

(TLP1200A)

COPYING MACHINE, LASER BEAM PRINTER,
LED PRINTER

FACSIMILE, PRINTER

AUTOMATIC VENDING MACHINE, TERMINAL EQUIPMENT
IN BANKING FACILITIES

PLAYING EQUIPMENT, FA EQUIPMENT

VARIOUS POSITION DETECTION SENSOR

The TLP1200A is a digital output photo interrupter having connectors with an infrared LED and a high sensitivity and low current consumption photo IC combined.

The output becomes low level when the light is shielded.

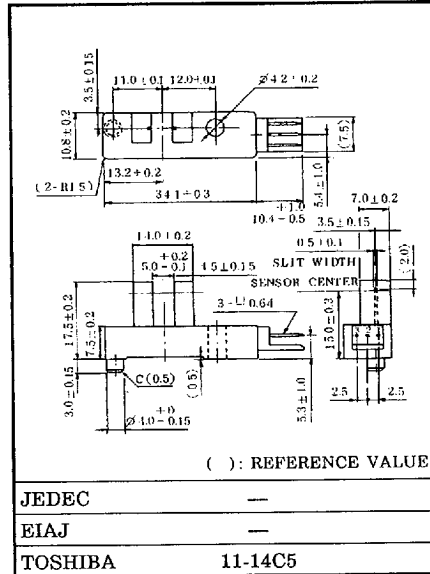
- One side mounting type
- Supply voltage : 5V
- Digital output (with a pull-up resistor)
- Detection gap : 5mm
- Detecting accuracy : Slit width 0.5mm
- Low current consumption : $I_{CC} = 17.5\text{mA (MAX.)}$
- UL recognized PWB adopted : 94V-0
- Material of the case : Polycarbonate
- Connector

171825-3 (AMP Japan Ltd. made EI Connector)

MAXIMUM RATINGS

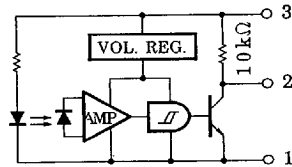
| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|--|----------------------------------|----------------|-----------------------|
| Supply Voltage | V_{CC} | 6 | V |
| Output Voltage | V_O | $V_{CC} + 0.5$ | V |
| Low Level Output Current | I_{OL} | 50 | mA |
| Low Level Output Current Derating ($T_a > 25^\circ\text{C}$) | $\Delta I_{OL} / ^\circ\text{C}$ | -0.67 | mA / $^\circ\text{C}$ |
| Operating Temperature Range | T_{opr} | -25~75 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | -40~85 | $^\circ\text{C}$ |

Unit in mm



Weight : 2.57g (TYP.)

PIN CONNECTION



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

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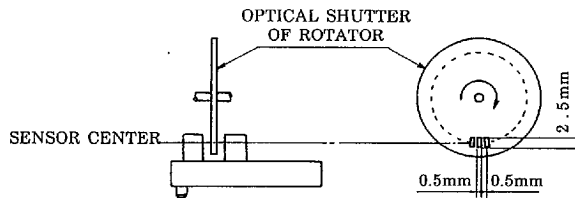
RECOMMENDED OPERATING CONDITIONS

| CHARACTERISTIC | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|-----------------------------|------------------|------|------|------|------|
| Supply Voltage | V _{CC} | 4.5 | 5.0 | 5.5 | V |
| Low Level Output Current | I _{OL} | — | — | 16 | mA |
| Operating Temperature Range | T _{opr} | -25 | — | 75 | °C |

OPTO-ELECTRICAL CHARACTERISTICS (Unless Otherwise Specified, Ta = -25~75°C, V_{CC} = 5V ± 10%)

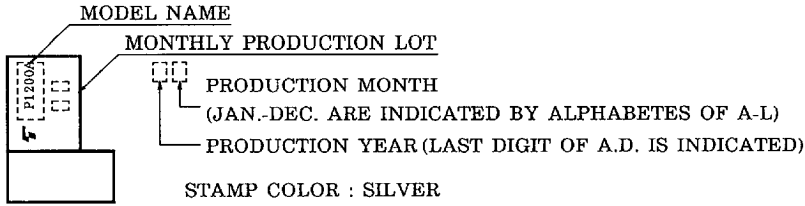
| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT | |
|-----------------------------|-----------------|--------------------------|--|-----------------------|------|------|----|
| Supply Voltage | V _{CC} | — | 4.5 | 5.0 | 5.5 | V | |
| Supply Current | High Level | I _{CCH} | Without Shutter | — | — | 17.5 | mA |
| | Low Level | I _{CCL} | Shutter In | — | — | 17.5 | |
| Output Voltage | High level | V _{OH} | Without Shutter | V _{CC} × 0.9 | — | — | V |
| | Low level | V _{OL} | Shutter In, I _{OL} = 16mA, Ta = 25°C | — | 0.07 | 0.35 | |
| | | | Shutter In, I _{OL} = 16mA | — | — | 0.4 | |
| Peak Emission Wavelength | λ _p | Ta = 25°C, LED Side | — | 940 | — | nm | |
| Peak Sensitivity Wavelength | λ _p | Ta = 25°C, Photo IC Side | — | 900 | — | nm | |
| Response Frequency | f | Ta = 25°C (Note) | 3000 | — | — | Hz | |
| Rise Time | t _r | | — | 2 | — | μs | |
| Fall Time | t _f | | — | 0.03 | — | | |

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



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PRODUCT INDICATION



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 | |



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PRECAUTION

Please be careful of the followings.

1. During 100 μ s after turning on VCC, output voltage changes for stabilizing the inner circuit.
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.
3. Screw shall be tightened to clamping torque of 0.59N-m.
4. It is recommended to mount this product by inserting from the sheet metal pressed side.
5. The container is made of polycarbonate. Polycarbonate is usually stable with acid, alcohol, and aliphatic hydrocarbons however, with peroxochemicals (such as benzene, toluene, and acetone), alkali, aromatic hydrocarbons, or chloric hydrocarbons, polycarbonate becomes cracked, swollen, or melted. Please take care when choosing a packaging material by referencing the table below.

<Chemicals to avoid with polycarbonate>

| | PHENOMENON | CHEMICALS |
|---|-----------------------------------|---|
| A | Little deterioration but staining | <ul style="list-style-type: none"> • nitric acid (low concentration), hydrogen peroxide, chlorine |
| B | Cracked, crazed, or swollen | <ul style="list-style-type: none"> • acetic acid (70% or more) • gasoline • methyl ethyl ketone, ethyl 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. | <ul style="list-style-type: none"> • concentrated sulfuric acid • benzene • styrene, acrylonitrile, vinyl acetate • ethylenediamine, diethylenediamine • [chloroform, methyl chloride, tetrachloromethane, dioxane, 1, 2-dichloroethane] |
| D | Decomposed | <ul style="list-style-type: none"> • ammonia water • other alkali |

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RECOMMENDABLE MATCHED CONNECTOR

AMP Japan Ltd. made EI series connector (Standard type)

| HOUSING | NATURAL COLOR | BLACK | BLUE | GREEN | RED |
|----------|-----------------|--------------|-----------------|------------|------------------------|
| | 171822-3 | 2-171822-3 | 4-171822-3 | 6-171822-3 | 8-171822-3 |
| TERMINAL | TYPE No. | PRODUCT FORM | MATERIAL | AWG SIZE | INSULATION COATED SIZE |
| | 170204-1 | LOOSEN | BRASS | AWG20~26 | 1.1~1.9mm |
| | 170204-2 | | PHOSPHOR BRONZE | | |
| | 170262-1 | LINKED | BRASS | | |
| | 170262-2 | | PHOSPHOR BRONZE | | |
| | 170205-1 | LOOSEN | BRASS | AWG26~30 | 1.0~1.4mm |
| | 170205-2 | | PHOSPHOR BRONZE | | |
| | 170263-1 | LINKED | BRASS | | |
| 170263-2 | PHOSPHOR BRONZE | | | | |

AMP Japan Ltd. made EI series connector (Low profile type)

| HOUSING | NATURAL COLOR | BLACK | BLUE | GREEN | RED |
|----------|---------------|--------------|-----------------|------------|------------------------|
| | 172142-3 | 2-172142-3 | 4-172142-3 | 6-172142-3 | 8-172142-3 |
| TERMINAL | TYPE No. | PRODUCT FORM | MATERIAL | AWG SIZE | INSULATION COATED SIZE |
| | 170369-1 | LOOSEN | PHOSPHOR BRONZE | AWG22~26 | 1.1~1.9mm |
| | 170354-1 | LINKED | | AWG26~30 | 1.0~1.5mm |
| | 170370-1 | LOOSEN | | | |
| 170355-1 | LINKED | | | | |

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