

Reflective Object Sensor

OPB700Z, OPB700ALZ

OPB701Z, OPB701ALZ



Features:

- Low profile to facilitate stacking
- Low cost plastic housing
- Choice of phototransistor or photodarlington output
- #26 AWG lead wire in 4" (101 mm), or 18" (457 mm) lengths

Description:

OPB700 and **OPB700ALZ** sensors consist of an infrared emitting diode and a NPN silicon phototransistor, mounted side-by-side on converging optical axes in a black plastic housing.

OPB701 and **OPB701ALZ** sensors consist of an infrared emitting diode and a NPN silicon photodarlington, mounted side-by-side on converging optical axes in a black plastic housing.

The interconnect wires for these devices are UL approved #26 AWG, with Teflon insulation, stripped and tinned. The **OPB700** and **OPB701** have 4" (101 mm) wire length while the **OPB700ALZ** and **OPB701ALZ** have 18" (457 mm) wire length.

Custom electrical, wire, cabling and connectors are available. Contact your local representative or OPTEK for more information.

Applications:

- Non-contact reflective object sensor
- Assembly line automation
- Machine automation
- Machine safety
- End of travel sensor
- Door sensor

| Ordering Information | | | | |
|----------------------|---------------------|------------|-------------------------------|-----------------------|
| Part Number | LED Peak Wavelength | Sensor | Reflection Distance Inch (mm) | Lead Length / Spacing |
| OPB700Z | 890 nm | Transistor | 0.200" (5.08mm) | 4" / 26 AWG Wire |
| OPB700ALZ | | | | 18" / 26 AWG Wire |
| OPB701Z | | Darlington | | 4" / 26 AWG Wire |
| OPB701ALZ | | | | 18" / 26 AWG Wire |



RoHS

General Note

TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

TT Electronics | OPTEK Technology
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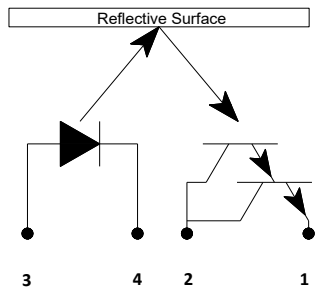
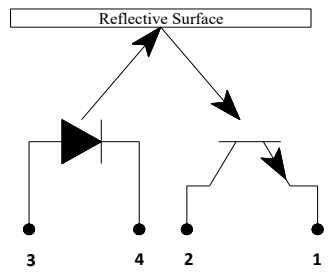
OPB701Z, OPB701ALZ



OPB700Z, OPB701Z



DIMENSIONS ARE IN: [MILLIMETERS] INCHES



| Part Number | Wire Length |
|-------------|-------------|
| OPB700Z | 4" Min |
| OPB700ALZ | 18" Min |
| OPB701Z | 4" Min |
| OPB701ALZ | 18" Min |

| OPB701 | | | |
|-------------|---------|-------------|-----------|
| Color/Pin # | LED | Color/Pin # | LED |
| Red-3 | Anode | White-2 | Collector |
| Black-4 | Cathode | Green-1 | Emitter |

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Electrical Specifications

| Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted) | |
|---|--------------------|
| Storage Temperature Range | -40° C to + 125° C |
| Operating Temperature Range | -40° C to + 100° C |
| Lead Soldering Temperature | 260° C |
| Input Diode | |
| Continuous Forward Current | 100 mA |
| Reverse Voltage | 2 V |
| Power Dissipation ⁽¹⁾ | 80 mW |
| Output Phototransistor | |
| Collector-Emitter Voltage OPB700Z, OPB700ALZ OPB701Z, OPB701ALZ | 24 V 15 V |
| Emitter-Collector Voltage | 5 V |
| Power Dissipation ⁽¹⁾ | 50 mW |

Notes:

(1) Derate linearly 1.07 mW/°C above 25 ° C.

| Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | |
|---|--|-----|-----|-----|---------------|--|
| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
| Input Diode | | | | | | |
| V_F | Forward Voltage | - | - | 1.7 | V | $I_F = 50\text{ mA}$ |
| I_R | Reverse Current | - | - | 100 | μA | $V_R = 2\text{ V}$ |
| Output Phototransistor | | | | | | |
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage | 25 | - | - | V | $I_C = 100\ \mu\text{A}$ |
| | OPB700Z, OPB700ALZ OPB701Z, OPB701ALZ | 15 | - | - | V | $I_C = 100\ \mu\text{A}$ |
| $V_{(BR)ECO}$ | Emitter-Collector Breakdown Voltage | 5 | - | - | V | $I_E = 100\ \mu\text{A}$ |
| I_{CEO} | Collector Dark Current | - | - | 100 | nA | $V_{CE} = 10\text{ V}, I_F = 0, E_E = \leq 0.1\ \mu\text{W}/\text{cm}^2$ |
| | OPB700Z, OPB700ALZ OPB701Z, OPB701ALZ | - | - | 250 | nA | $V_{CE} = 10\text{ V}, I_F = 0, E_E = \leq 0.1\ \mu\text{W}/\text{cm}^2$ |

Notes:

(1) Measured using Eastman Kodak neutral white test card with 90% diffuse reflectance as a reflecting surface. Reference: Eastman Kodak, Catalog # E 152 7795.

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Electrical Specifications

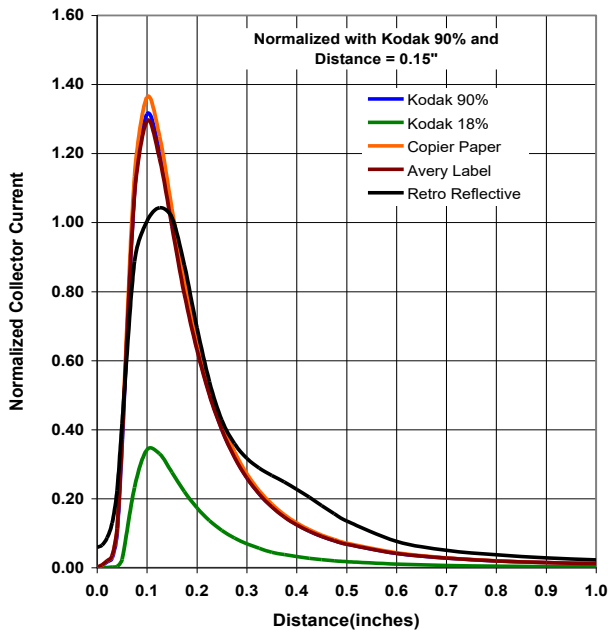
| Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | |
|---|--------------------|------|-----|-------|---------------|--|
| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
| Coupled Parameters OPB700Z, OPB700ALZ (Phototransistor) | | | | | | |
| $I_{C(ON)}$ | Collector current | 0.10 | - | 2.50 | mA | $V_{CE} = 5.0\text{V}^{(1)}$, $I_F = 40\text{mA}$ |
| $V_{CE(SAT)}$ | Saturation Voltage | - | - | 0.40 | V | $I_C = 10\mu\text{A}$, $I_F = 40\text{mA}$ |
| I_{CX} | Leakage Current | - | - | 2.00 | μA | $V_{CE} = 5.0\text{V}$, $I_F = 40\text{mA}$, NO Reflective Surface |
| Coupled Parameters OPB701Z, OPB701ALZ (Photodarlington) | | | | | | |
| $I_{C(ON)}$ | Collector current | 2.50 | - | 43.00 | mA | $V_{CE} = 5.0\text{V}^{(1)}$, $I_F = 40\text{mA}$ |
| $V_{CE(SAT)}$ | Saturation Voltage | - | - | 1.10 | V | $I_C = 1.0\text{mA}$, $I_F = 40\text{mA}$ |
| I_{CX} | Leakage Current | - | - | 20.0 | μA | $V_{CE} = 5.0\text{V}$, $I_F = 40\text{mA}$, NO Reflective Surface |

Notes:

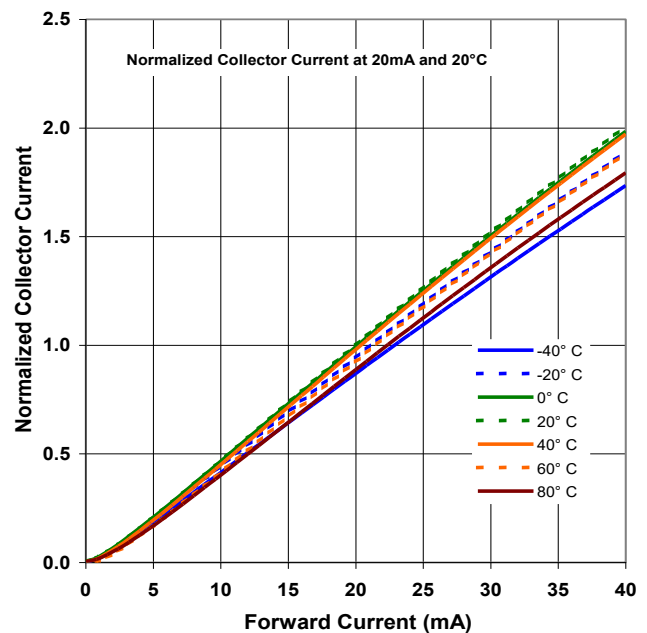
- (1) Measured using Eastman Kodak neutral white test card with 90% diffuse reflectance as a reflecting surface. Reference: Eastman Kodak, Catalog # E 152 7795.

Performance

OPB700 - Normalized Collector Current vs Distance



OPB700 - Normalized Collector Current vs Forward Current vs Temperature



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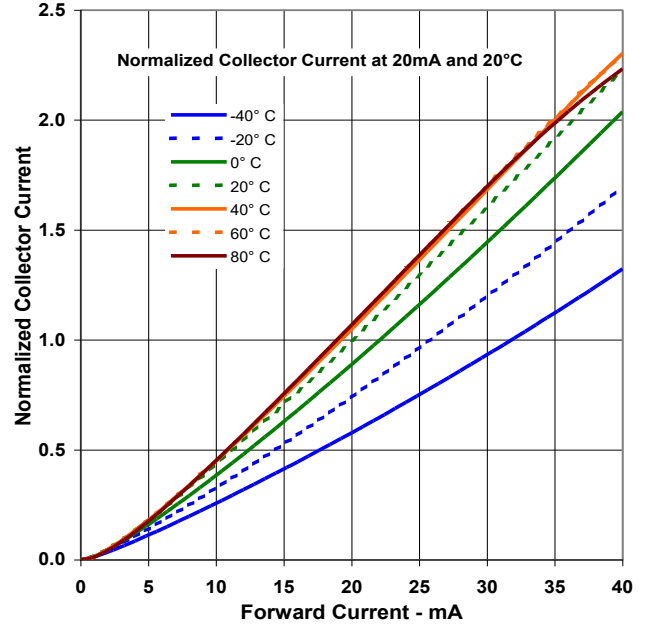


Performance

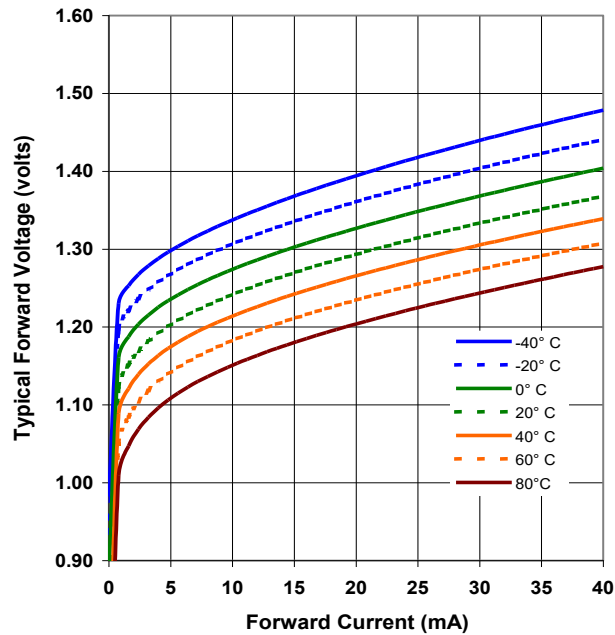
OPB701 - Normalized Collector Current vs Distance



OPB701 - Normalized Collector Current vs Forward Current vs Temperature



LED—Forward Voltage vs Forward Current vs Temperature



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- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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