# onsemi

# Phototransistor Photo Detector

# KDT00030, KDT00030A

### 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.

## Features

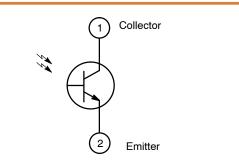
- Spectral Response Close to Human Eye
- Good Output Linearity Across Wide Illumination Range
- Small Footprint: 1.7 mm x 0.8 mm
- Low Profile: 0.6 mm
- Phototransistor with Filter Technology
- These Devices are Pb-Free and Halogen Free

#### Applications

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



CHIPLED ALS CASE 100CP



## **ORDERING INFORMATION**

See detailed ordering and shipping information on page 3 of this data sheet.

# KDT00030, KDT00030A

#### **ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Min.	Max.	Unit
V <sub>CE</sub>	Collector – Emitter Voltage	-	6	V
T <sub>OPR</sub>	Operating Temperature	-40	+85	°C
T <sub>STG</sub>	Storage Temperature	-40	+100	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

#### **ELECTRICAL CHARACTERISTICS**

Values are at  $T_A = 25^{\circ}C$  and  $V_{CE} = 5.0$  V, unless specified otherwise.

Symbol	Parameter	Cor	Conditions		Тур.	Max.	Unit
I <sub>L1</sub>	Light Current 1	E <sub>V</sub> = 100 lux (N	E <sub>V</sub> = 100 lux (Note1)		10	-	μΑ
I <sub>L2</sub>	Light Current 2	E <sub>V</sub> = 1000 lux	E <sub>V</sub> = 1000 lux (Note1)		230	-	μA
I <sub>L3</sub>	Light Current 3	E <sub>V</sub> = 1000 lux	E <sub>V</sub> = 1000 lux (Note 2)		1100	-	μA
$I_{L3}/I_{L2}$	Light Current Ratio				4.8	-	-
I <sub>LEAK</sub>	Dark Current	V <sub>CE</sub> = 10 V E <sub>V</sub> = 0	KDT00030	-	-	100	nA
		$E_V = 0$	KDT00030A	-	-	40	
V <sub>O</sub>	Saturation Output Voltage	$V_{CC}$ = 5 V, E <sub>V</sub> = R <sub>L</sub> = 75 k $\Omega$	$V_{CC}$ = 5 V, $E_V$ = 1000 lux, R <sub>L</sub> = 75 k $\Omega$		4.6	-	V
Δ <sub>P</sub>	Peak Sensitivity, Wavelength		-	630	-	nm	

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

White fluorescent light (color temperature = 6.500 K).
Illuminance by CIE standard illuminant–A/2856K incandescent lamp.

# KDT00030, KDT00030A

# **TYPICAL PERFORMANCE CHARACTERISTICS**

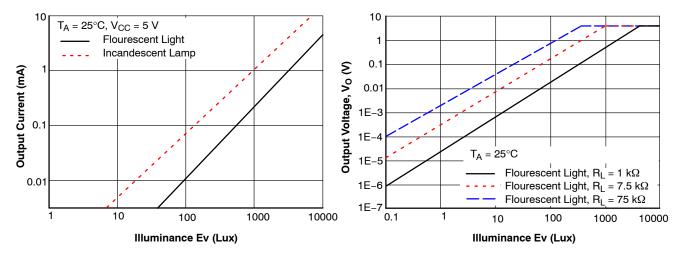


Figure 1. Illuminance vs. Output Photo Current

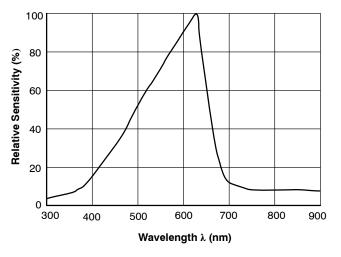


Figure 3. Spectral Response

#### **ORDERING INFORMATION**

Part Number	Operating Temperature	Package	Shipping <sup>†</sup>
KDT00030TR	−40 to +85°C	CHIPLED ALS	3000 / Tape and Reel
KDT00030ATR		(Pb-Free / Halogen Free)	3000 / Tape and Reel

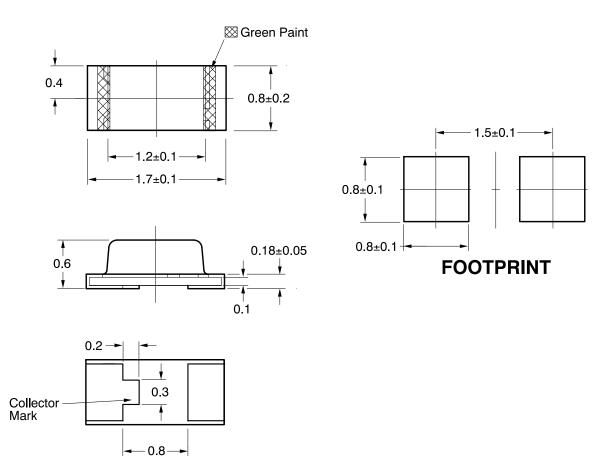
+For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.





CHIPLED ALS CASE 100CP ISSUE O

DATE 30 NOV 2016



#### Note:

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

DOCUMENT NUMBER:	98AON13423G Electronic versions are uncontrolled except when accessed directly from the Document Repositor Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.						
DESCRIPTION:	CHIPLED ALS		PAGE 1 OF 1				
onsemi and ONSEMi are trademarks of Semiconductor Components Industries, LLC dba onsemi or its subsidiaries in the United States and/or other countries. onsemi reserves the right to make changes without further notice to any products herein. onsemi makes no warranty, representation or guarantee regarding the 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. onsemi does not convey any license under its patent rights nor the rights of others.							

onsemi, 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's product/patent coverage may be accessed at <u>www.onsemi.com/site/pdf/Patent\_Marking.pdf</u>. 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 indental 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. Buyer shall indemnify and hold onsemi and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs,

#### ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:

Technical Library: www.onsemi.com/design/resources/technical-documentation onsemi Website: www.onsemi.com

ONLINE SUPPORT: <u>www.onsemi.com/support</u> For additional information, please contact your local Sales Representative at <u>www.onsemi.com/support/sales</u>