

Photo Detectors/Photo Couplers

16480

PIN Photodiodes (for AF, CD, VD, Optical Communications and Control)

| Applications | Type No. | Package Construction | No. | V _R (V) | I _b max. (nA) | I _L min. (μA) | λ _p typ. (nm) | t _{r,t} typ. (ns) | θ typ. (deg) |
|--------------|------------------------------------|-------------------------------------|-----|--------------------|--------------------------|--------------------------|--------------------------|----------------------------|--------------|
| | | | | | | | | | |
| For AF | PN312C(N) | Flat (Clear) 2 division | O37 | 30 | 20 | 10 | 900 | 10 | 65 |
| | PN312E | Flat (Clear) 2 division | O37 | 30 | 10 | 7 | 900 | 10 | 65 |
| | PN3104 | Flat (Clear) PSD | O37 | 30 | 2 | 22 | 940 | 8μ | 65 |
| | PN3106(N) | Flat (Clear) PSD | O37 | 30 | 2 | 13 | 940 | 5μ | — |
| | PN3206 | Flat (Clear) 2 division | O37 | 12 | 10 | 2 | 900 | 10 | 65 |
| | PN312D(N) | Flat (Visible light cut) 2 division | O36 | 30 | 20 | 8 | 940 | 10 | 65 |
| | PN322D | Flat (Visible light cut) 2 division | O36 | 30 | 10 | 3 | 940 | 10 | 65 |
| | PN3105 | Flat (Visible light cut) PSD | O36 | 30 | 2 | 14 | 940 | 8μ | 65 |
| | PN3112 | Flat (Visible light cut) PSD | O36 | 30 | 2 | 16 | 940 | 12μ | 65 |
| | PN3108 | Flat (Clear) PSD | O37 | 30 | 2 | 7 | 940 | 5μ | 65 |
| PN3107(N) | Flat (Visible light cut) PSD | O36 | 30 | 2 | 8 | 940 | 5μ | 65 | |
| For CD, VD | PN324E | Flat (Clear) 4 division | O40 | 30 | 50 | 35 | 900 | 30 | 60 |
| | PN3404 | Flat (Clear) 4 division | O38 | 30 | 10 | 8 | 900 | 20 | 65 |
| | PN3405 | Flat (Clear) 4 division | O38 | 30 | 10 | 8 | 900 | 20 | 65 |
| | PN316K2/C2 | Flat (Clear) 6 division | O39 | 30 | 1/2 | 0.1/0.8 | 900 | 3 | 65 |
| | PN3624K | Flat (Clear) chip slope 6 division | O39 | 30 | 10 | 0.1/0.8 | 850 | 3 | 65 |
| PN3621K | Flat (Clear) chip slope 6 division | O39 | 12 | 10 | 0.09/0.17 | 940 | 5 | 65 | |
| For PF | PN330CL | TC-18 (Resin mold) | O33 | 30 | 10 | 7 | 850 | 2 | 70 |
| | PN334 | 5φ Plastic | O43 | 30 | 10 | 5 | 850 | 2 | 30 |
| | PN335 | Side view | O18 | 30 | 10 | 5 | 850 | 2 | 70 |
| For GF | PN331F | TO-18* (Flat can) | O35 | 30 | 10 | 4 | 900 | 2 | 40 |
| | PN332F | TO-18* (Flat can) | O35 | 30 | 1 | 4 | 850 | 1 | 40 |
| For control | PN300 | TO-18* (Lens can) | O1 | 50 | 10 | 30 | 800 | 1 | 10 |
| | PN300F | TO-18* (Flat can) | O2 | 50 | 10 | 5 | 800 | 1 | 40 |
| | PN303 | TO-39 (Flat can) | O33 | 30 | 50 | 50 | 900 | 50 | 55 |
| | PN307 | Double end | O15 | 30 | 40 | 5 | 800 | — | 24 |
| | PN313 | Side view (Visible light cut) | O41 | 30 | 50 | 35 | 900 | 50 | 65 |
| | PN313B | Side view (IR88 suitable) | O41 | 30 | 50 | 15 | 960 | 50 | 65 |
| | PN327 | TO-92 | O42 | 30 | 50 | 70 | 900 | 50 | 70 |
| | PN323B | TO-92 (IR88 suitable) | O43 | 30 | 50 | 15 | 960 | 50 | 70 |
| | PN328B | TO-92 (IR88 suitable) | O43 | 30 | 50 | 15 | 960 | 50 | 70 |
| | PN331CL | TO-18* (3 lead) | O34 | 30 | 50 | 10 | 900 | 50MHz | 70 |

* With shielded pin, For PF = For Plastic Fiber. For GF = For Glass Fiber.

Integrated Photosensors

| Type No. | Package No. | V _{CC} (V) | V _{OL} (V) | I _{OH} (μA) | I _{FH} (mA) |
|-----------|-------------|---------------------|---------------------|----------------------|----------------------|
| ON1402A/B | O79 | 4.5 ~ 16 | 0.25 | 100 | 5 |
| ON1403A/B | O80 | 4.5 ~ 16 | 0.25 | 100 | 5 |
| ON1413A/B | O84 | 4.5 ~ 16 | 0.14 | 100 | 4 |
| ON1414A/B | O84 | 2.2 ~ 7 | 0.15 | 100 | — |

Photosensor Units

| Type No. | Package No. | Characteristics | Output ON Condition | V _{CC} (V) | I _o (mA) | V _o (V) | V _{OL} max. (V) |
|--------------|-------------|---|---------------------|---------------------|---------------------|--------------------|--------------------------|
| ON1501 | O90 | Gap width 5mm, Depth 11mm, Open-collector output, High resolution | Object un-detected | 24 | 50 | 40 | 0.6 |
| ON1503 | O91 | Gap width 3.6mm, Depth 10mm, Open-collector output, High resolution | Object detected | 5.10 | 100 | 20 | 0.6 |
| ON1517HH (A) | O92 | Gap width 5mm, Depth 10mm, Open-collector output, High resolution | Detected | 5 | 20 | 30 | 0.4 |
| ON2509 | O94 | Reflection type, Open-collector output, Regulator paper, OHP film, second original detectable | Object un-detected | 5 | 10 | 24 | 0.4 |
| ON2521LA (A) | O95 | Reflection type, Open-collector output, Detectable distance range = 2.5 ~ 7.5mm | Undetected | 5 | 10 | 24 | 0.4 |

Phototransistors

| Type No. | Package | No. | V _{CE} (V) | L (lx) | I _{CE(L)} min. (mA) | I _{CE(O)} max. (μA) | θ typ. (deg) |
|---------------|---------------------------|--------|---------------------|--------|------------------------------|------------------------------|--------------|
| | | | | | | | |
| PN101/102* | TO-18 | O1/048 | 30 | 100 | 1.5 | 0.3 | 10 |
| PN101F/102F* | TO-18 | O2/049 | 30 | 100 | 0.1 | 0.3 | 40 |
| PN106* | TO-18 | O48 | 30 | 100 | 0.3 | 0.1 | 10 |
| PN107/108* | TO-18 | O1/048 | 20 | 100 | 5 | 2 | 10 |
| PN107F/108F* | TO-18 | O2/049 | 20 | 100 | 0.4 | 2 | 40 |
| PN108CL* | TO-18 (Small) | O50 | 20 | 500 | 3.5 | 2 | 80 |
| PN109L* | TO-18 (Visible light cut) | O48 | 20 | 100 | 3.5 | 2 | 10 |
| PN109F* | TO-18 (Visible light cut) | O49 | 20 | 100 | 0.3 | 2 | 40 |
| PN109CL | TO-18 (Visible light cut) | O50 | 20 | 500 | 2.5 | 0.05 | 80 |
| PN110* | 5φ Ceramic | O51 | 20 | 500 | 0.8 | 1 | 80 |
| PN111W* | 5φ Ceramic | O51 | 20 | 500 | 4.5 | 2 | 80 |
| PN115* | Side view | O52 | 20 | 100 | 1.5 | 2 | 35 |
| PN116* | Side view | O53 | 20 | 100 | 0.2 | 2 | 70 |
| PN120S | 3φ Ceramic | O45 | 30 | 2 | 3μA | 0.5 | 50 |
| PN121S | 3φ Ceramic | O45 | 20 | 1000 | 0.12 | 0.1 | 30 |
| PN123S | 3φ Ceramic | O45 | 20 | 1000 | 0.4 | 0.1 | 30 |
| PN126S | 3φ Ceramic | O45 | 20 | 1000 | 1.05 | 0.1 | 30 |
| PN127 | Double end | O15 | 20 | 1000 | 0.80 | 0.1 | 14 |
| PN147 | Double end | O15 | 20 | 2 | 3μA | 0.5 | 24 |
| PN150/L | Side view | O13 | 20 | 500 | 1 | 1 | 35 |
| PN154 | Side view | O12 | 20 | 500 | 1 | 1 | 27 |
| PN155 | Side view | O18 | 20 | 100 | 0.05 | 1 | 70 |
| PN158 | Side view | O14 | 20 | 500 | 1 | 1 | 40 |
| PN163(NC) | Side view | O111 | 20 | — | — | 0.2 | 25 |
| PN166 | Side view | O112 | 20 | — | — | 0.2 | 35 |
| PN168 | 3φ Plastic | O7 | 30 | 500 | 0.8 | 0.5 | 30 |
| PN202S © | 3φ Ceramic | O45 | 20 | 2 | 0.2 | 0.5 | 30 |
| PN205/L(NC) © | Side view | O13 | 20 | 2 | 0.2 | 0.5 | 35 |
| PN207 © | Double end | O15 | 20 | 2 | 0.5 | 0.5 | 18 |
| PN208 © | Side view | O14 | 20 | 2 | 0.2 | 0.5 | 40 |
| PN268-(NC) © | 3φ Plastic | O7 | 20 | 2 | 0.05 | 0.5 | 30 |

* With Base Pin © Darlington Transistor

Photo ICs

| Type No. | Package | No. | V _{CC} (V) | P _D (mW) | I _b max. (nA) | I _L min. (μA) | λ _p typ. (nm) | t _{r,t} typ. (μs) | θ typ. (deg) |
|-------------|-------------------------|-----|---------------------|---------------------|--------------------------|--------------------------|--------------------------|----------------------------|--------------|
| PN7202-(LF) | Flat (Clear) 2 division | O47 | 30 | 30 | 5 | 5 | 900 | 10 | 65 |

| Type No. | Package | No. | V _{CC} (V) | P _D (mW) | I _{CC} (mA) | V _O (mV) | V _{O(offset)} (mV) | f _c (MHz) |
|----------|-------------------------|-----|---------------------|---------------------|----------------------|---------------------|-----------------------------|----------------------|
| PN7601 | Flat (Clear) 6 division | O46 | 6 | 80 | 3.5 | 360 | 15 | 3 |
| PN7608 | Flat (Clear) 6 division | O46 | 3.4 ~ 5.5 | 100 | 1.3 | 300 | -15 ~ +15 | 2.5 |

| Type No. | Package | No. | V _{CC} (V) | P _D (mW) | I _{CC} (mA) | A (V/mW) | λ | Alin (%) | P _{DC} (lx) | V _{en} (mVrms) |
|----------|-----------|---------|---------------------|---------------------|----------------------|----------|-----|--|----------------------|-------------------------|
| PN7103 | Side view | O53 (b) | 15 | 100 | 1.4 | 180 | 700 | -10 ~ +10 P _{DC} = 0.1 ~ 4μW | 4000 | 1.0 |