



SMD LED
Product Data Sheet
LTST-C061VEKT

Spec No. :DS35-2019-0095
Effective Date: 06/20/2023
Revision: C

LITE-ON DCC

RELEASE

1. Description

SMD LEDs from Lite-On are available in miniature sizes and special configurations for automated PC board assembly and space-sensitive applications. These SMD LEDs are suitable for use in a wide variety of electronic equipment, including cordless and cellular phones, notebook computers, network systems, home appliances, and indoor signboard applications.

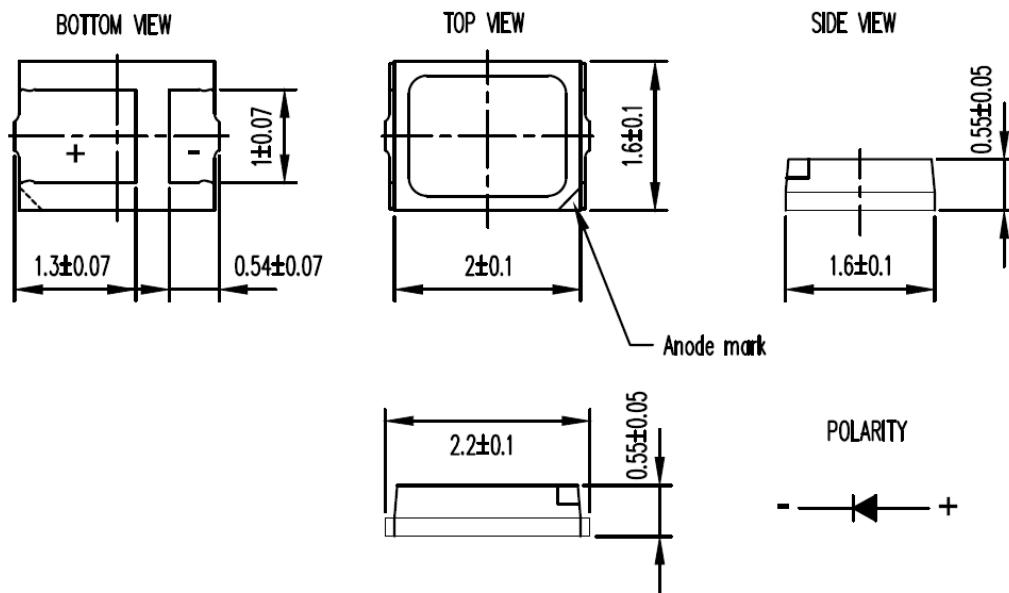
1.1 Features

- Meet ROHS
- Package in 8mm tape on 7" diameter reels
- EIA STD package
- I.C. compatible
- Compatible with automatic placement equipment
- Compatible with infrared reflow solder process
- Preconditioning: accelerate to JEDEC level 3

1.2 Applications

- Telecommunication, Office automation, home appliances, industrial equipment
- Status indicator
- Signal and Symbol Luminary
- Front panel backlighting

2. Package Dimensions



Part No.	Lens Color	Source Color
LTST-C061VEKT	Water clear	AlInGaP Red

Notes:

1. All dimensions are in millimeters.
2. Tolerance is ± 0.2 mm (.008") unless otherwise noted.

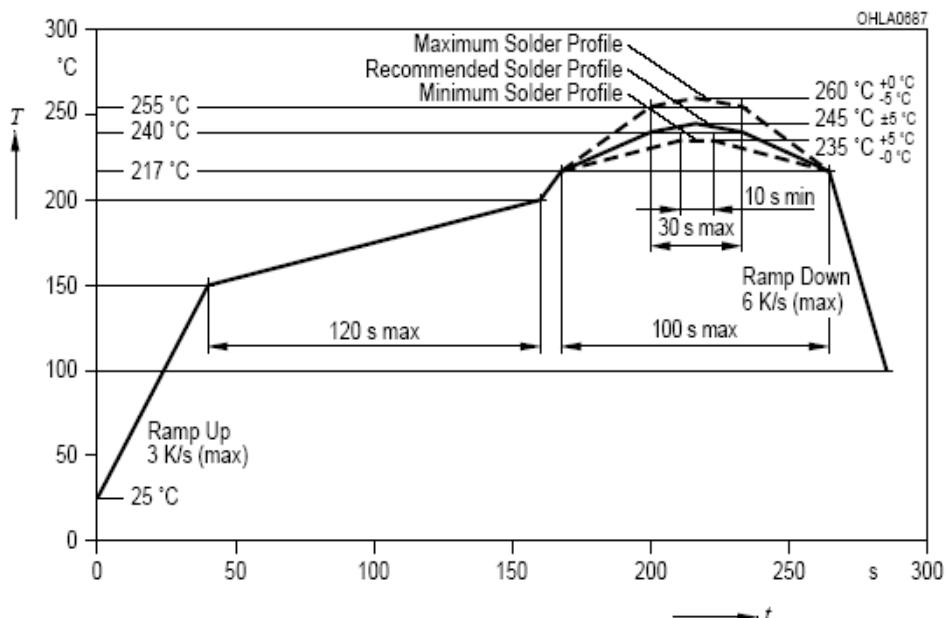
3. Rating and Characteristics

3.1 Absolute Maximum Ratings at Ta=25°C

Parameter	LTST-C061VEKT	Unit
Power Dissipation	203	mW
Peak Forward Current (50ms:ON , 950ms: OFF , D=0.05)	100	mA
DC Forward Current	70	mA
Operating Temperature Range	-40°C to + 85°C	
Storage Temperature Range	-40°C to + 100°C	

3.2 Suggest IR Reflow Condition for Pb Free Process:

IR-Reflow Soldering Profile for lead free soldering (Acc. to J-STD-020B)



SMD LED LTST-C061VEKT

3.3 Electrical / Optical Characteristics at Ta=25°C

Parameter	Symbol	LTST-C061VEKT			Unit	Test Condition
		Min.	Typ.	Max.		
Luminous Intensity	IV	1550	-	3600	mcd	IF = 70mA Note 1
Viewing Angle	$2\theta_{1/2}$	-	120	-	deg	Note 2 (Fig.5)
Peak Emission Wavelength	λ_P	-	631	-	nm	Measurement @Peak (Fig.1)
Dominant Wavelength	λ_d	617	-	630	nm	IF = 70mA Note 3
Spectral Line Half-Width	$\Delta\lambda$	-	15	-	nm	
Forward Voltage	VF	1.9	-	2.9	V	IF = 70mA Note 4
Reverse Current	IR	-	-	10	μ A	VR = 5V Note 5

Notes:

1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve
2. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
3. The dominant wavelength, λ_d is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device. Dominant Wavelength Tolerance is +/- 1 nm.
4. Forward Voltage Tolerance is +/- 0.1 volt.
5. Reverse voltage (VR) condition is applied to IR test only. The device is not designed for reverse operation.

4. Bin Code List

4.1 IV Rank

Bin Code	Luminous Spec. Table		Unit : @70mA	
	Min.	Max.	Min.	Max.
J1	1550	2050	5.2	6.8
J2	2050	2720	6.8	9.0
K1	2720	3600	9.0	12.0

Tolerance on each Luminous Intensity bin is +/- 10%, and Luminous Flux (lm) is for reference.

5. Typical Electrical / Optical Characteristics Curves.

(25°C Ambient Temperature Unless Otherwise Noted)

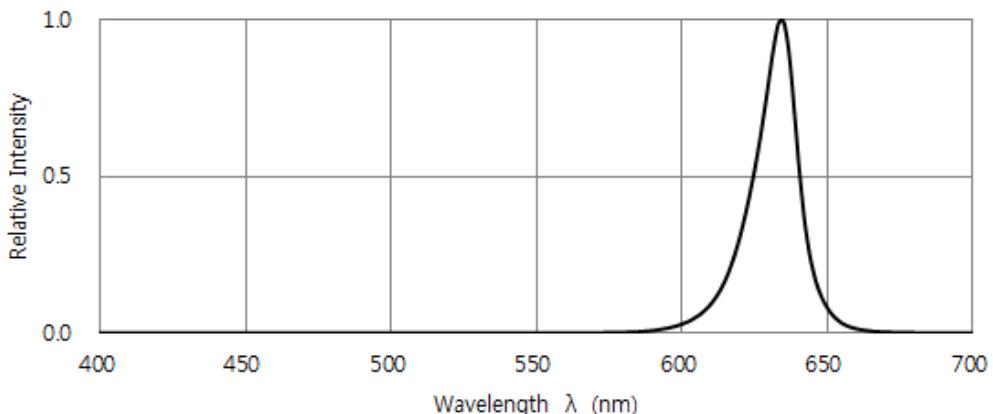


Fig. 1 RELATIVE INTENSITY VS. WAVELENGTH

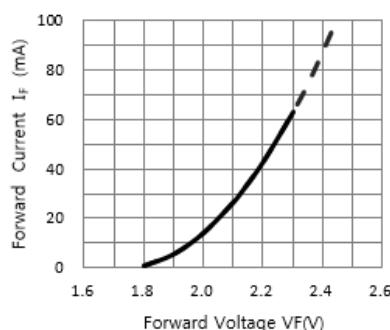


Fig. 2 FORWARD CURRENT VS. FORWARD VOLTAGE

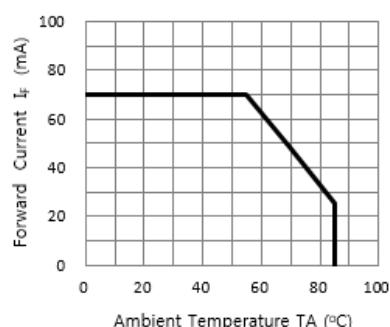


Fig. 3 FORWARD CURRENT VS. DERATING CURVE

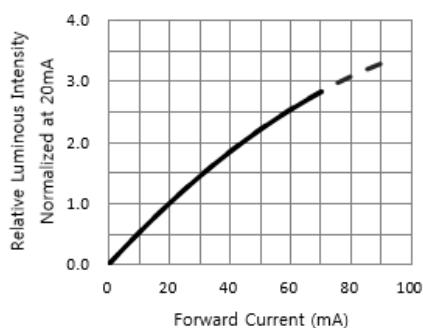


Fig. 4 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

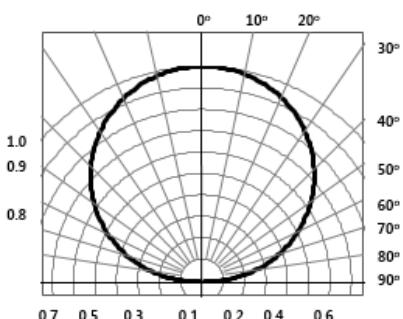


Fig. 5 Spatial Distribution

6. User Guide

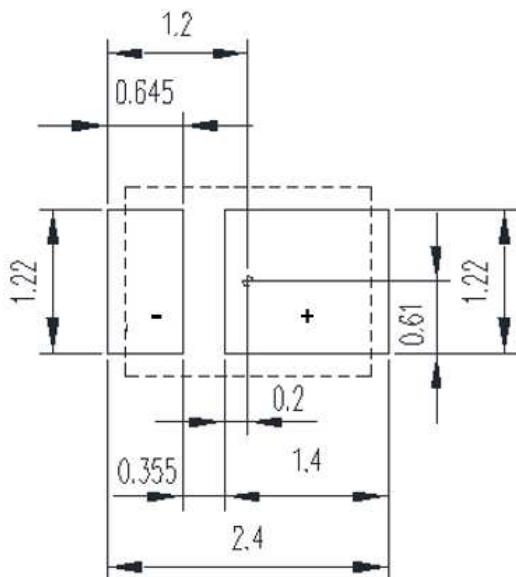
6.1 Cleaning

Do not use unspecified chemical liquid to clean LED they could harm the package. If cleaning is necessary, immerse the LED in ethyl alcohol or isopropyl alcohol at normal temperature for less one minute.

6.2 Recommend Printed Circuit Board Attachment Pad

Infrared / vapor phase

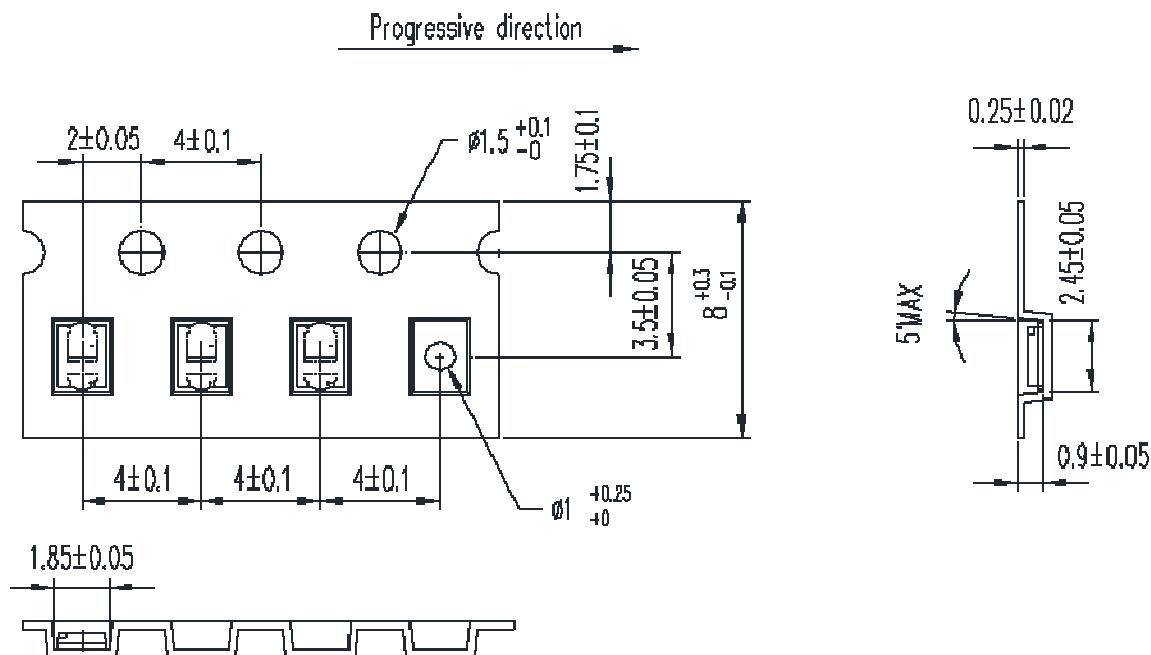
Reflow Soldering



Notes:

1. Suggest stencil thickness is maximum 0.10mm.

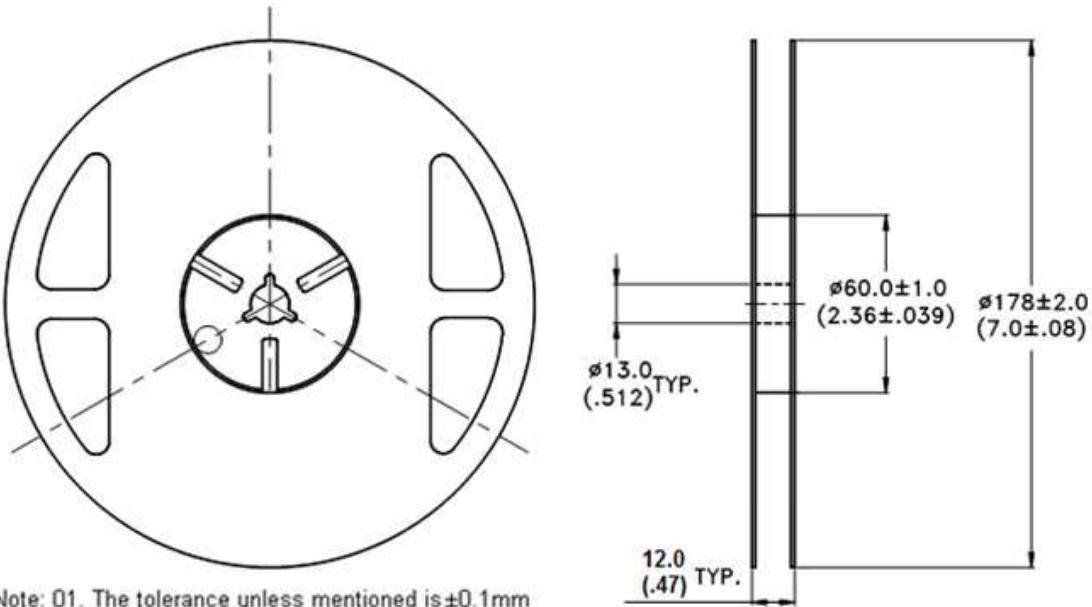
6.3 Package Dimensions of Tape And Reel



Note:

1. Drawings not to scale.
2. All dimensions are in millimeters.
3. All dimensions without tolerances are for reference only.

6.4 Package Dimensions of Reel



Note: 01. The tolerance unless mentioned is $\pm 0.1\text{mm}$
 02. The measured unit is "mm"

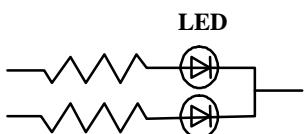
Notes:

1. Drawings not to scale.
2. All dimensions are in millimeters.
3. All dimensions without tolerances are for reference only.
4. Minimum package quantity is 500 pieces for remainders.
5. 7 inch reel 4000 pieces.
6. Empty component pockets sealed with top cover tape.
7. The maximum number of consecutive missing lamps is two
8. In accordance with EIA-481 specifications

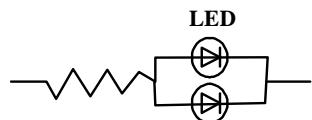
7.5 Drive Method

A LED is a current-operated device. In order to ensure intensity uniformity on multiple LEDs connected in parallel in an application, it is recommended that a current limiting resistor be incorporated in the drive circuit, in series with each LED as shown in Circuit A below.

Circuit model A



Circuit model B



(A) Recommended circuit.

(B) The brightness of each LED might appear different due to the differences in the I-V characteristics of those LEDs.

7.6 ESD (Electrostatic Discharge)

Static Electricity or power surge will damage the LED.

Suggestions to prevent ESD damage:

- Use of a conductive wrist band or anti-electrostatic glove when handling these LEDs.
- All devices, equipment, and machinery must be properly grounded.
- Work tables, storage racks, etc. should be properly grounded.
- Use ion blower to neutralize the static charge which might have built up on surface of the LED's plastic lens as a result of friction between LEDs during storage and handling.

ESD-damaged LEDs will exhibit abnormal characteristics such as high reverse leakage current, low forward voltage, or "no lightup" at low currents.

To verify for ESD damage, check for "lightup" and V_f of the suspect LEDs at low currents.

The V_f of "good" LEDs should be $>2.0V@0.1mA$ for InGaN product and $>1.4V@0.1mA$ for AlInGaP product.

8. Reliability Test

No.	Test item	Test condition	Reference standard
1	Resistance to soldering heat	Tsld = 260°C, 10sec. 3 times	JEITA ED-4701 300 301
2	Solderability	Tsld=245± 5°C (Lead Free Solder, Coverage \geq 95% of the dipped surface)	JEITA ED-4701 300 303
3	Thermal Shock	85 ± 5°C ~ -30°C ± 5°C 30min 30min 100cycles	JEITA ED-4701 300 307
4	Temperature Cycle	-55°C ~ 25°C ~ 100°C ~ 25°C 30min 5min 30min 5min 100cycles	JEITA ED-4701 100 105
5	High Temperature Storage	100°C 1000hrs	JEITA ED- 4701 200 201
6	Low Temperature Storage	-40°C 1000hrs	JEITA ED-4701 200 202
7	Temperature Humidity Storage	60°C/90%RH 300hrs	JEITA ED-4701 100 103
8	Room temp life test	25°C, IF: Typ. current , 1000hrs	--

9. Others

The appearance and specifications of the product may be modified for improvement without prior notice.

10. Suggested Checking List

Training and Certification

1. Everyone working in a static-safe area is ESD-certified?
2. Training records kept and re-certification dates monitored?

Static-Safe Workstation & Work Areas

1. Static-safe workstation or work-areas have ESD signs?
2. All surfaces and objects at all static-safe workstation and within 1 ft measure less than 100V?
3. All ionizer activated, positioned towards the units?
4. Each work surface mats grounding is good?

Personnel Grounding

1. Every person (including visitors) handling ESD sensitive (ESDS) items wears wrist strap, heel strap or conductive shoes with conductive flooring?
2. If conductive footwear used, conductive flooring also present where operator stand or walk?
3. Garments, hairs or anything closer than 1 ft to ESD items measure less than 100V*?
4. Every wrist strap or heel strap/conductive shoes checked daily and result recorded for all DLs?
5. All wrist strap or heel strap checkers calibration up to date?

Note: *50V for InGaN LED.

Device Handling

1. Every ESDS items identified by EIA-471 labels on item or packaging?
2. All ESDS items completely inside properly closed static-shielding containers when not at static-safe workstation?
3. No static charge generators (e.g. plastics) inside shielding containers with ESDS items?
4. All flexible conductive and dissipative package materials inspected before reuse or recycles?

Others

1. Audit result reported to entity ESD control coordinator?
2. Corrective action from previous audits completed?
3. Are audit records complete and on file?