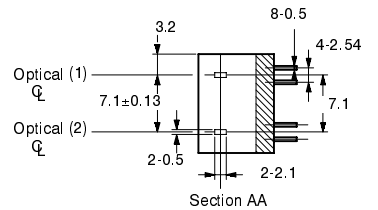
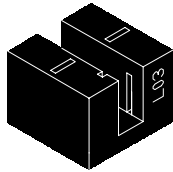


Note: The t_r and t_f are almost the same in length.

Dimensions

Unit: mm

■ 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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