

ON Semiconductor

Is Now

onsemi™

To learn more about onsemi™, please visit our website at
www.onsemi.com

onsemi and **onsemi** and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi** product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner. Other names and brands may be claimed as the property of others.



ON Semiconductor®

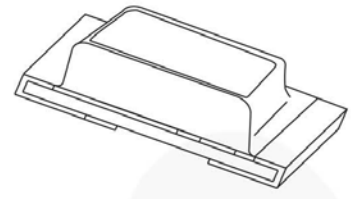
KDT00030, KDT00030A

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



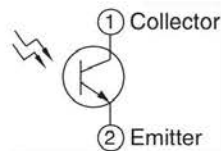
APPLICATIONS

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

Ordering Information

Part Number	Operating Temperature	Package	Packing Method
KDT00030TR	-40 to +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

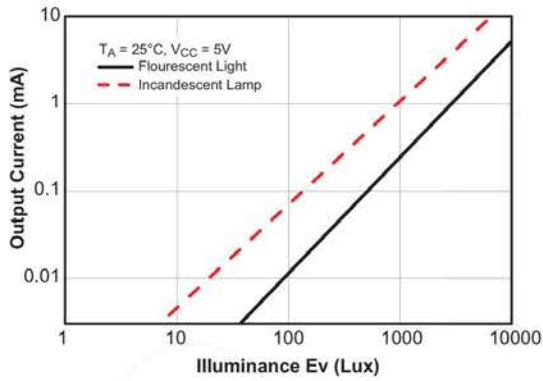


Figure 1. Illuminance vs. Output Photo Current

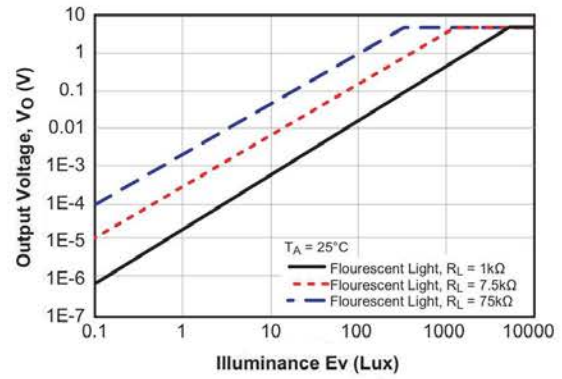


Figure 2. Illuminance vs. Output Voltage

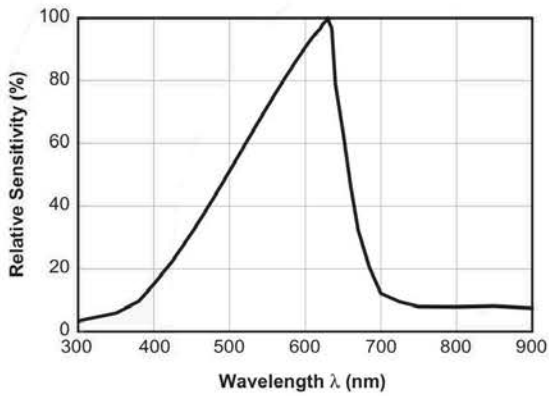
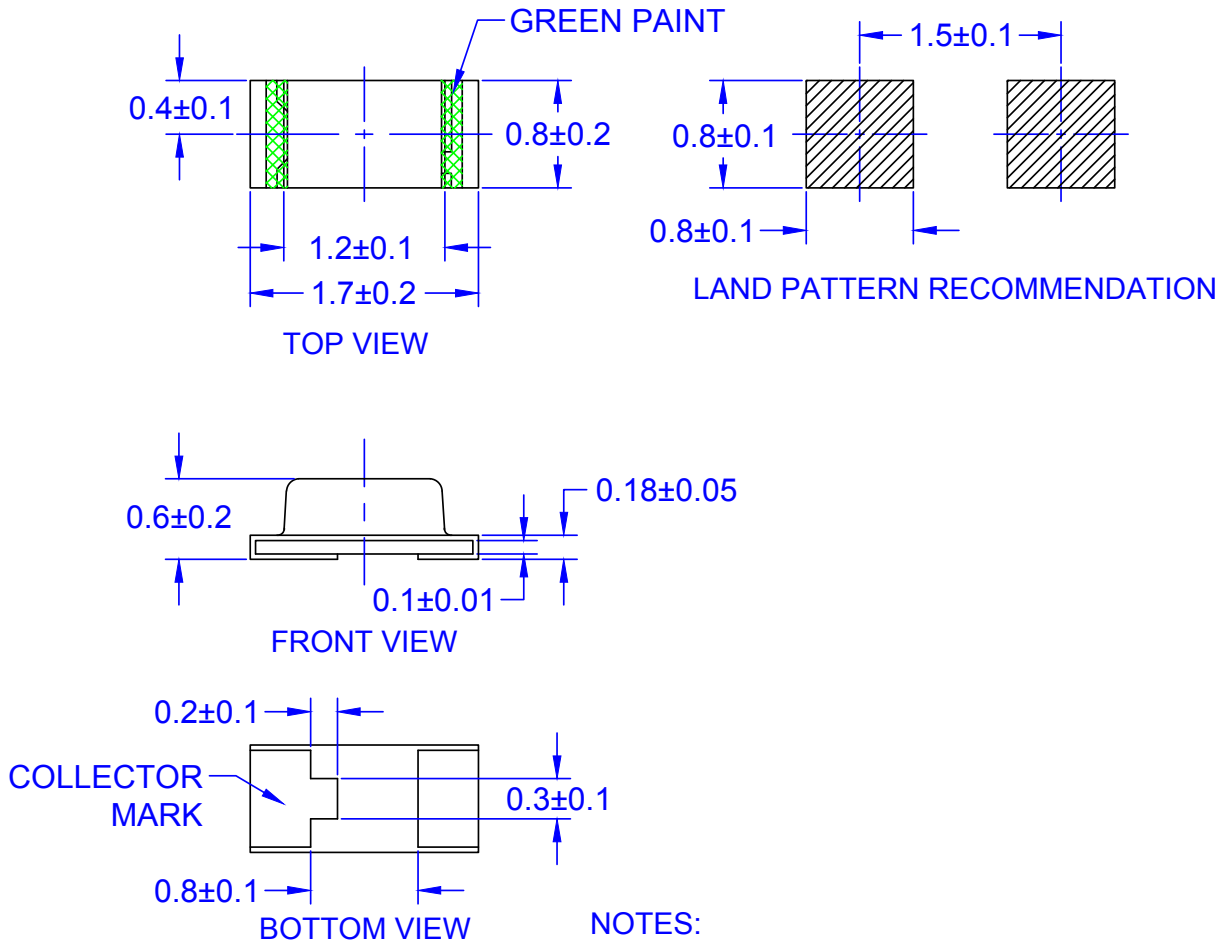


Figure 3. Spectral Response

Physical Dimensions

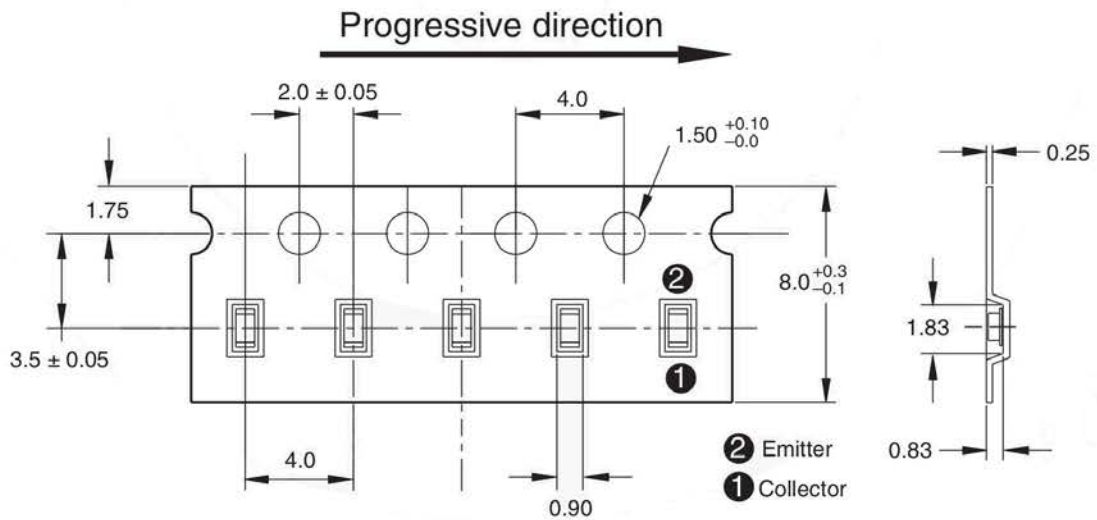
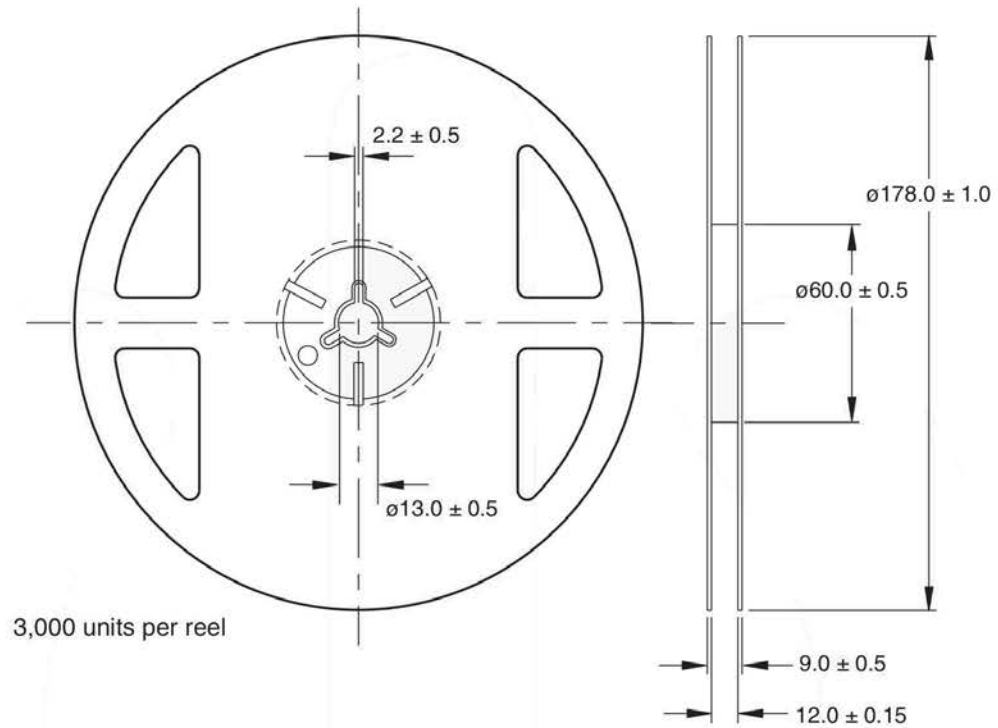


- NOTES:
- A. NO INDUSTRY STANDARD APPLIES TO THIS PACKAGE
 - B. ALL DIMENSIONS ARE IN MILLIMETERS
 - C. DRAWING FILENAME: MKT-DCE222Arev0

ON Semiconductor



Tape and Reel Dimension



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