

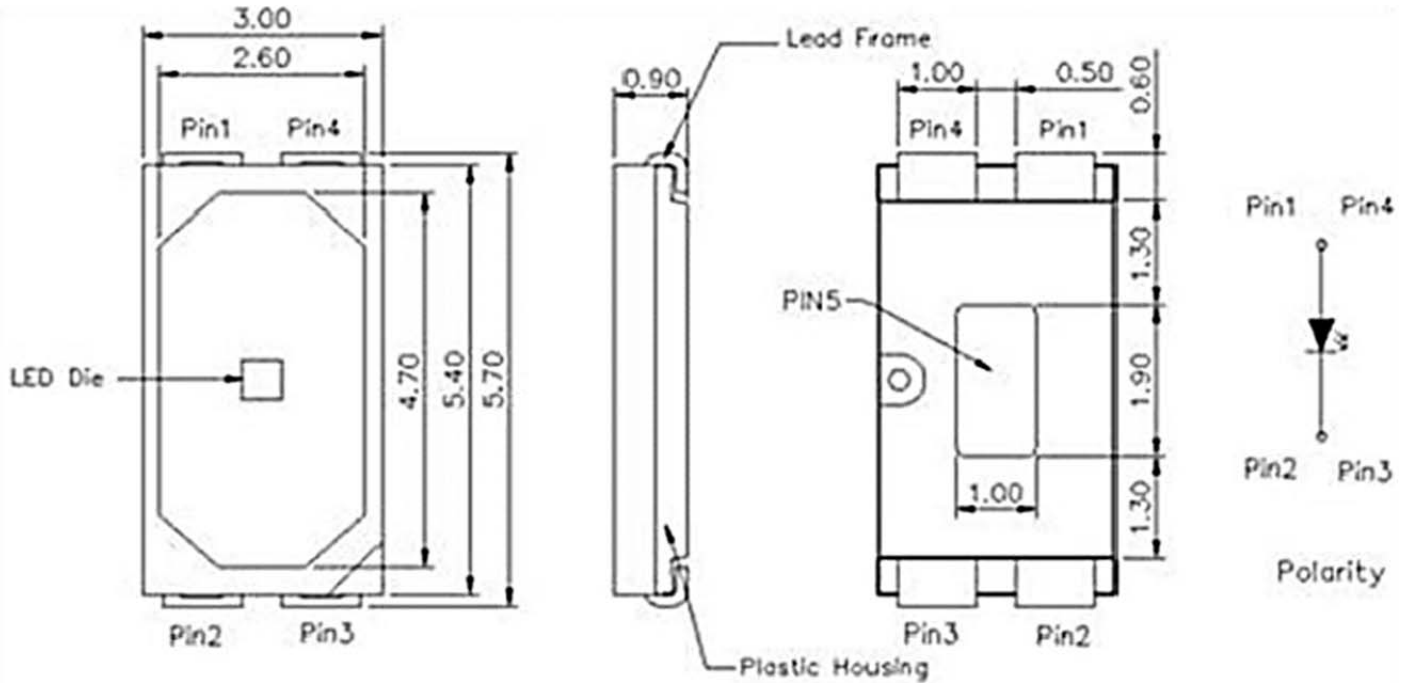


American Opto Plus LED Corp.

L963H-MEC-TR

5.7 x 3.0 x 0.9mm Red SMD LED

MECHANICAL DIMENSIONS



Pin5&Pin3 is connected with heat slug

Notes:

1. Dimension in millimeter[inch], tolerance is ± 0.1

Chip Material	Emitted Color	Resin
AlGaInP	Red	Silicone

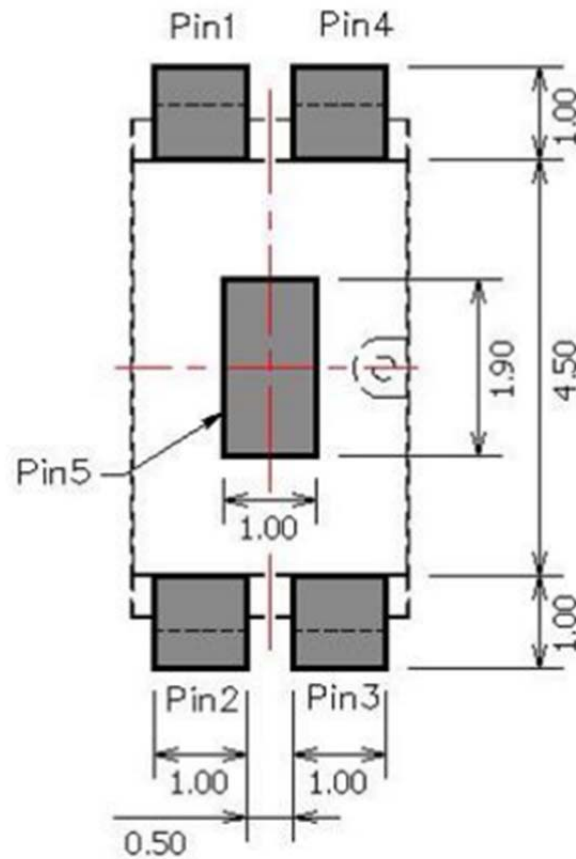


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SOLDERING PATTERN



Note: Soldering terminals may shift in the x, y direction.



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ABSOLUTE MAXIMUM RATING

(Ta=25°C)

Parameter	Symbol	Rating	Unit
Power Dissipation	P_D	420	mW
Forward Current	I_F	150	mA
Pulse Forward Current	I_{FP}	200	mA
Reverse Voltage	V_R	5	V
Operating Temperature	T_{OPR}	-40 ~ +85	°C
Storage Temperature	T_{STG}	-40 ~ +100	°C

Notes: Condition for I_{FP} is pulse of 1/10 duty and 0.1msec width

ELECTRO-OPTICAL CHARACTERISTICS

(Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	IF=150mA	--	2.1	2.8	V
Peak Emission Wavelength	Λ_p		--	628	--	nm
Dominant Wavelength	Λ_d		--	624	--	nm
Spectrum Radiation Bandwidth	$\Delta\lambda$		--	18	--	nm
Viewing Angle	2 $\theta_{1/2}$		--	120	--	deg
Luminous Intensity	I_V		--	23	--	lm
Reverse Current	I_R	Vr=5V	--	--	10	μ A



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LUMINOUS INTENSITY (lm) BIN (IF=150mA)

Color	Bin Code	Spec. Range
Red	PN	18.1 - 23.5 lm
	PP	23.5 - 30.6 lm
	PQ	30.6 - 39.8 lm

Notes: It maintains a tolerance of $\pm 10\%$ on luminous intensity

DOMINANT WAVELENGTH (λ_d) BIN (IF=150mA)

Color	Bin Code	Spec. Range
Red	AC	615.0 - 630.0 nm

Notes: It maintains a tolerance of Wd ± 1.0 nm

FORWARD VOLTAGE (Vf) BIN (IF=150mA)

Color	Bin Code	Spec. Range
Red	E3	1.8 – 1.9 V
	E4	1.9 – 2.0 V
	F1	2.0 – 2.1 V
	F2	2.1 – 2.2 V
	F3	2.2 – 2.3 V
	F4	2.3 – 2.4 V
	G1	2.4 – 2.5 V
	G2	2.5 – 2.6 V
	G3	2.6 – 2.7 V
	G4	2.7 – 2.8 V

Notes: It maintains a tolerance of ± 0.1 V on forward voltage measurements



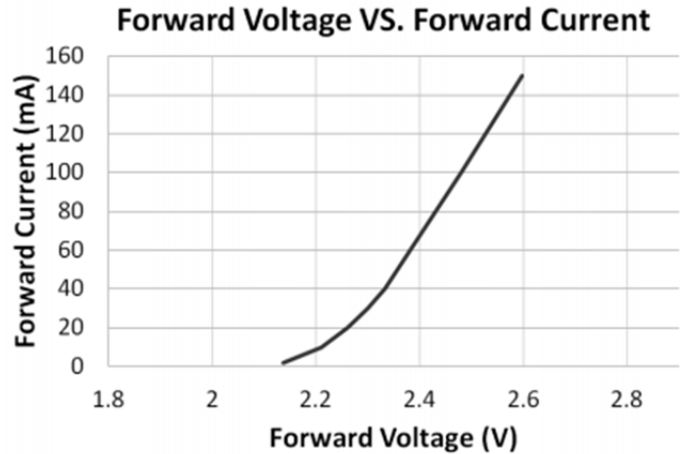
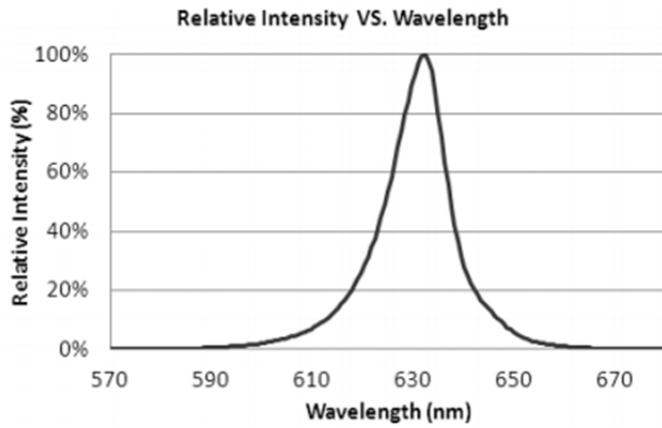
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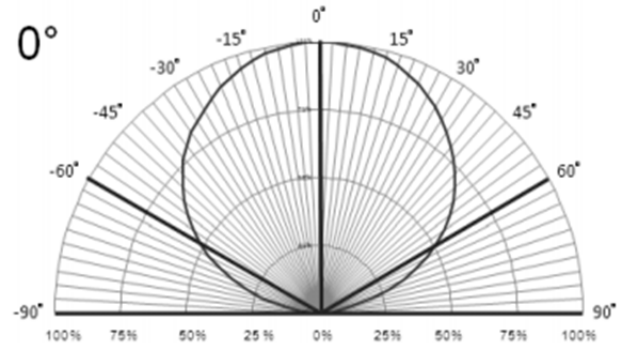
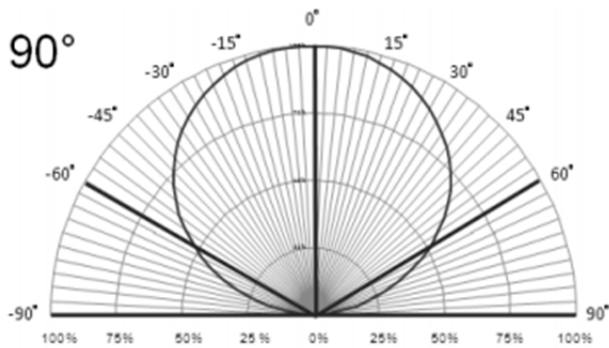
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ELECTRICAL/OPTICAL CHARACTERISTICS CURVES

(Ta=25°C)



Directional Characteristics





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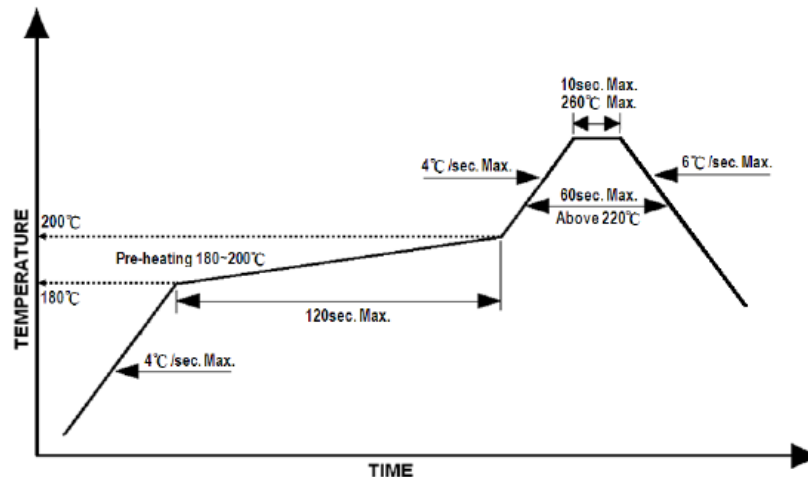
SOLDERING CHARACTERISTICS

Reflow Soldering Profile

Recommend soldering paste specifications:

1. Operating temp: Above 220°C, 60 sec
2. Peak temp: 260°C Max, 10 sec Max
3. Reflow soldering should not be done more than two times
4. Never attempt next process until the component is cooled down to room temperature after reflow
5. The recommended reflow soldering profile (measured on the surface of the LED terminal) is as followed:

Lead-free Solder Profile



Reworking

1. Rework should be completed within 5 seconds under 260°C
2. The iron tip must not come in contact with the copper foil
3. Twin-head type is preferred

Cleaning

Following are cleaning procedures after soldering:

1. An alcohol-based solvent such as isopropyl alcohol (IPA) is recommended
2. Temperature x Time should be 50°C x30sec or <30°C x3min
3. Ultrasonic cleaning: < 15W/ bath; bath volume ≤ 1 liter
4. Curing: 100°C max, <3min

Cautions of Pick and Place

1. Avoid stress on the resin at elevated temperature
2. Avoid rubbing or scraping the resin by an object
3. Electric-static may cause damage to the component. Please ensure that the equipment is properly grounded. Use of an ionizer fan is recommended

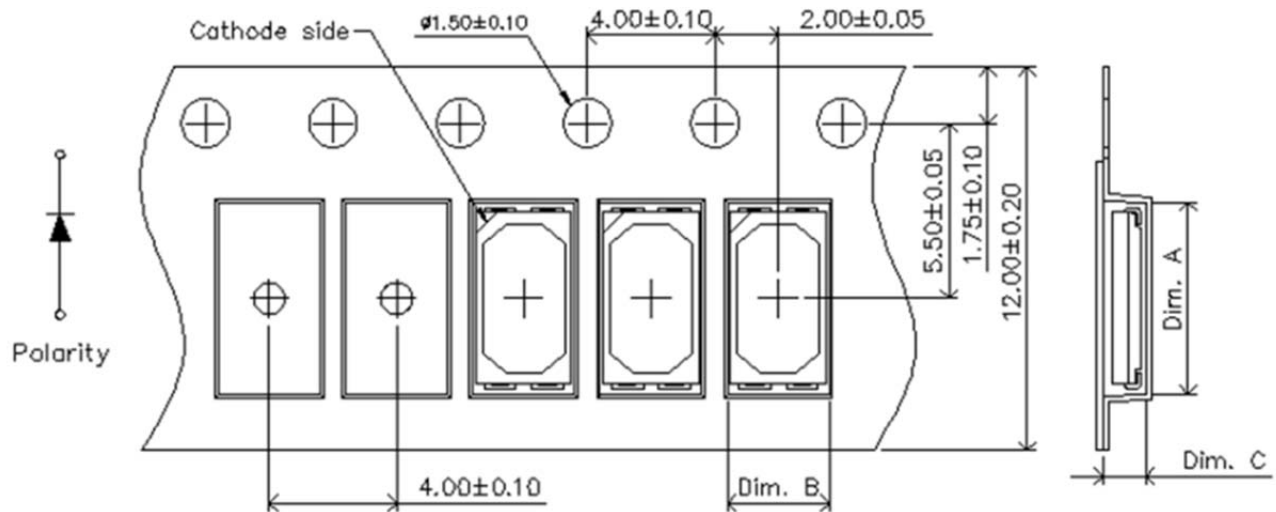


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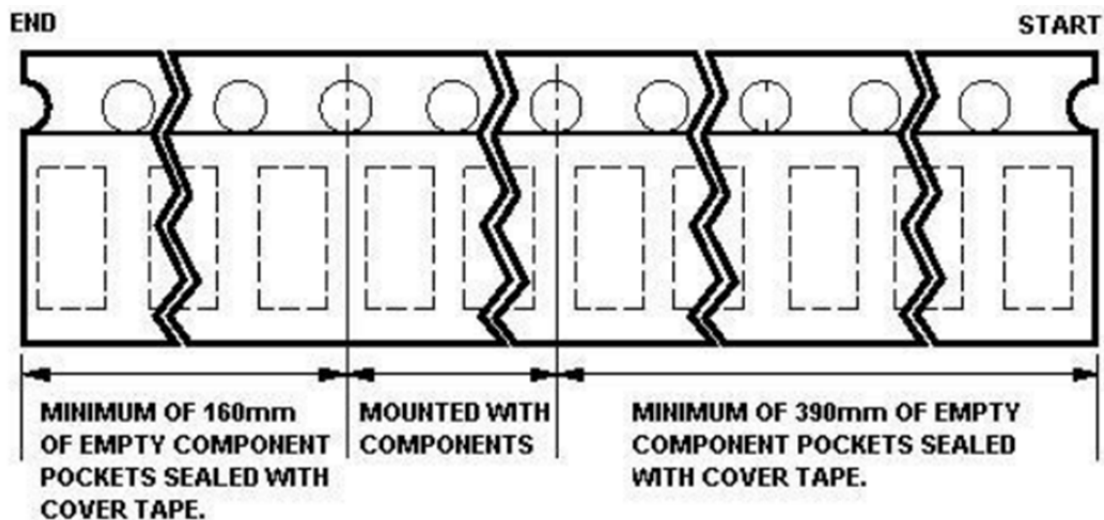
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PACKAGING & TAPE DIMENSION



Part No.	Dim. A	Dim. B	Dim. C	Q'ty/Reel
HT-T530	6.0 ± 0.10	3.2 ± 0.10	1.1 ± 0.10	1K

Unit: mm



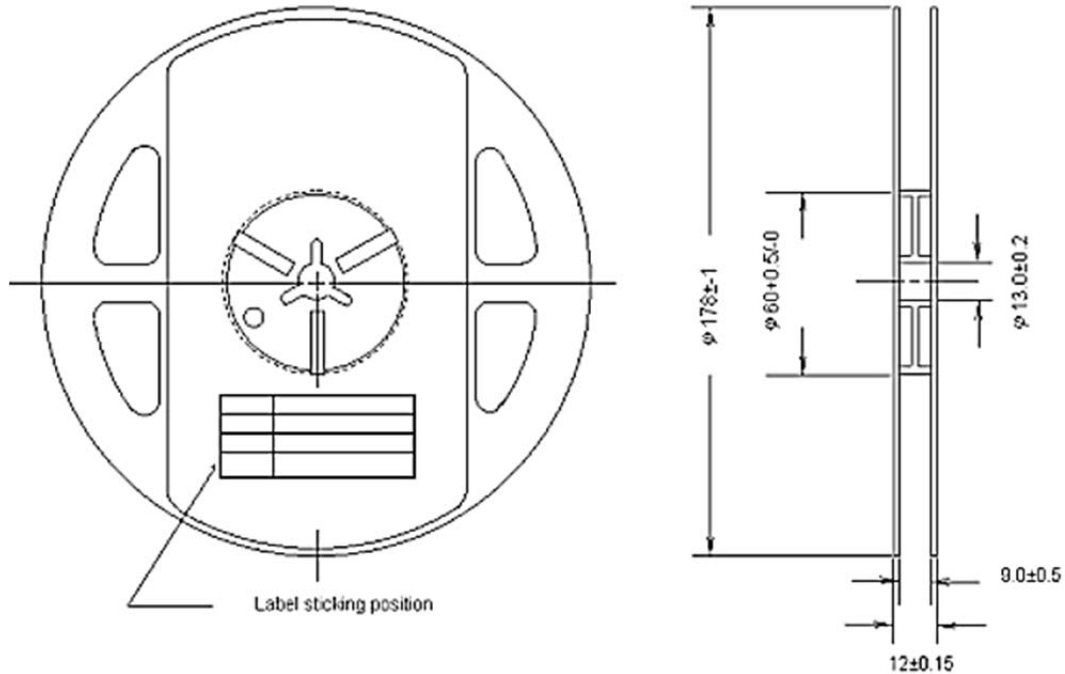


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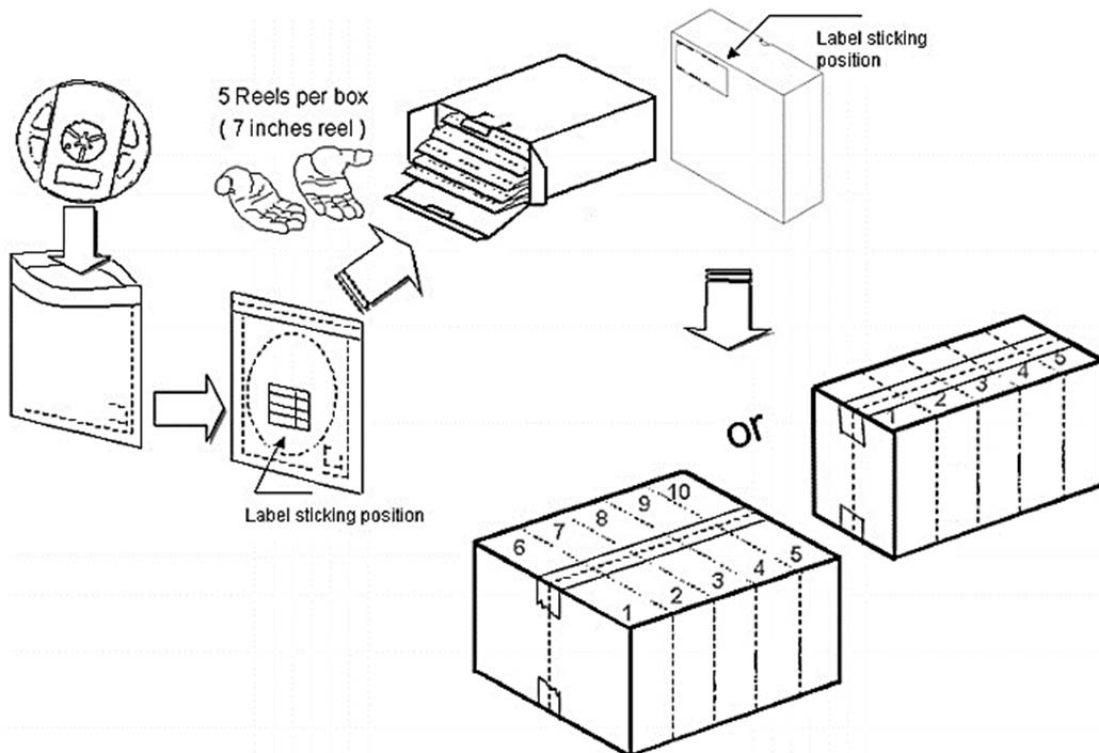
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REEL DIMENSIONS



PACKING & LABEL DIMENSIONS



Notes: 5 or 10 boxes per carton is available depending on shipment quantity

Version 1.1 Date: 05-26-2020 Specifications are subject to change without notice.

American Opto Plus LED Corp. 1206 E. Lexington Ave., Pomona CA 91766 Tel: 909-465-0080 Fax: 909-465-0130 www.aopled.com



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PRECAUTION FOR USE

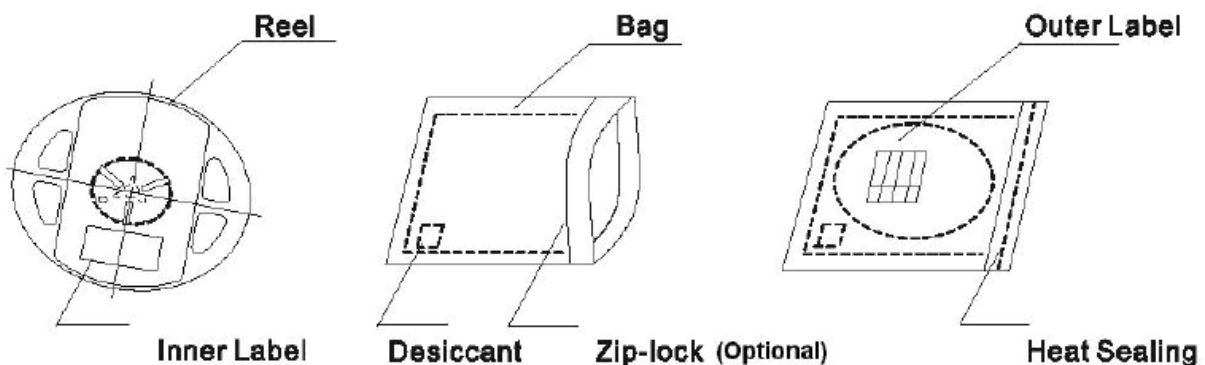
1. The chips should not be used directly in any type of fluid such as water, oil, organic solvent, etc.
2. When the LEDs are illuminating, the maximum ambient temperature should be first considered before operation.
3. LEDs must be stored in a clean environment. A sealed container with a nitrogen atmosphere is necessary if the storage period is over 3 months after shipping.
4. The LEDs must be used within 72hrs after unpacked. Unused products must be repacked in an anti-electrostatic package, folded to close any opening and then stored in a dry and cool space.
5. The appearance and specifications of the products may be modified for improvement without further notice.
6. The LEDs are sensitive to the static electricity and surge. It is strongly recommended to use a grounded wrist band and anti-electrostatic glove when handling the LEDs. If a voltage over the absolute maximum rating is applied to LEDs, it will damage LEDs. Damaged LEDs will show some abnormal characteristics such as remarkable increase of leak current, lower turn-on voltage and getting unlit at low current.

Dry Pack

All SMD optical devices are MOISTURE SENSITIVE. Avoid exposure to moisture at all times during transportation or storage. Every reel is packaged in a moisture protected anti-static bag. Each bag is properly sealed prior to shipment.

Upon request, a humidity indicator will be included in the moisture protected anti-static bag prior to shipment.

The packaging sequence is as follows:



Cautions

1. Avoid exposure to moisture at all times during transportation or storage.
2. Anti-Static precaution must be taken when handling GaN, InGaN, and AlInGaP products.
3. It is suggested to connect the unit with a current limiting resistor of the proper size. Avoid applying a reverse voltage beyond the specified limit.
4. Avoid operation beyond the limits as specified by the absolute maximum ratings.
5. Avoid direct contact with the surface through which the LED emits light.
6. If possible, assemble the unit in a clean room or dust-free environment.



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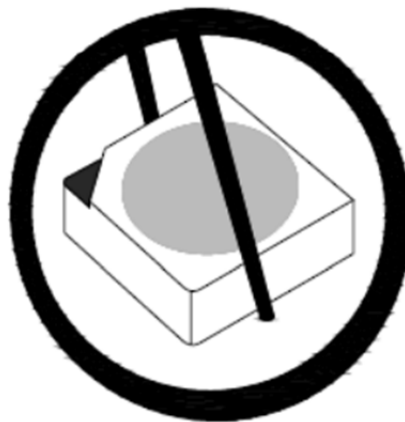
Handling of Silicone Resin LEDs

Handling Indications

- During processing, mechanical stress on the surface should be minimized as much as possible.
- Sharp objects of all types should be used to pierce the sealing compound.



- In general, LED should only be handled from the side. This also applies to LEDs without a silicone sealant since the surface can also be scratched.



- When populating boards in SMT production, there are basically no restrictions regarding the form of the pick and place nozzle, except the mechanical pressure on the surface of the resin must be prevented. This is assured by the choosing a pick and place nozzle which is large than LEDs reflector area.