

KDT00030 / KDT00030A

Phototransistor Photo Detector

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

Applications

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

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.

Ordering Information

| Part Number | Operating Temperature | Package | Packing Method |
|-------------|-----------------------|---------|----------------|
| KDT00030TR | -40 to +85°C | ChipLED | Tape and Reel |
| KDT00030ATR | | ChipLED | Tape and Reel |

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only.

| 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 |

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. | Units |
|-------------------|------------------------------|--|-----------|------|------|---------------|
| $I_L(1)$ | Light Current(1) | $E_V = 100\text{ lux}^{(1)}$ | 7 | 10 | | μA |
| $I_L(2)$ | Light Current(2) | $E_V = 1000\text{ lux}^{(1)}$ | 200 | 230 | | μA |
| $I_L(3)$ | Light Current(3) | $E_V = 1000\text{ lux}^{(2)}$ | 950 | 1100 | | μA |
| $I_L(3) / I_L(2)$ | 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 |
| λ_P | Peak Sensitivity, Wavelength | | | 630 | | nm |

Notes:

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

Typical Performance Characteristics

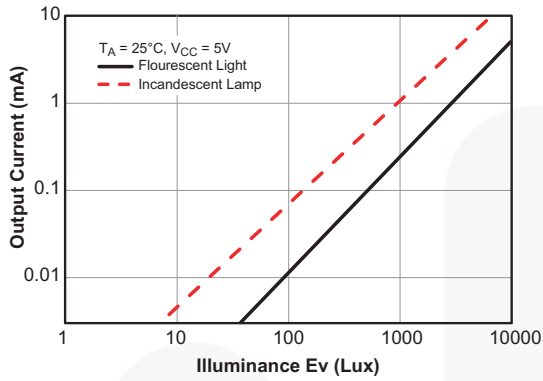


Figure 1. Illuminance vs. Output Photo Current

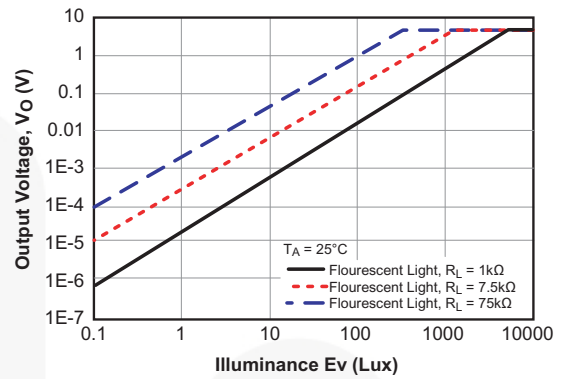


Figure 2. Illuminance vs. Output Voltage

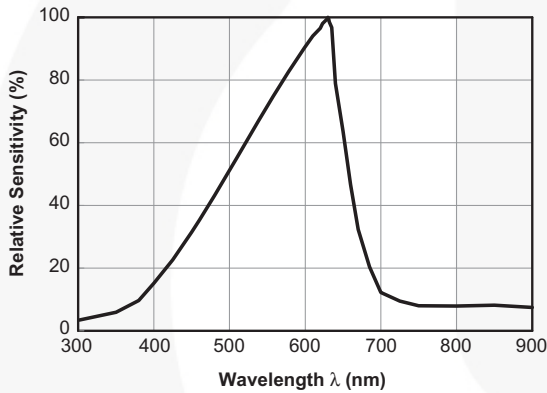


Figure 3. Spectral Response

Physical Dimensions

ChipLED

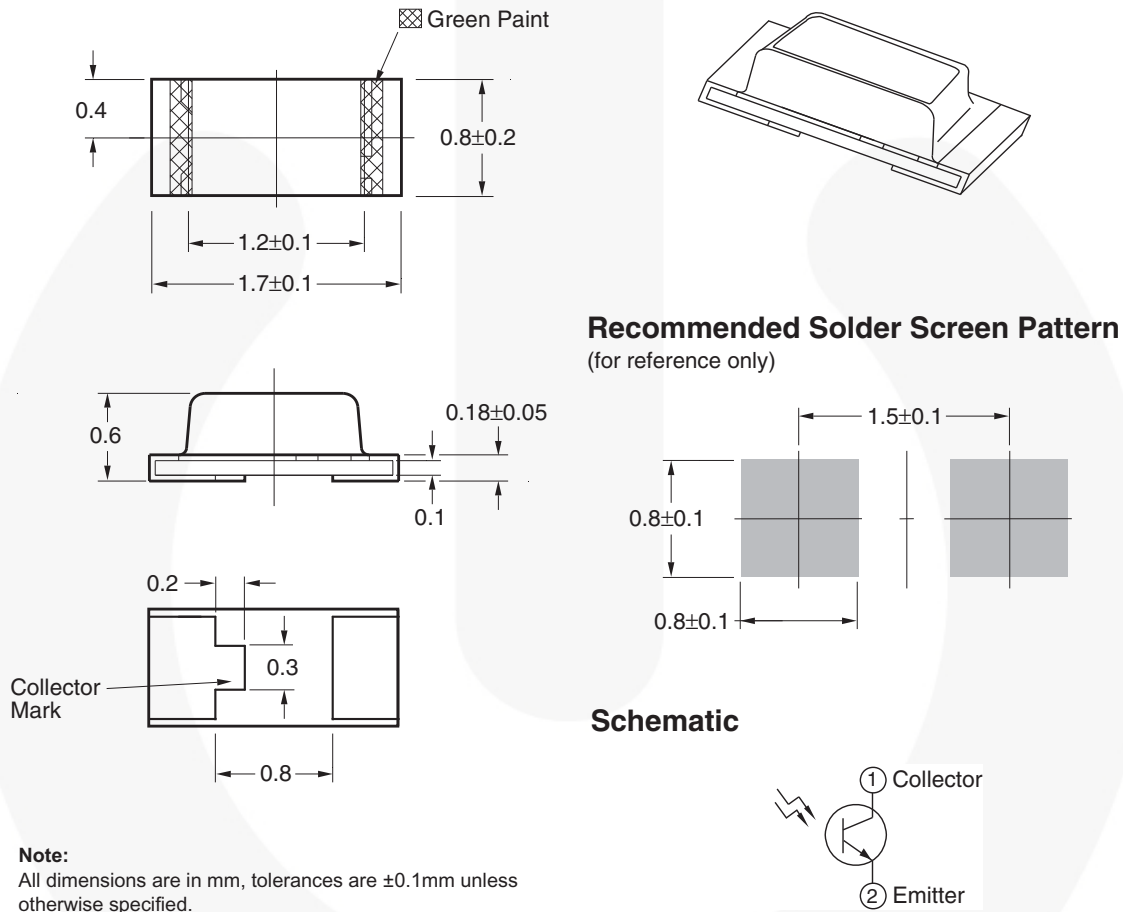
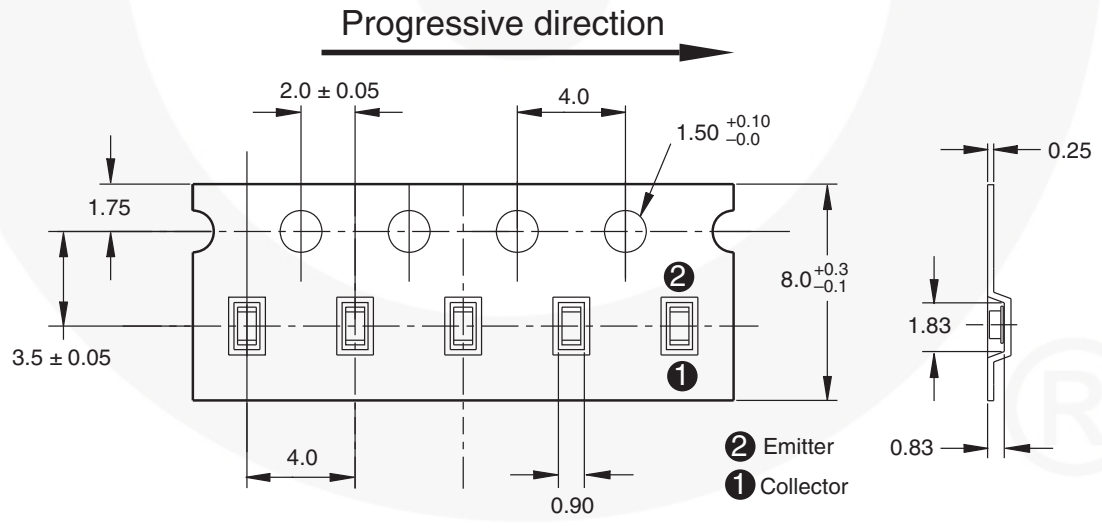
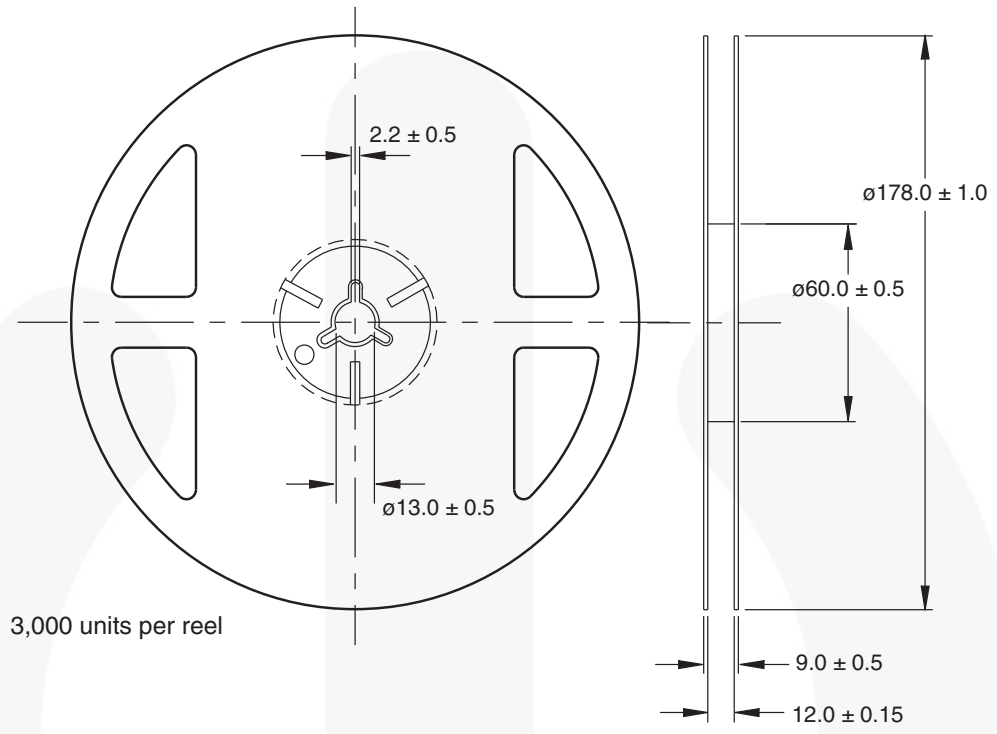


Figure 4. PLCC-2 DETECTOR (ACTIVE)

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Tape and Reel Dimension








Note: Tolerances are ± 0.1 mm unless otherwise stated. All dimensions in mm.



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|--------------------------|-----------------------|---|
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