OMRON

EE-SPY415

Reflective Photomicrosensor with a detectable sensing distance of 3- to 19-mm (white paper)

- Photo IC circuitry greatly improves response time
- Pulse modulation effectively reduces external light interference
- Convergent technology ensures enhanced sensing area

Ordering Information

Appearance	Sensing method	Sensing distance	Sensing object	Output configuration	Weight	**Part number**
	Reflective	11±8 mm	White paper with reflection factor of 90%	Photo IC	3.3 g	**EE-SPY415**

Specifications

■ ABSOLUTE MAXIMUM RATINGS (T_A = 25°C (77°F))

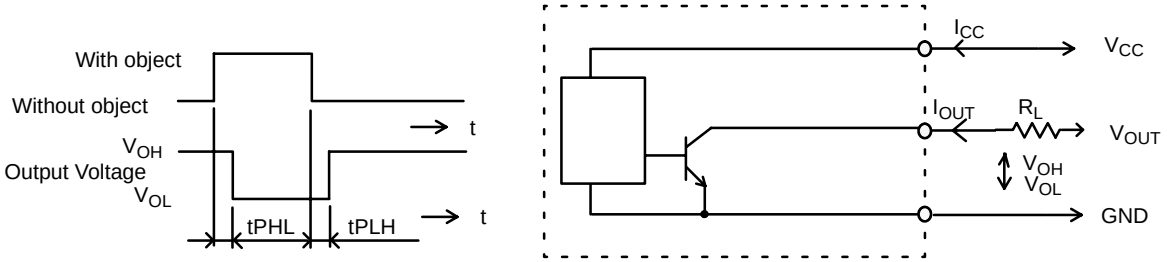
Item	Symbol	Value	Unit	Remarks
Supply voltage	V_{CC}	7	VDC	----------
Output voltage	V_{OUT}	16	V	Output transistor voltage (Between Collector and Emitter)
Output current	I_{OUT}	30	mA	Output transistor collector current
Output power dissipation (See Note 1.)	P_{OUT}	250	mW	Output transistor collector power dissipation
Operating temperature (See Note 2.)	T_{OPR}	-10 to 60	°C	----------
Storage temperature	T_{STG}	-40 to 85	°C	----------

Note: 1. Output power dissipation (P_{OUT}) must be derated in accordance with Figure 1 in the Engineering Data Section.
2. To be used in applications where no freezing or condensation occurs.

■ CHARACTERISTICS

Item	Symbol	Limits			Unit	Test Conditions
		Min	Typ	Max		
Consumption current	I_{CC}	--	--	25	mA	With/without object
Low level output voltage	V_{OL}	--	--	0.4	V	I_{OUT} = 20 mA with object
High level output voltage	V_{OH}	V_{CC} by 0.9	--	--	V	V_{OUT}=V_{CC} RL=1 KΩ Without object
Response delay time (See Note.)	tPLH tPHL	--	--	1	ms	V_{OUT}=V_{CC} RL=1 KΩ

Note: Response delay time is defined as below.



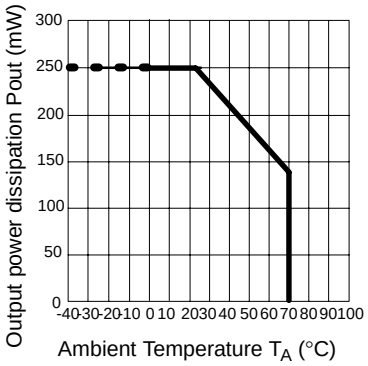
■ RATINGS

Item		Limits
Detectable distance (See Note.)		11 ± 2 mm (Black paper and OHP paper) 11 ± 8 mm (White paper)
Non-detectable distance (See Note.)		20 mm (Black sponge) 45 mm (White paper)
Usable ambient illumination		3,000 Lx max. at Receiver surface (incandescent lamp, fluorescent lamp)
Vibration	Mechanical durability	10 to 150 Hz, Peak acceleration 10G (100 m/s) 1.5 mm double amplitude for 2 hours each in X, Y, Z directions
Shock	Mechanical durability	300 m/s^2 (approximately 30 G) in X, Y, Z directions, respectively 3 times
Resistance to noise (normal mode)	Faulty operation	200 Vp, pulse width: 1 μs
	Break	350 Vp, pulse width: 1 μs
Resistance to noise (common mode)	Faulty operation	250 Vp, pulse width: 1 μs
	Break	500 Vp, pulse width: 1 μs
Terminal strength	Tensile strength	2 kgf (20 N), for 5 seconds
	Flexure strength	1 kgf (10 N) , 1 time, for 5 seconds

Note: If a background object is present, the object should be located at the specified non-detectable distance or further from the receiver surface.
White paper: reflection factor of 90%
Black paper: reflection factor of 16%

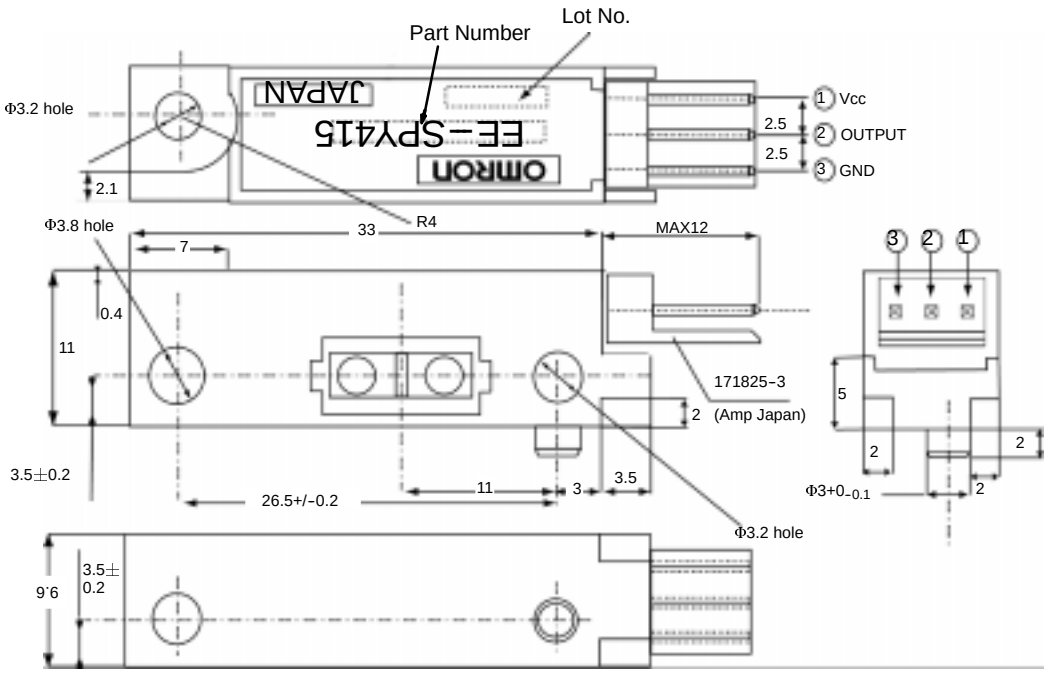
Engineering Data

OUTPUT POWER DISSIPATION DERATING FOR TEMPERATURE



Dimensions

EE-SPY415



Precautions

See the Technical Information Section for standard precautions.

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

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