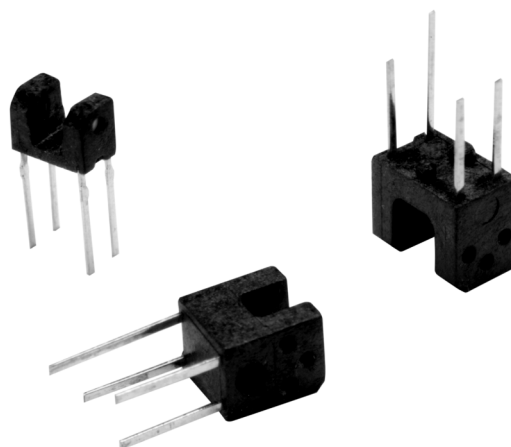





EE-SX1103/1105/1106

Ultra-Compact Photomicrosensors

- Compact size makes these sensors ideal for use in applications with restricted spaces
- High-resolution (0.4 mm) sensing
- Each sensor has phototransistor output
- 3.3 mm low profile sensor (EE-SX1105)



Ordering Information

Appearance	Sensing method	Slot width	Slot depth	Sensing object	Weight	Part number
	Transmissive	2 mm	2.8 mm	Opaque 0.4 x 1.2 mm min.	0.15 g	EE-SX1103
			2.6 mm	Opaque 0.4 x 1.0 mm min.	0.06 g	EE-SX1105
		3 mm	3.9 mm	Opaque 0.4 x 1.2 mm min.	0.18 g	EE-SX1106

Specifications

■ ABSOLUTE MAXIMUM RATING (T_A=25° C)

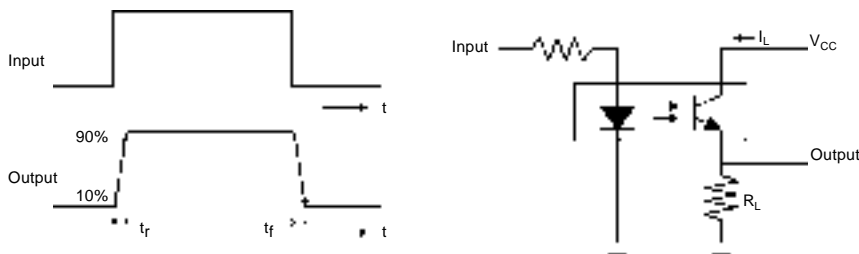
Item	Symbol	Rated value
Emitter	Forward current	I _F 50 mA (see note)
	Reverse voltage	V _R 5 V
Detector	Collector-emitter voltage	V _{CEO} 30 V
	Emitter-collector voltage	V _{ECO} 4.5 V
	Collector current	I _C 30 mA
	Collector dissipation	P _C 80 mW (see note)
Ambient temperature	Operating	T _{opr} -25 to 85° C
	Storage	T _{stg} -30 to 100° C (EE-SX1103) -30 to 85° C (EE-SX1105/1106)
	Soldering (reflow)	T _{sol} 260° C (3 second max)

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

■ CHARACTERISTICS (T_A=25° C)

Item	Symbol	Value	Condition
Emitter	Forward voltage	V _F 1.3 V typ., 1.6 V max.	I _F = 50 mA
	Reverse current	I _R 10 μA max.	V _R = 5 V
	Peak emission wavelength	λ _{p(L)} 950 nm. typ.	I _F = 50 mA
Detector	Dark current	I _D 500 nA max.	V _{CE} = 10 V, 0 lx
	Peak spectral sensitivity wavelength	λ _{p(P)} 800 nm typ.	V _{CE} = 5 V
Combination	Light current (collector-current)	I _L 0.5 mA min. (EE-SX1103) 0.2 mA min. (EE-SX1105/1106)	I _F = 20 mA, V _{CE} = 5 V
	Collector-emitter saturation voltage	V _{CE (sat)} 0.4 V max.	I _F = 20 mA, I _L = 0.3 mA (EE-SX1103) I _F = 20 mA, I _L = 0.1 mA (EE-SX1105/1106)
	Rising time	t _r 10 μs typ. (see note)	V _{CC} = 5 V, R _L = 100Ω
	Falling time	t _f 10 μs typ. (see note)	I _L = 20 mA

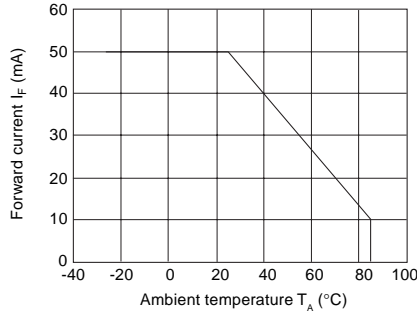
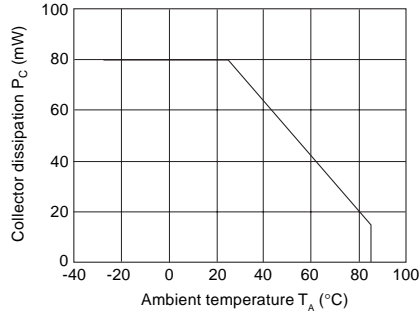
Note: The following figures show the rising time (t_r) and falling time (t_f).



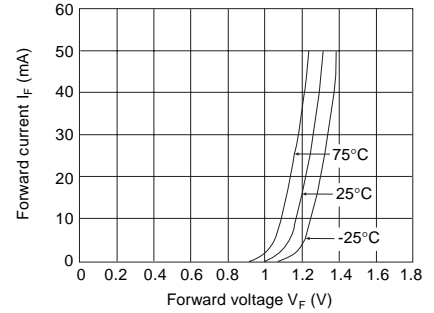
Engineering Data

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

TEMPERATURE CHARACTERISTICS

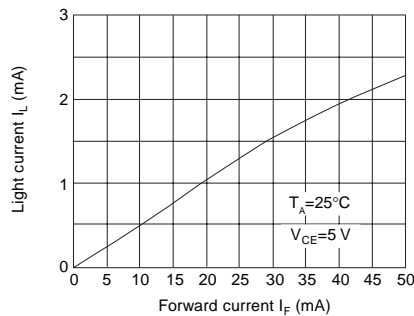


INPUT CHARACTERISTICS (TYPICAL)

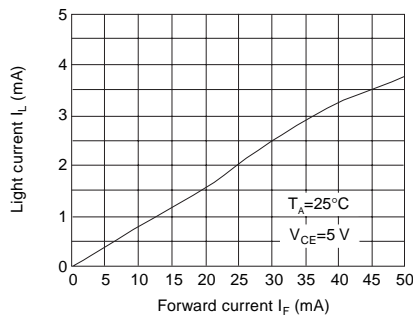


INPUT/OUTPUT CHARACTERISTICS (TYPICAL)

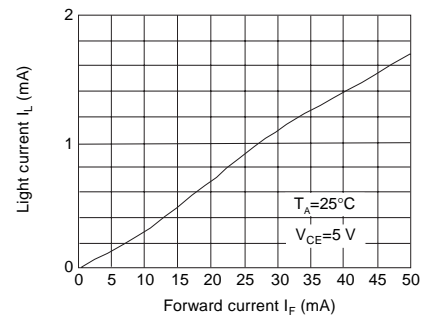
EE-SX1103



EE-SX1105

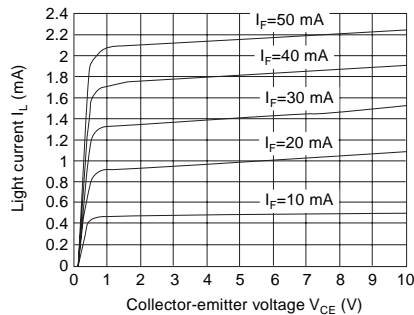


EE-SX1106

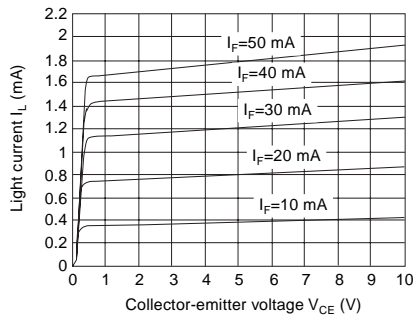


OUTPUT CHARACTERISTICS (TYPICAL)

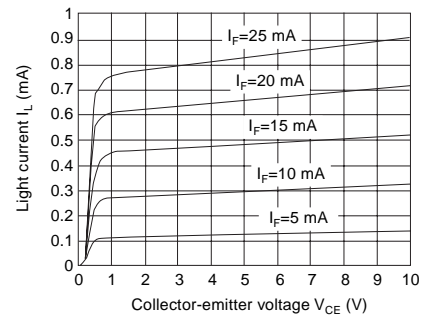
EE-SX1103



EE-SX1105

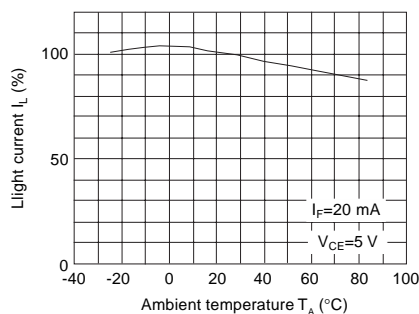


EE-SX1106

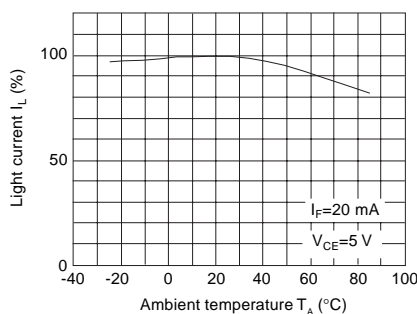


LIGHT CURRENT TEMPERATURE DEPENDENCY (TYPICAL)

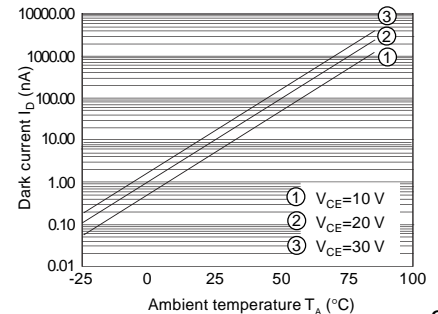
EE-SX1103/1106



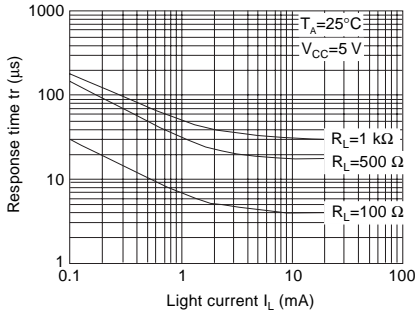
EE-SX1105



DARK CURRENT TEMPERATURE DEPENDENCY (TYPICAL)

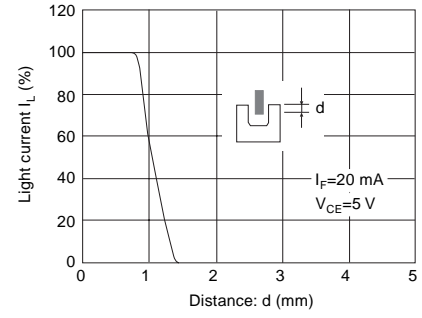
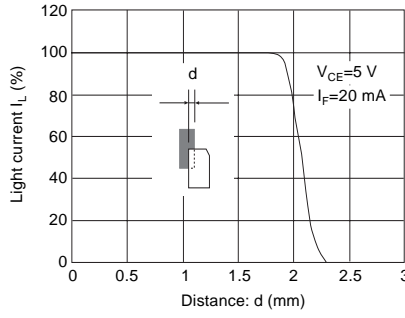


RESPONSE TIME CHARACTERISTICS (TYPICAL)



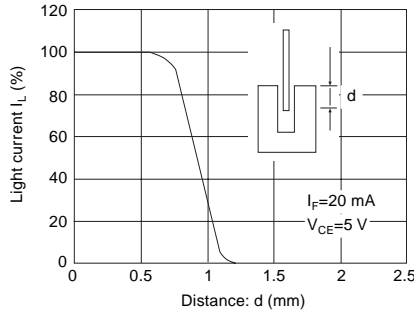
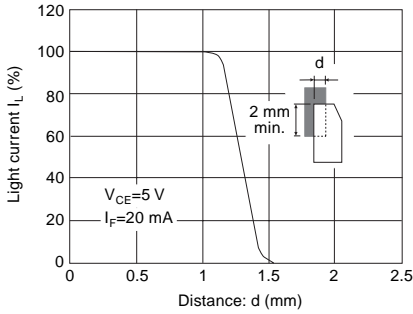
SENSING POSITION CHARACTERISTICS (TYPICAL)

EE-SX1103



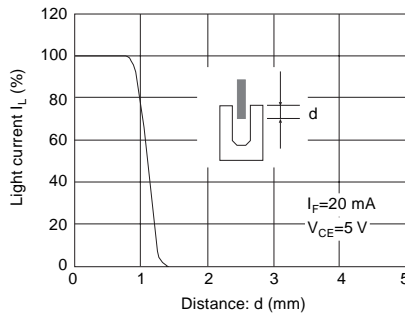
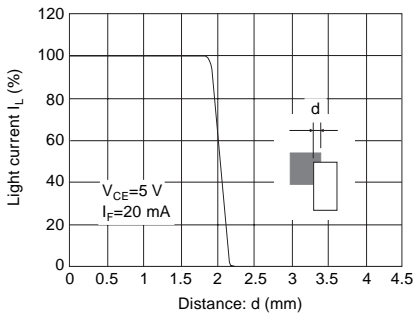
SENSING POSITION CHARACTERISTICS (TYPICAL)

EE-SX1105



SENSING POSITION CHARACTERISTICS (TYPICAL)

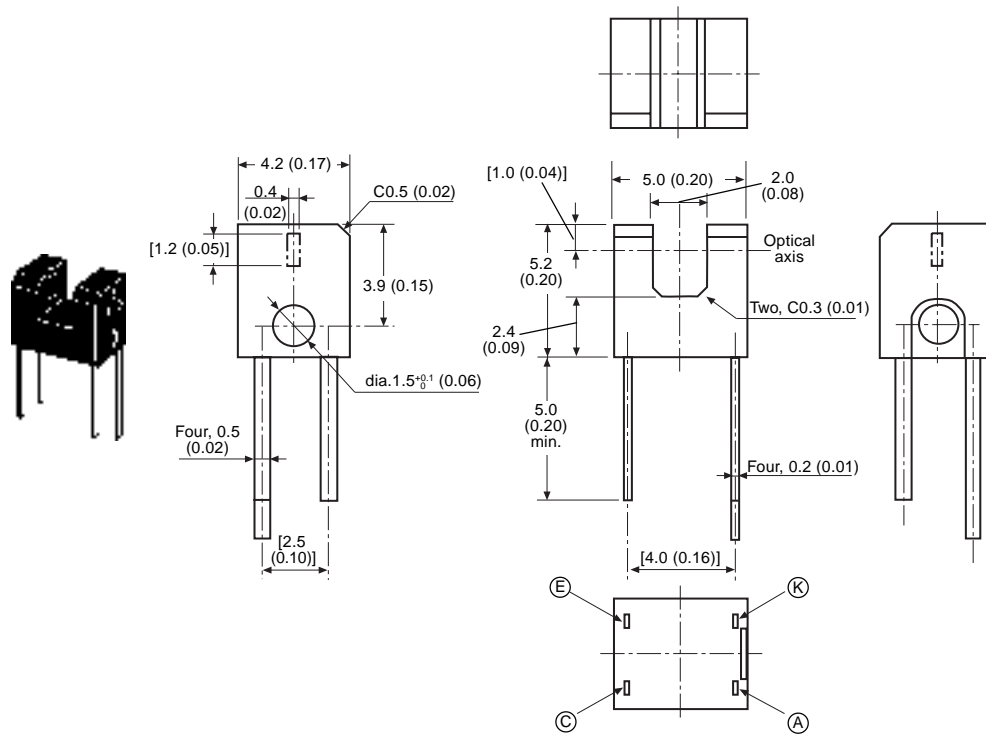
EE-SX1106



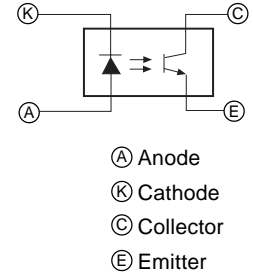
Dimensions

Unit: mm (inch)

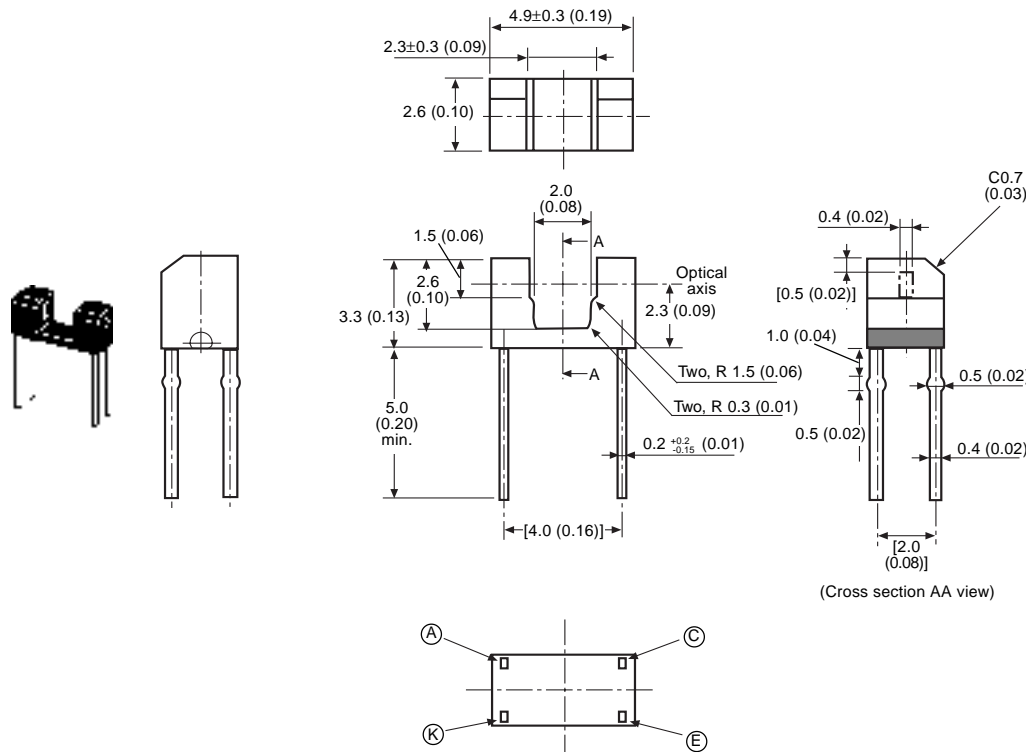
■ EE-SX1103



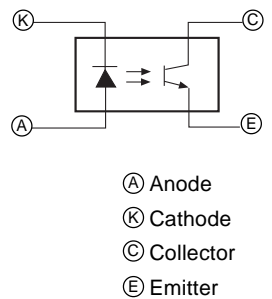
Pin assignment



■ EE-SX1105



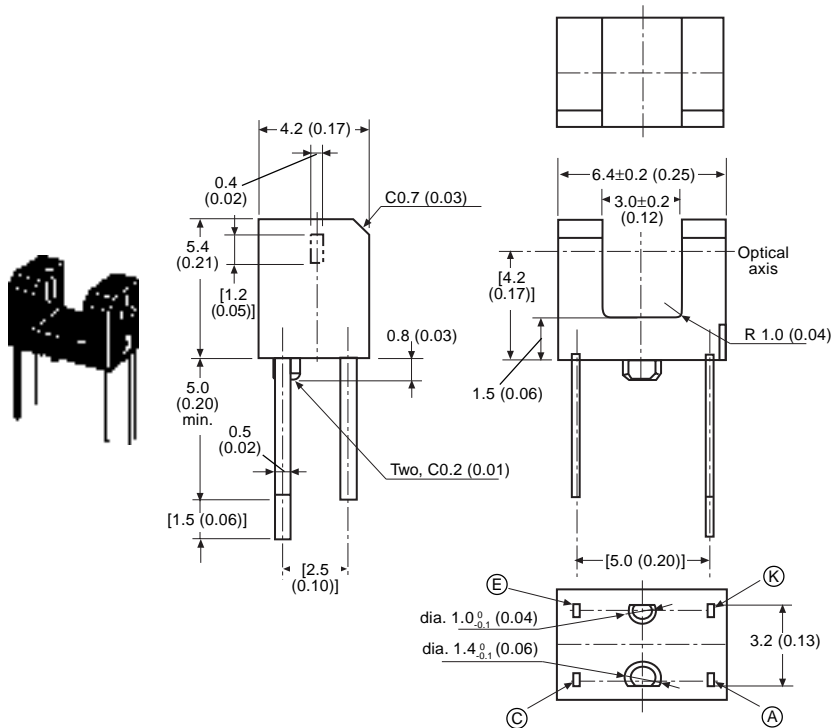
Pin assignment



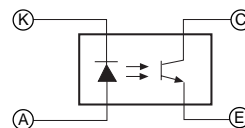
Note: 1. Unless otherwise specified, tolerances are ± 0.2 mm.
 2. The values in brackets are relative dimensions.

Unit: mm (inch)

■ EE-SX1106



Pin assignment



- (A) Anode
- (K) Cathode
- (C) Collector
- (E) Emitter

Note: 1. Unless otherwise specified, tolerances are ± 0.2 mm.
 2. The values in brackets are relative dimensions.



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