TOSHIBA PHOTOINTERRUPTER INFRARED LED + PHOTOTRANSISTOR + AMPLIFIER CIRCUIT

TLP1211

COPIER, LASER BEAM PRINTER

FACSIMILE, PRINTER

AUTOMATIC VENDING MACHINE, TERMINAL EQUIPMENT IN BANKING FACILITIES

PLAYING EQUIPMENT, FA EQUIPMENT

VARIOUS POSITION DETECTION SENSOR

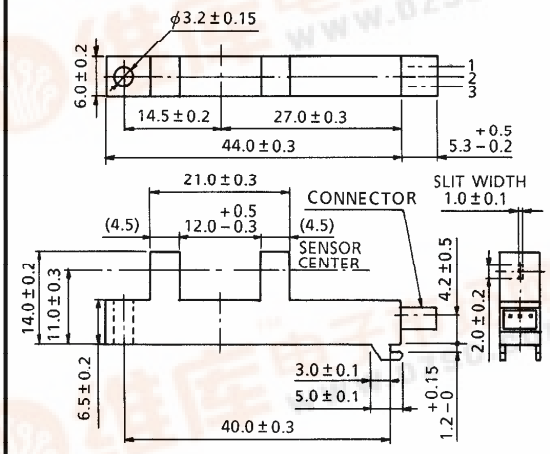
The TLP1211 is a photointerrupter with a connector provided using a GaAs infrared LED at the emitter side and a Si phototransistor and an amplifier circuit at the detector side.

The output becomes high level when the light is shielded.

The Gap is as wide as 12mm and this product is usable for detection of large size substances.

- For 5V of power supply voltage
- Open collector output
- Mounting plate thickness : 1.2mm
- Wide gap : 12mm
- Resolution : Slit width 1mm
- Low current consumption : I_{CC} = 20mA (Max.)
- Output current : I_{OL} = 16mA (Max.)
- Material of the case : Polycarbonate
- Connectors
  IL-Y-3P-S15T2-EF
  (Japan Aviation Electronics Industry made IL-Y Series Connector)

Unit in mm

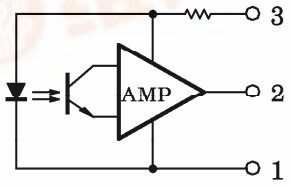


( ) : REFERENCE VALUE

JEDEC	—
EIAJ	—
TOSHIBA	11-21B1

Weight : 2.13g (Typ.)

PIN CONNECTION



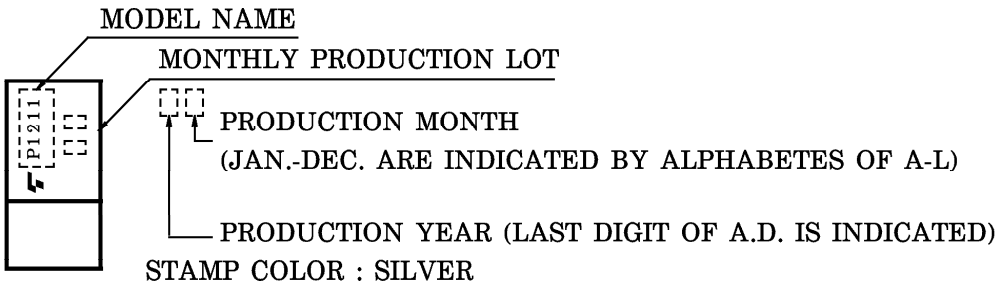
1. GND
2. OUT
3. V_{CC}

961001EBC2

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	6	V
Output Voltage	V_O	28	V
Low Level Output Current	I_{OL}	16	mA
Low Level Output Current Derating (Ta > 25°C)	ΔI_{OL} / °C	−0.21	mA / °C
Operating Temperature Range	T_{opr}	−25~75	°C
Storage Temperature Range	T_{stg}	−40~85	°C

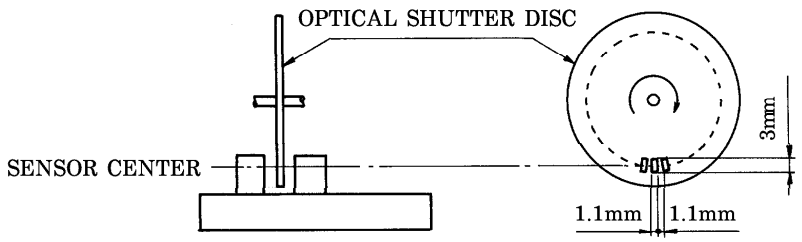
PRODUCT INDICATION



OPTO-ELECTRICAL CHARACTERISTICS (Ta = 25°C, V_{CC} = 5V ± 10%)

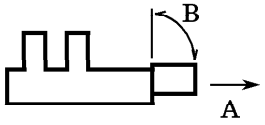
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage		V_{CC}		4.5	5.0	5.5	V
Supply Current	High Level	I_{CCH}	Shutter In	—	—	20	mA
	Low Level	I_{CCL}	Without Shutter	—	—	20	
Output Voltage	High Level	V_{OH}	Shutter In, R_L = 10kΩ	0.9V_{CC}	—	—	V
	Low Level	V_{OL}	Without Shutter	—	0.07	0.4	
Peak Emission Wavelength		λ_P	LED Side	—	940	—	nm
Peak Sensitivity Wavelength		λ_P	Detector Side	—	870	—	nm
Response Frequency		f	R = 1.5kΩ (Note)	1000	—	—	Hz

(Note) A value measured when the disc shown in the following figure was rotated. No DC current should be output.



TERMINAL STRENGTH (Ta = 25°C)

CHARACTERISTIC	TEST CONDITION		LIMIT
PULL	DIRECTION	A	NO DEFECT OF ELECTRICAL CHARACTERISTICS
	WEIGHT	19.6N	
	TIME	5s / ONCE	
BEND	DIRECTION	B	
	WEIGHT	9.8N	
	TIME	5s / THRICE	



PRECAUTION

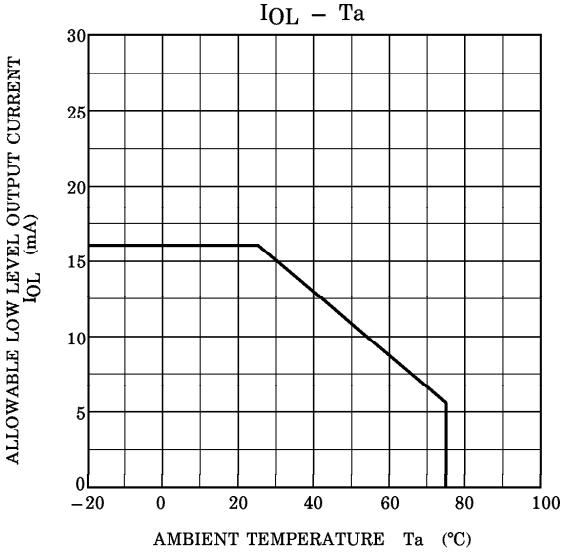
Please be careful of the followings.

1. Screw shall be tightened to clamping torque of 0.59N·m.
2. When installing, avoid to work by holding the connector by hand. Always, install by holding the main body of the element while assuring the mounting board is not warped or twisted. The connectors shall be inserted or pulled out at normal temperature.
3. It is recommended to mount this product by inserting from the sheet metal pressed side.
4. The container is made of polycarbonate. Polycarbonate is usually stable with acid, alcohol, and aliphatic hydrocarbons however, with pertochemicals (such as benzene, toluene, and acetone), alkali, aromatic hydrocarbons, or chloric hydrocarbons, polycarbonate becomes cracked, swollen, or melted. Please take care when chosing a packaging material by referencing the table below.

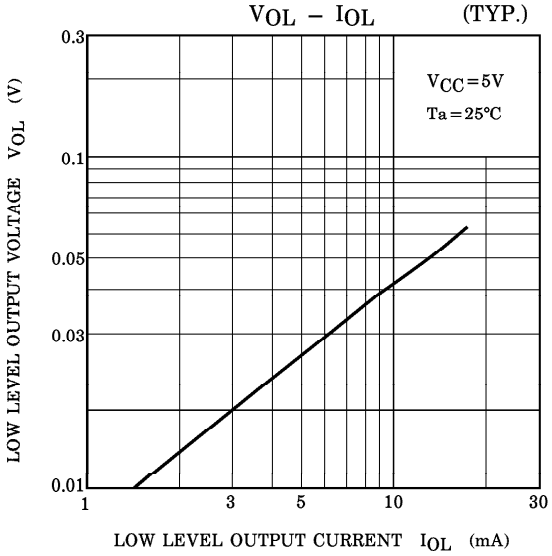
<Chemicals to avoid with polycarbonate>

	PHENOMENON	CHEMICALS
A	Little deterioration but staining	• nitric acid (low concentration), hydrogen peroxide, chlorine
B	Cracked, crazed, or swollen	• acetic acid (70% or more) • gasoline • methyl ethyl ketone, ehtyl acetate, butyl acetate • ethyl methacrylate, ethyl ether, MEK • acetone, m-amino alcohol, carbon tetrachloride • carbon disulfide, trichloroethylene, cresol • thinners, oil of turpentine • triethanolamine, TCP, TBP
C	Melted { } : Used as solvent.	• concentrated sulfuric acid • benzene • styrene, acrylonitrile, vinyl acetate • ethylenediamine, diethylenediamine • {chloroform, methyl chloride, tetrachloromethane, dioxane, 1, 2-dichloroethane}
D	Decomposed	• ammonia water • other alkali

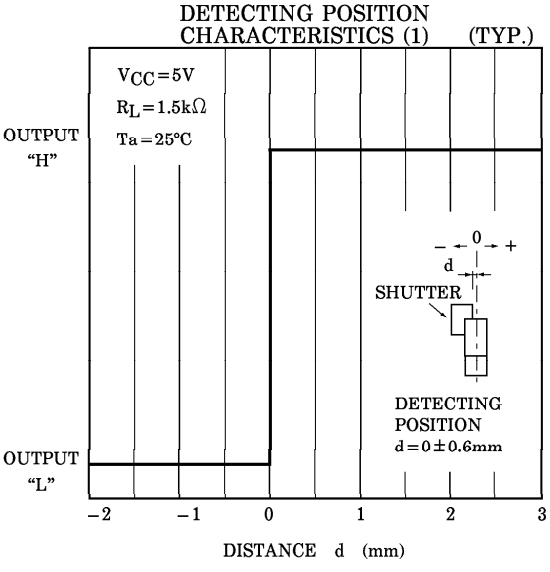
I_{OL} – Ta



V_{OL} – I_{OL} (TYP.)



DETECTING POSITION CHARACTERISTICS (1) (TYP.)



DETECTING POSITION CHARACTERISTICS (2) (TYP.)