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FAIRCHILD SEMICONDUCTOR®

June 2013

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°C and V_{CE} = 5.0 V, unless specified otherwise.

Symbol	Parameter	Conditions		Min.	Typ.	Max.	Units
$I_L(1)$	Light Current(1)	E_V = 100 lux(1)		7	10		µA
$I_L(2)$	Light Current(2)	E_V = 1000 lux(1)		200	230		µA
$I_L(3)$	Light Current(3)	E_V = 1000 lux(2)		950	1100		µA
$I_L(3) / I_L(2)$	Light Current Ratio				4.8		
I_{LEAK}	Dark Current	V_{CE} = 10 V, E_V = 0	KDT00030			100	nA
			KDT00030A			40	
V_O	Saturation Output Voltage	V_{CC} = 5 V, E_V = 1000 lux, R_L =75 kΩ		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

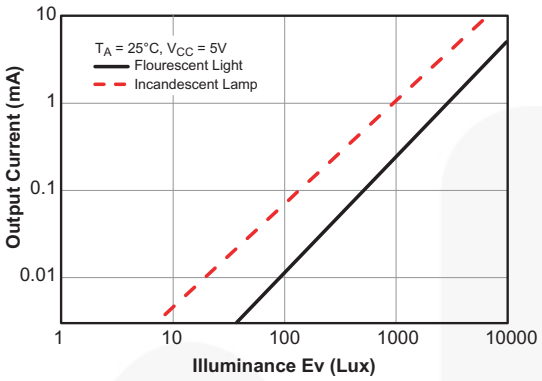


Figure 1. Illuminance vs. Output Photo Current

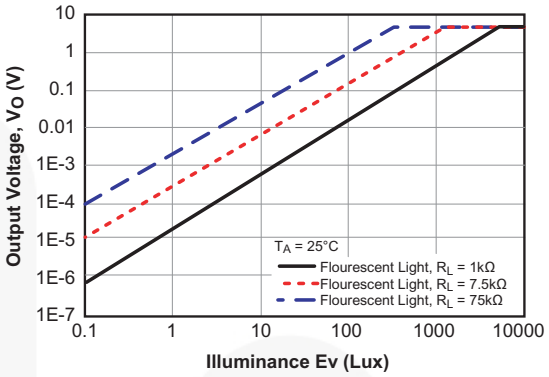


Figure 2. Illuminance vs. Output Voltage

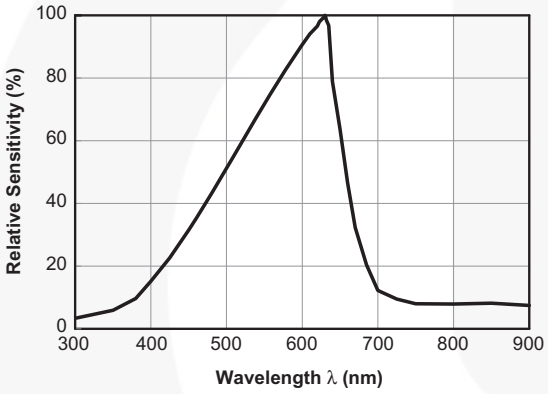
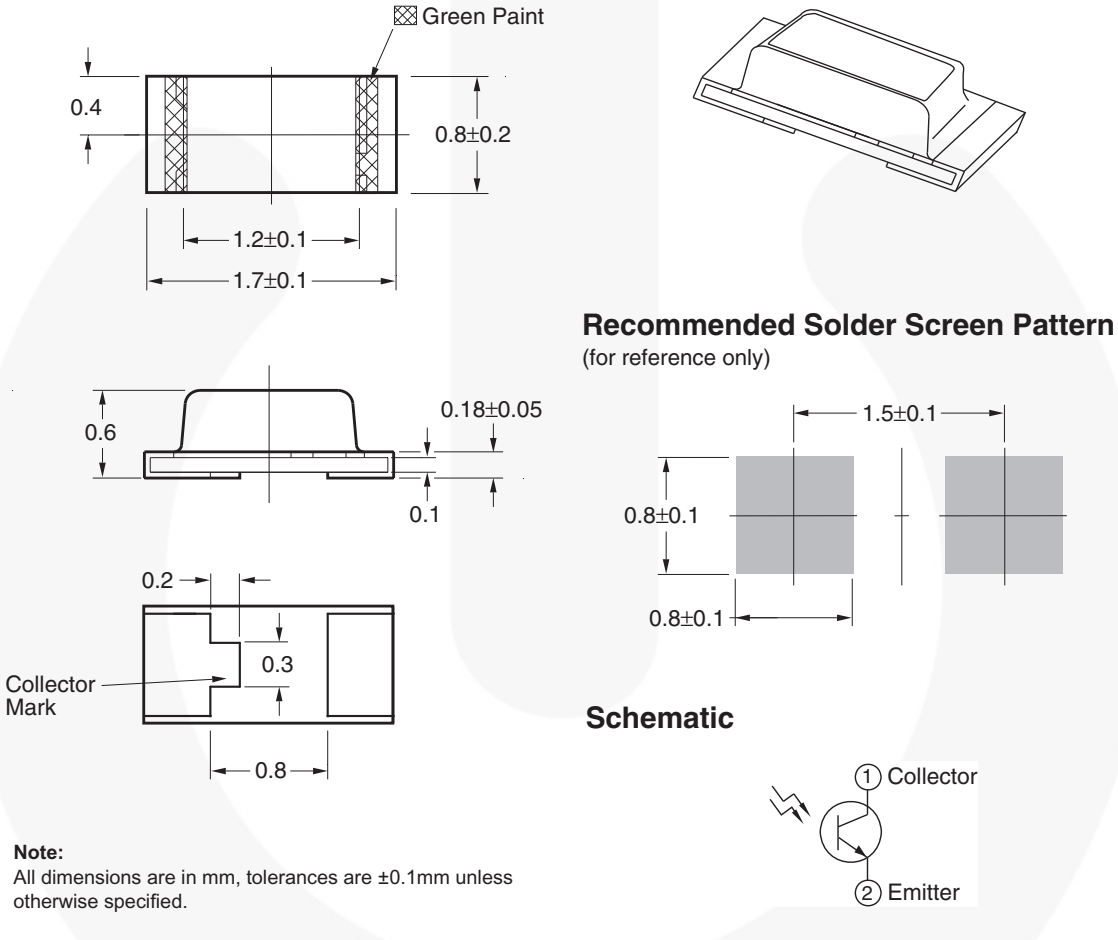


Figure 3. Spectral Response

Physical Dimensions

ChipLED



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

Figure 4. PLCC-2 DETECTOR (ACTIVE)

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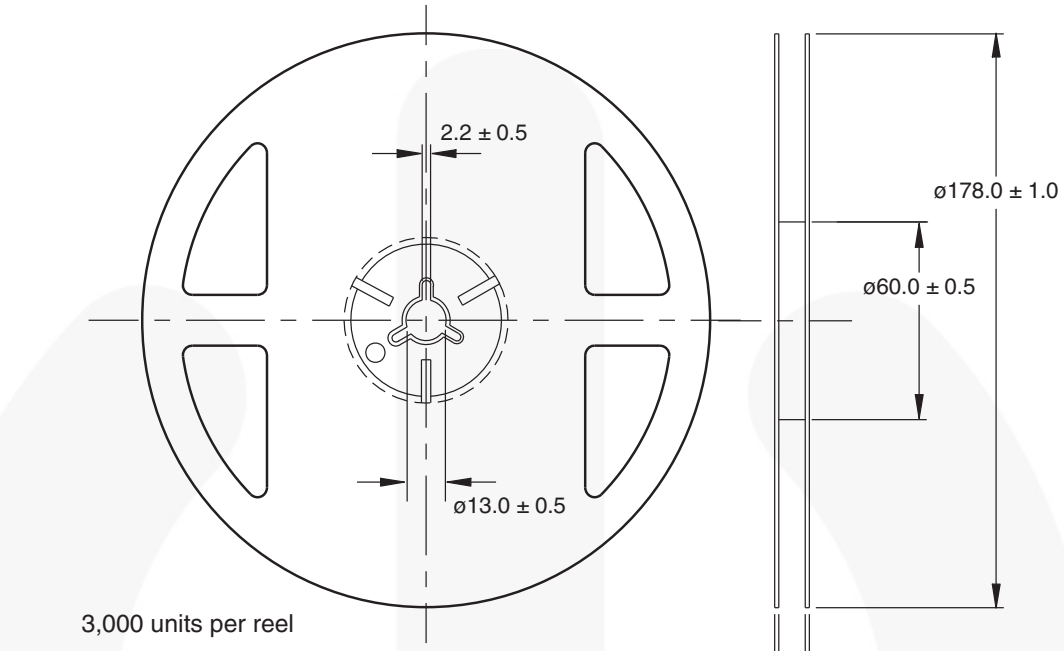
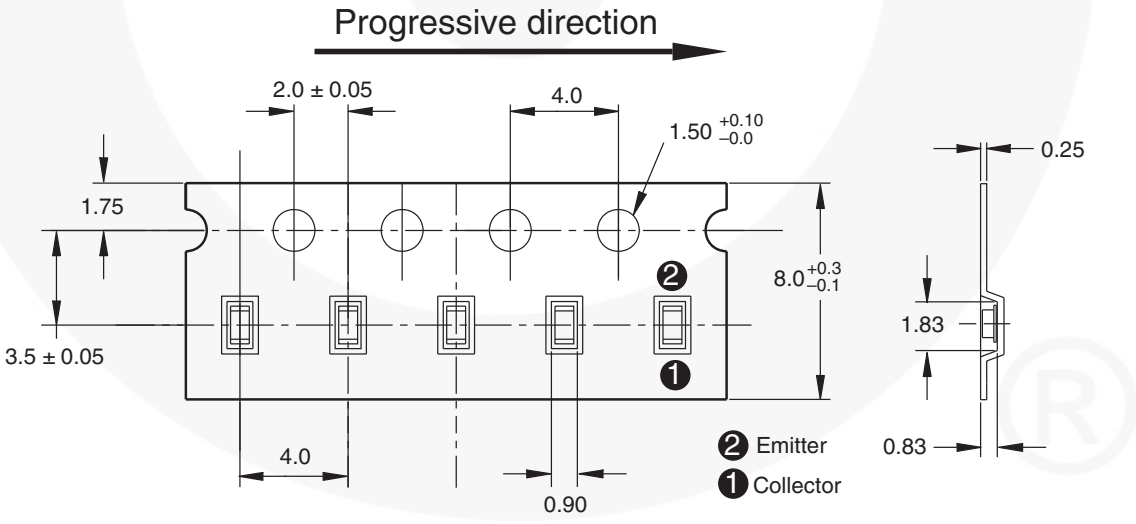
Tape and Reel Dimension





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

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