

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:

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

Typical Performance Characteristics

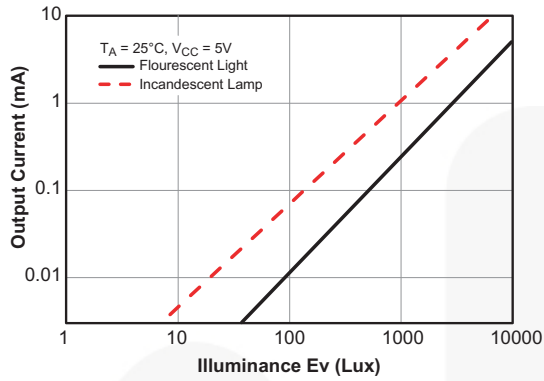


Figure 1. Illuminance vs. Output Photo Current

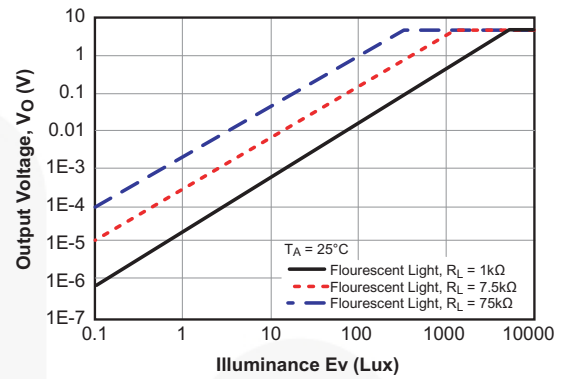


Figure 2. Illuminance vs. Output Voltage

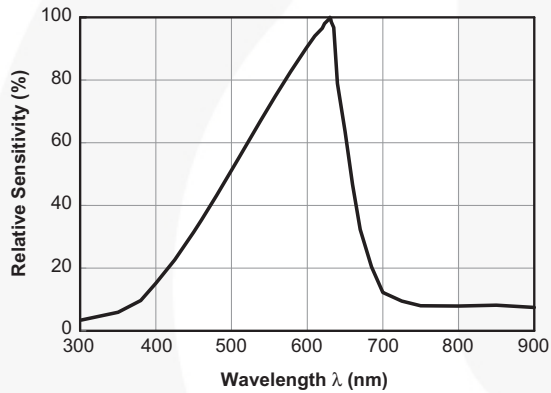
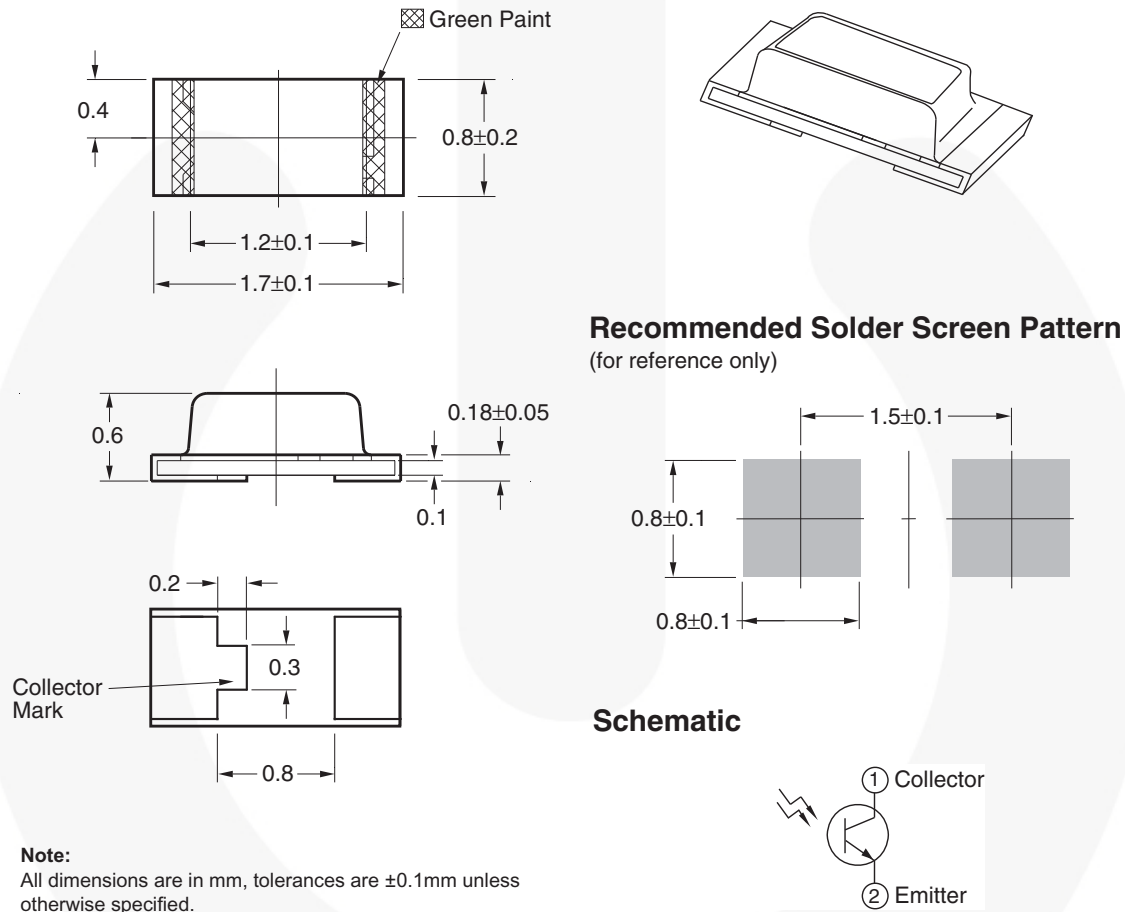


Figure 3. Spectral Response

Physical Dimensions

ChipLED



Note:

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

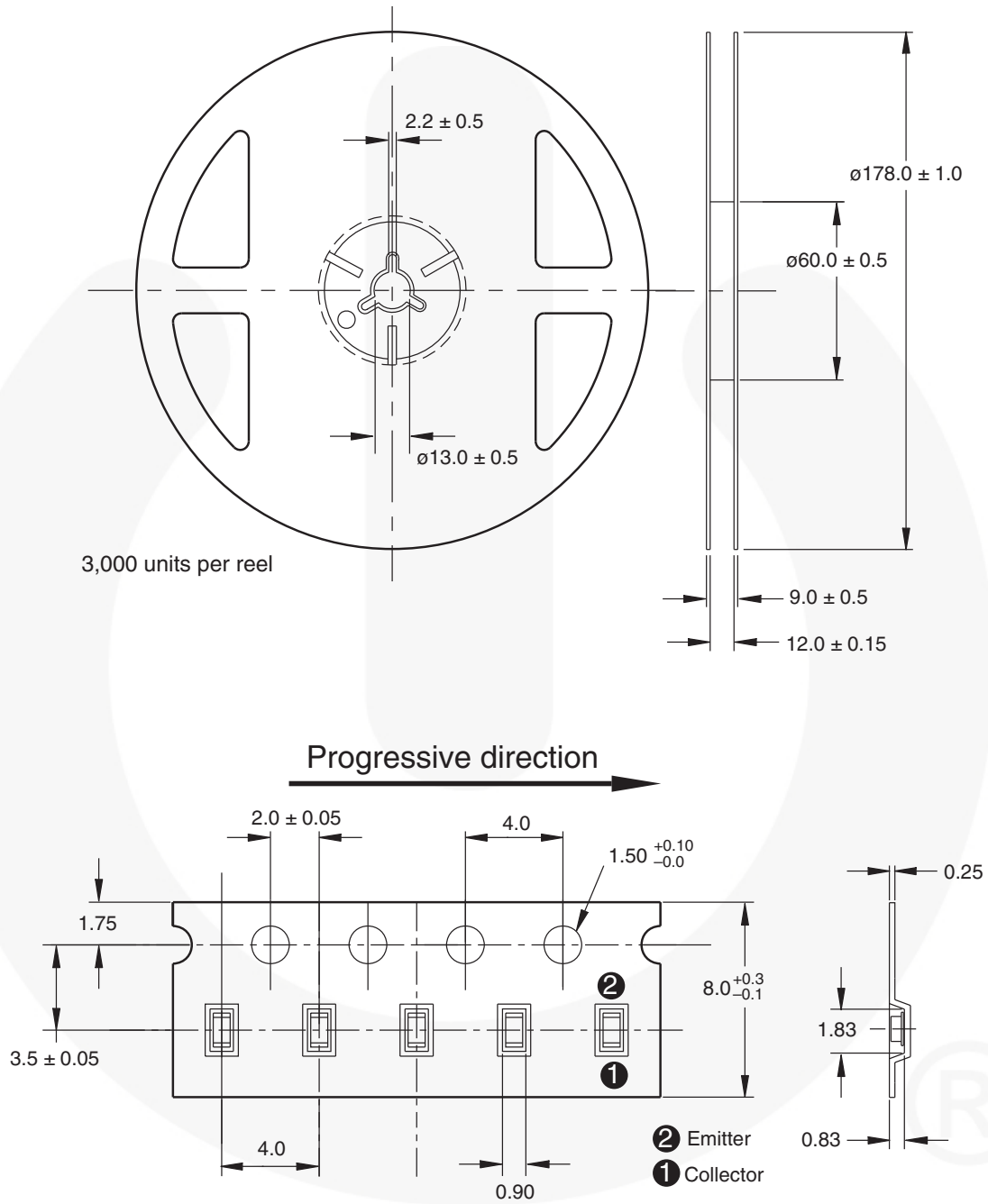
Figure 4. PLCC-2 DETECTOR (ACTIVE)

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Tape and Reel Dimension



Note: Tolerances are $\pm 0.1\text{mm}$ unless otherwise stated. All dimensions in mm.



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Datasheet Identification	Product Status	Definition
Advance Information	Formative / In Design	Datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.

Rev. I64



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