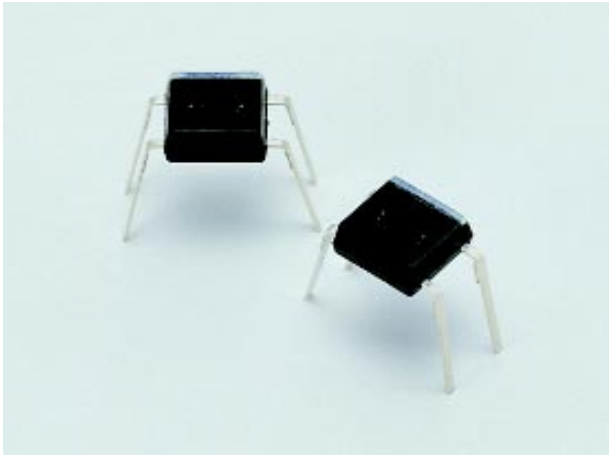
# PHOTOREFLECTOR

## P7816

## Thin package photoreflector with photo IC diode output



### FEATURES

- Thin package: 4.0×4.2×1.7 mm
- Focal length: 3 mm

### APPLICATIONS

- Paper detection for copiers, printers, etc.
- Electronic organ key position detection
- Tape end detection for VTRs, tape recorders, etc.

The P7816 photoreflector uses a photo IC diode on the output side, integrating a current amplifier circuit that linearly amplifies and outputs the photocurrent generated from the photodiode. The P7816 has two terminal leads on the output side and therefore can be used in the same way of a reverse-biased photodiode.

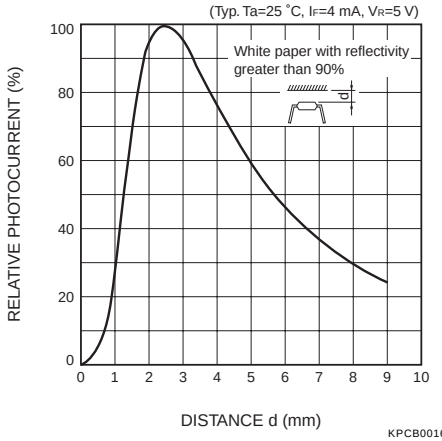
### ■ ABSOLUTE MAXIMUM RATINGS (Ta=25 °C)

| Parameter | | Symbol | Value | Unit |
|---|---|---|---|---|
| Input | Forward Current | $I_F$ | 50 | mA |
| | Reverse Voltage | $V_{IR}$ | 5 | V |
| | Power Dissipation | P | 75 | mW |
| Output | Reverse Voltage | $V_{OR}$ | -0.5 to +16 | V |
| | Photocurrent | $I_L$ | 10 | mA |
| | Power Dissipation | P | 80 | mW |
| Operating Temperature | | Topr | -30 to +80 | °C |
| Storage Temperature | | Tstg | -30 to +85 | °C |

### ■ ELECTRICAL AND OPTICAL CHARACTERISTICS (Ta=25 °C)

| Parameter | | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Input | Forward Voltage | $V_F$ | $I_F$=20 mA | - | 1.23 | 1.45 | V |
| | Reverse Current | $I_R$ | $V_{IR}$=5 V | - | - | 10 | μA |
| | Terminal Capacitance | Ct | $V_{IR}$=0 V, f=1 MHz | - | 30 | - | pF |
| Output | Dark Current | $I_D$ | $V_{OR}$=5 V | - | 1 | 10 | nA |
| Transfer Characteristics | Photocurrent | $I_L$ | $V_{OR}$=5 V, $I_F$=4 mA, d=3 mm<br>Reflecting surface: aluminum coated glass | - | 350 | - | μA |
| | Rise Time | tr | 10 to 90 %, $V_{OR}$=5 V, $R_L$=10 kΩ, d=3 mm | - | 0.2 | - | ms |
| | Fall Time | tf | 90 to 10 %, $V_{OR}$=5 V, $R_L$=10 kΩ, d=3 mm | - | 0.8 | - | ms |
| | Leak Current | $I_{LEAK}$ | $V_{OR}$=5 V, $I_F$=4 mA, no reflecting object | - | - | 1 | μA |

### ■ PHOTOCURRENT VS. DISTANCE

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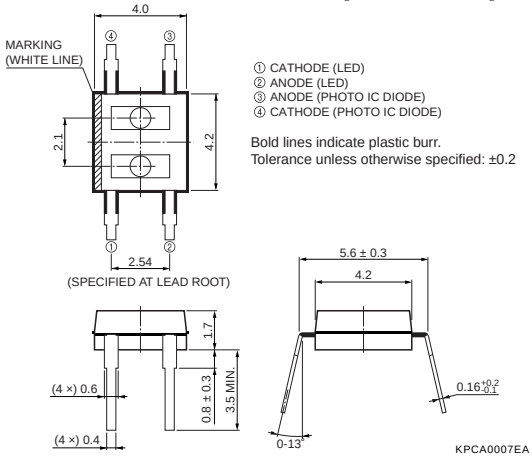
### ■ DIMENSIONAL OUTLINE (Unit: mm)

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