ON Semiconductor

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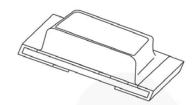
KDT00030, KDT00030A

Phototransistor Photo Detector

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



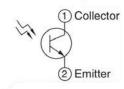
APPLICATIONS

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

Ordering Information

Part Number	Operating Temperature	Package	Packing Method
KDT00030TR	40 to 195°C	ChipLED	Tape and Reel
KDT00030ATR	-40 to +85°C	ChipLED	Tape and Reel

Schematic



KDT00030, KDT00030A

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	3	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.	Тур.	Max.	Units
I _L (1)	Light Current(1)	E _V = 100 lux ⁽¹⁾		7	10		μА
I _L (2)	Light Current(2)	E _V = 1000 lux ⁽¹⁾		200	230	B.	μА
I _L (3)	Light Current(3)	E _V = 1000 lux ⁽²⁾		950	1100	j n	μА
I _L (3) / I _L (2)	Light Current Ratio			7.	4.8		
I _{LEAK}	Dark Current	V _{CE} = 10 V, E _V = 0	KDT00030			100	nA
			KDT00030A			40	
Vo	Saturation Output Voltage	$V_{CC} = 5 \text{ V}, E_{V} = 1000 \text{ lux},$ $R_{L} = 75 \text{ k}\Omega$		4.5	4.6		٧
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

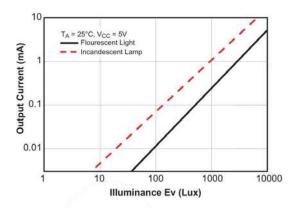


Figure 1. Illuminance vs. Output Photo Current

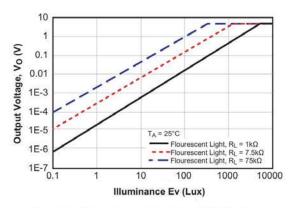


Figure 2. Illuminance vs. Output Voltage

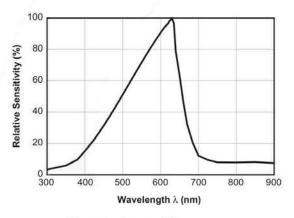
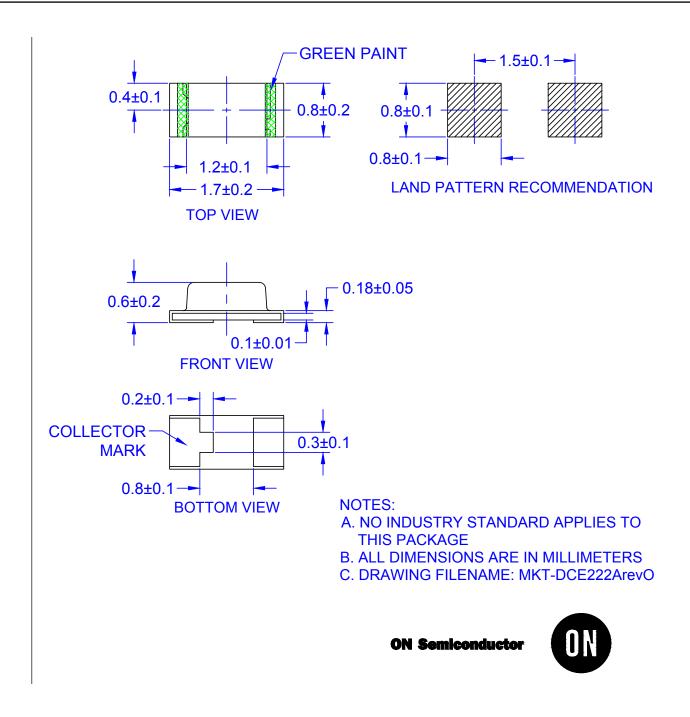
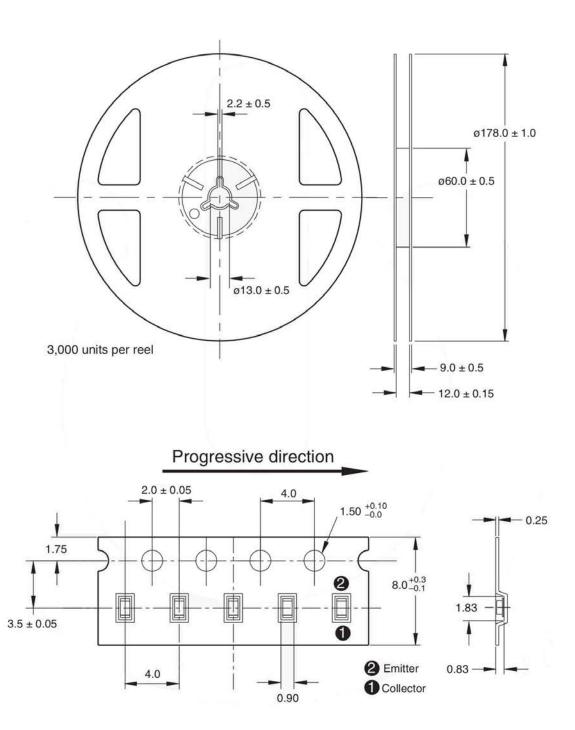


Figure 3. Spectral Response

Physical Dimensions



Tape and Reel Dimension



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

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