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Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

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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

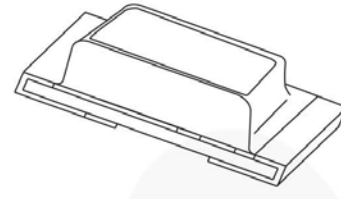
APPLICATIONS

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



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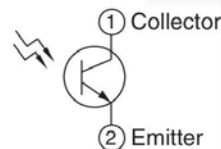
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Ordering Information

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

Schematic



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

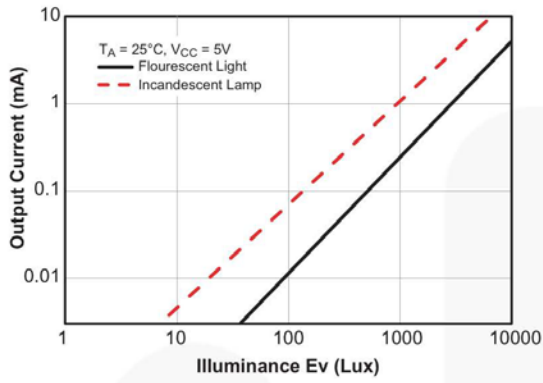


Figure 1. Illuminance vs. Output Photo Current

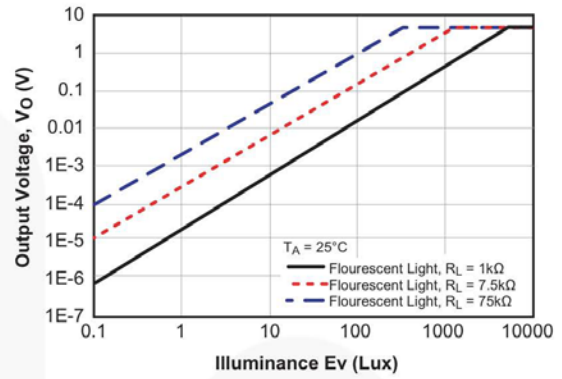


Figure 2. Illuminance vs. Output Voltage

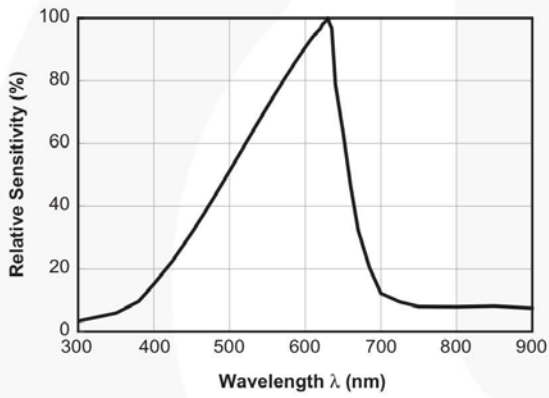
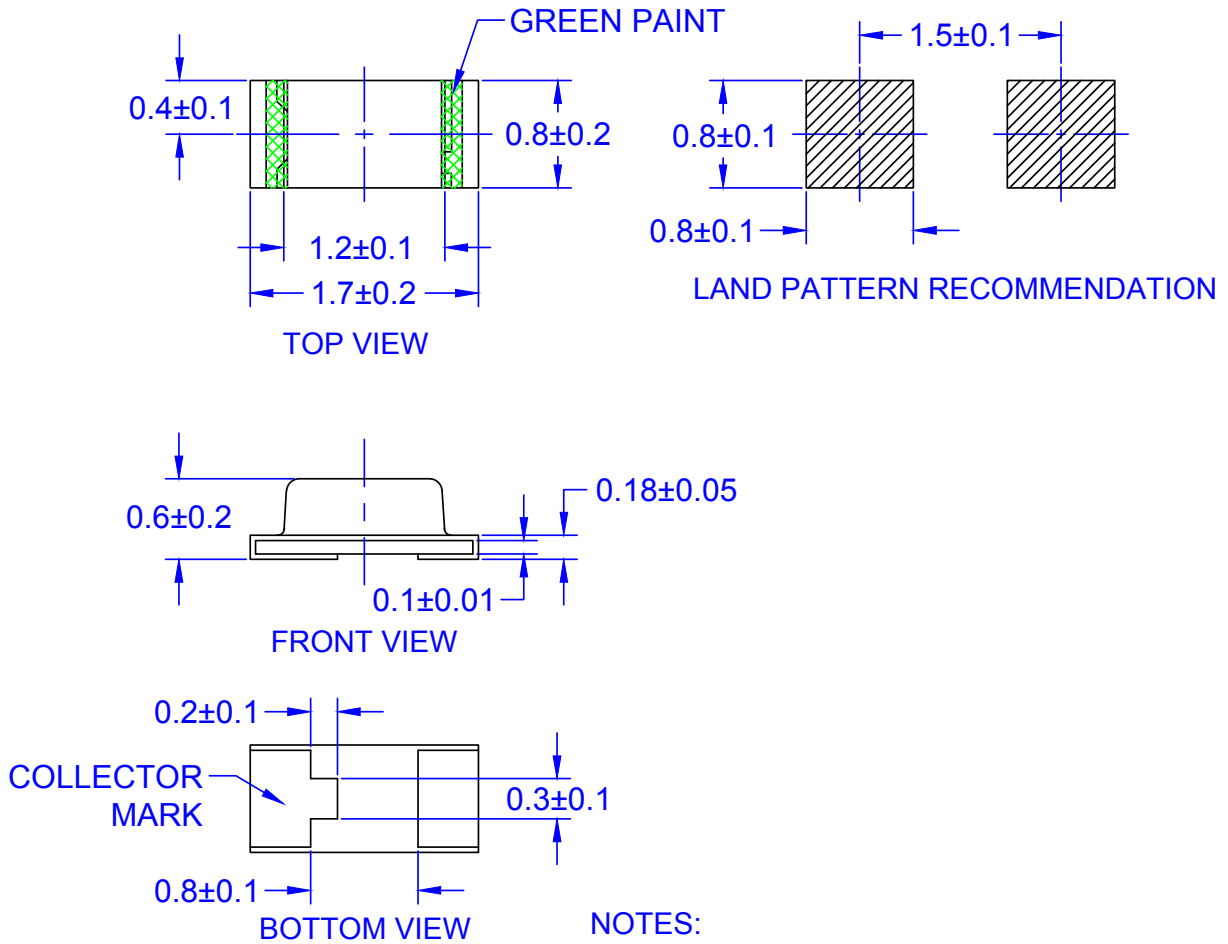


Figure 3. Spectral Response

Physical Dimensions

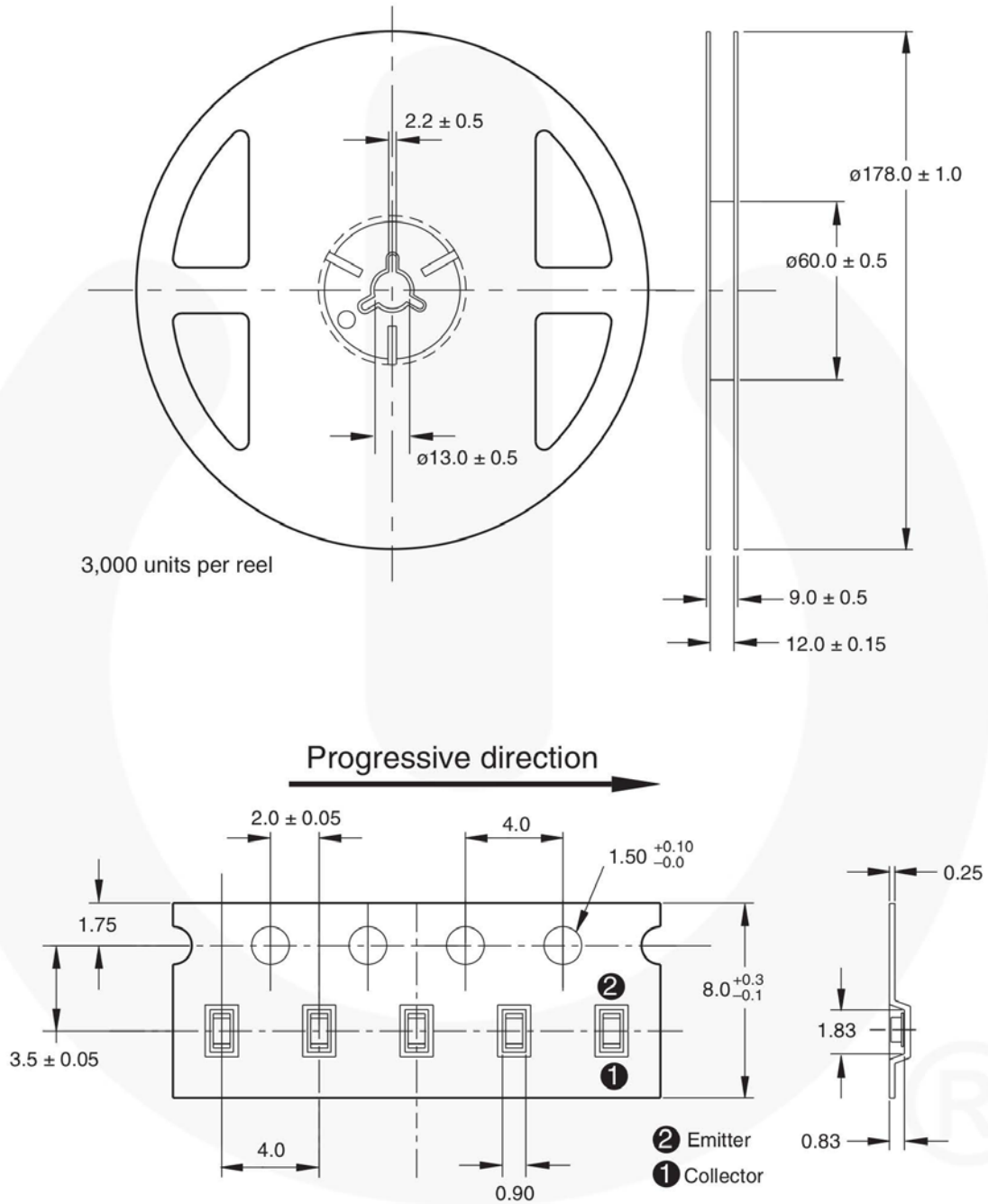


- NOTES:
- A. NO INDUSTRY STANDARD APPLIES TO THIS PACKAGE
 - B. ALL DIMENSIONS ARE IN MILLIMETERS
 - C. DRAWING FILENAME: MKT-DCE222Arev0

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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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