OMRON ® **EE-SX1055**

Miniature Transmissive Photomicrosensor has 3.6 mm Lead Length for 1.6 mm PCB thickness

- Physically and electrically identical to EE-SX1025, except with longer leads
- Infrared LED and phototransistor provide long life and high reliability
- Narrow aperture slit (0.5 mm) assures high resolution sensing
- Compact size ideal for applications with restricted space



Ordering Information

Appearance	Sensing method	Slot width	Slot depth	Sensing object	Output configuration	Weight	Part number
K	Transmissive	2.8 mm	4.4 mm	Opaque, 0.5 x 1.5 mm min.	Phototransistor	Approx. 0.2 g	EE-SX1055

Specifications _____

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

Item		Symbol	Rated Value	
Emitter	Continuous Forward current	١ _F	50 mA*	
	Pulse Forward current	I _{FP}	1 A (frequency: 100 Hz; pulse width: 10 μ s)	
	Reverse voltage	V _R	4 V	
Detector	Collector-emitter voltage	V _{CEO}	30 V	
	Collector current	Ι _C	20 mA	
	Collector power dissipation*	P _C	100 mW	
Ambient temperature	Operating temperature**	Topr	-25°C to 85°C (-13°F to 185°F)	
	Storage temperature	Tstg	-30°C to 100°C (-22°F to 212°F)	
	Soldering temperature	Tsol	260°C at 10 seconds max.	

*Continuous forward current (I_{F)} and collector power dissipation (P_{C)} must be derated complying with the temperature characteristics shown in Engineering Data. **The product must be used in applications where neither freezing nor condensation takes place.

■ CHARACTERISTICS (T_A = 25°C (77°F))

Item		Symbol	EE-SX1055		
			Value	Condition	
Emitter	Forward voltage	V _F	1.2 V typ. 1.5 V max.	I _F = 30 mA	
	Reverse current	I _R	0.01 μA typ. 10 μÅ 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.	$V_{CE} = 10 \vee 0lx$	
	Peak spectral sensitivity wavelength	λρ(Ρ)	850 nm typ.	V _{CE} = 10 V	
Combination	Light current (collector current)	IL	0.5 mA min. 14 mA max.	I _F = 20 mA V _{CE} = 10 V	
	Collector-emitter saturated voltage	V _{CE} (sat)			
	Rising time (See Note.)	tr	4 μs typ.	$V_{CC} = 5 V$	
	Falling time (See Note.)	tf	4 μs typ.	$I_{L} = 5 \text{ mA}$	

Note: 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)





OUTPUT CHARACTERISTICS (TYPICAL)

EE-SX1055



SWITCHING CHARACTERISTICS (TYPICAL)

EE-SX1055



■ I/O CHARACTERISTICS (TYPICAL)

EE-SX1055



DARK CURRENT TEMPERATURE DEPENDENCY (TYPICAL)

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LIGHT CURRENT TEMPERATURE DEPENDENCY (TYPICAL)



SENSING POSITION CHARACTERISTICS (TYPICAL)

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Dimensions

Unit: mm (inch)

EE-SX1055







(Bottom view)

Precautions

RATINGS

Using the photomicrosensor beyond its absolute maximum ratings can result in diminished life expectancy, reliability, or failure. OMRON does not assume responsibility for any change in the characteristics and/or performance of the device due to use beyond the absolute maximum ratings.

SURGE

Electrical surges, incorrect wiring or voltage could result in damage to the photomicrosensor.

INSTALLATION

Photomicrosensors with non-modulated light sources are not protected against incandescent lights or sunlight and should not be located in areas where such external light sources exists. Photomicrosensors equipped with an internal modulated light source are not affected by external light sources.

When installing the photomicrosensor, always mount it on a flat surface. If mounted on a curved or irregular surface, the electrical characteristics of the sensor can be altered, due to a change in the slot width.

For proper connection of the photomicrosensor, refer to the terminal diagram on the data sheet. Incorrect wiring or connections can result in damage to the photomicrosensor.

RELIABILITY

For maximum reliability and life expectancy use the photomicrosensor at temperatures within the rated operating temperature range. If the ambient temperature abruptly changes from a low (0° C or lower) to a high temperature, condensation may occur on the surface of the light source and/or receiver, causing a malfunction.

Mount the photomicrosensor in a dust-free environment. Check that the light-receiving window is clean. If necessary, clean off the window using a dry cloth.

Keep the photomicrosensor in a dry storage location to prevent the terminals from corroding.

The sensing window and case of most photomicrosensor models are made of a polycarbonate resin which withstands alcohol and chloride solvents but is soluble in strong alkali, aromatic hydrocarbons, and aliphatic hydrocarbonate chloride solvents.

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



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Specifications subject to change without notice.

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