

Phototransistor Photo Detector

KDT00030, KDT00030A

Description

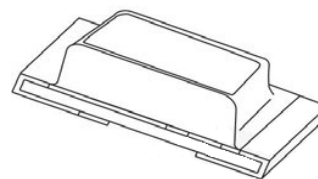
The KDT00030/KDT00030A are small, low-profile photo detectors. They incorporate a phototransistor detector chip, which makes them an ideal choice for low-cost ambient light measurement applications, like mobile appliances backlighting.

Features

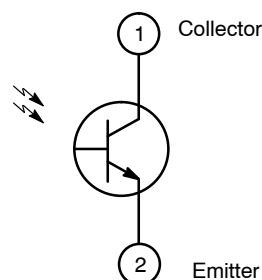
- Spectral Response Close to Human Eye
- Good Output Linearity Across Wide Illumination Range
- Small Footprint: 1.7 mm x 0.8 mm
- Low Profile: 0.6 mm
- Phototransistor with Filter Technology
- These Devices are Pb-Free and Halogen Free

Applications

- Cell Phones, Notebook PCs, PDAs, Digital Still Cameras



CHIPLED ALS
CASE 100CP



ORDERING INFORMATION

See detailed ordering and shipping information on page 3 of this data sheet.

KDT00030, KDT00030A

ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Min. | Max. | Unit |
|-----------|-----------------------------|------|------|------|
| V_{CE} | Collector – Emitter Voltage | – | 6 | V |
| T_{OPR} | Operating Temperature | –40 | +85 | °C |
| T_{STG} | Storage Temperature | –40 | +100 | °C |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

ELECTRICAL CHARACTERISTICS

Values are at $T_A = 25^\circ\text{C}$ and $V_{CE} = 5.0\text{ V}$, unless specified otherwise.

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-------------------|------------------------------|--|------|------|------|---------------|
| I_{L1} | Light Current 1 | $E_V = 100\text{ lux}$ (Note1) | 7 | 10 | – | μA |
| I_{L2} | Light Current 2 | $E_V = 1000\text{ lux}$ (Note1) | 200 | 230 | – | μA |
| I_{L3} | Light Current 3 | $E_V = 1000\text{ lux}$ (Note 2) | 950 | 1100 | – | μA |
| I_{L3} / I_{L2} | Light Current Ratio | | – | 4.8 | – | – |
| I_{LEAK} | Dark Current | $V_{CE} = 10\text{ V}$ $E_V = 0$ KDT00030 | – | – | 100 | nA |
| | | KDT00030A | – | – | 40 | |
| V_O | Saturation Output Voltage | $V_{CC} = 5\text{ V}$, $E_V = 1000\text{ lux}$, $R_L = 75\text{ k}\Omega$ | 4.5 | 4.6 | – | V |
| ΔP | Peak Sensitivity, Wavelength | | – | 630 | – | nm |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

- White fluorescent light (color temperature = 6,500 K).
- Illuminance by CIE standard illuminant–A/2856K incandescent lamp.

TYPICAL PERFORMANCE CHARACTERISTICS

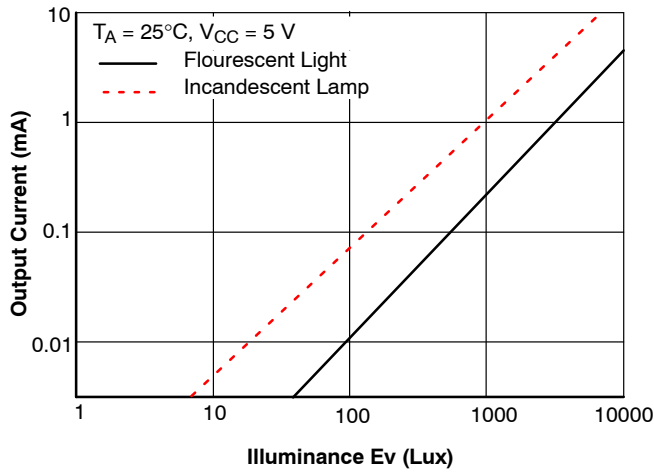


Figure 1. Illuminance vs. Output Photo Current

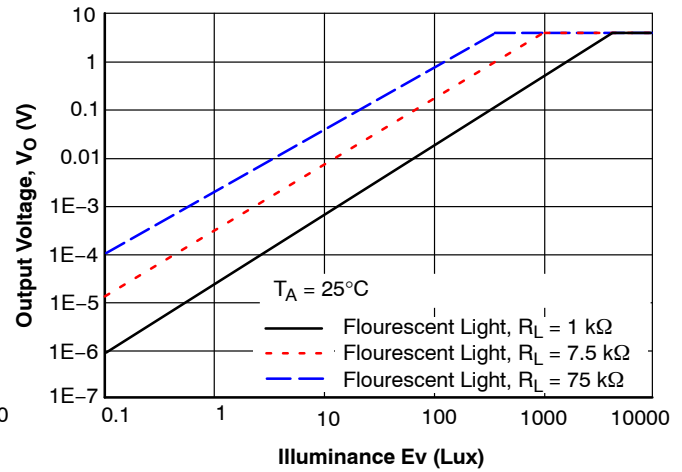


Figure 2. Illuminance vs. Output Voltage

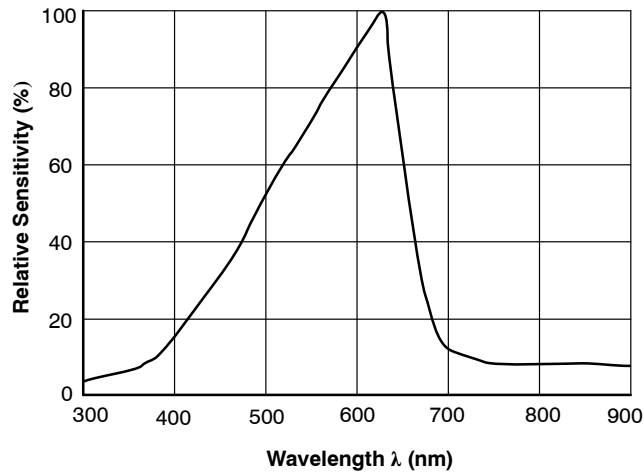


Figure 3. Spectral Response

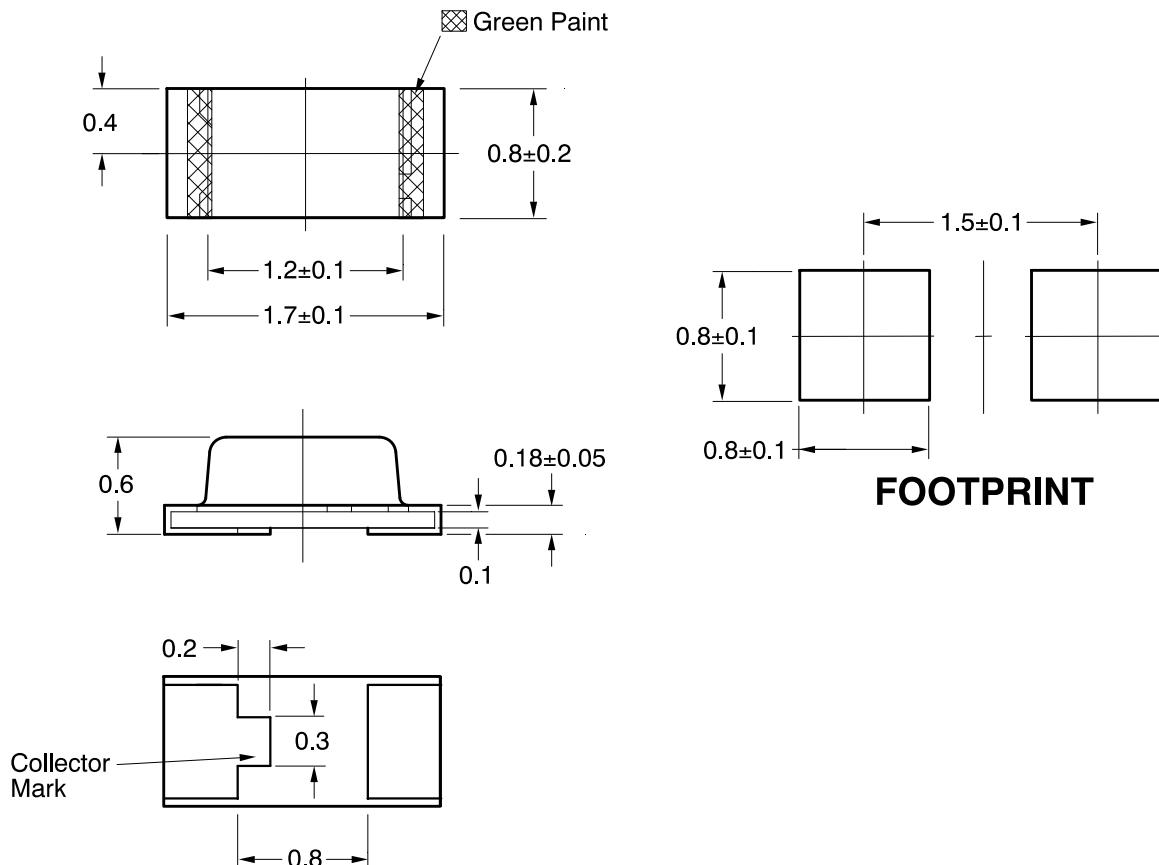
ORDERING INFORMATION

| Part Number | Operating Temperature | Package | Shipping [†] |
|-------------|-----------------------|---|-----------------------|
| KDT00030TR | -40 to +85°C | CHIPLED ALS (Pb-Free / Halogen Free) | 3000 / Tape and Reel |
| KDT00030ATR | | | 3000 / Tape and Reel |

[†]For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

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CASE 100CP
ISSUE O

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Note:

All dimensions are in mm, tolerances are ± 0.1 mm unless otherwise specified.

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| DESCRIPTION: | CHIPLED ALS | PAGE 1 OF 1 |

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