

**Harvatek Surface Mount Chip LED Data Sheet  
HT-19Y1TX**

Official Product	Product: HT-19Y1TX			Data Sheet No.
Tentative Product	*****			HT-19Y1TX Series
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		June 19, 2013	Version of 1.0	Page 1/17

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HARVATEK’s products are not authorized for use as critical components in life support devices or systems without the express written approval of the President of HARVATEK or HARVATEK INTERNATIONAL. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
  
2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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### Product Specifications

	Specification	Material	Quantity
Iv	180-560mcd @5mA / Ta=25° C, ± 10%		
XY	Refer to page 6&7 for bin range. @5mA / Ta=25° C, ± 0.07		
Vf	3.4V max @5mA / Ta=25°C, ± 0.05 V		
Ir	HT standard		
Resin	Yellow	Epoxy resin	
Carrier tape	Per EIA 481-1A specs	Conductive black tape	3000pcs per reel
Reel	Per EIA 481-1A specs	Conductive black	
Label	HT standard	Paper	
Packing bag	220x240mm	Aluminum laminated bag/ no-zipper	One reel per bag
Carton	HT standard	Paper	

Others:

Each immediate box consists of 5 reels. The 5 reels may not necessarily have the same lot number or the same bin combinations of Iv, λ<sub>D</sub> and Vf. Each reel has a label identifying its specification; the immediate box consists of a product label as well.

**ATTENTION: Electrostatic Discharge (ESD) protection**




The symbol to the left denotes that ESD precaution is needed. ESD protection for GaP and AlGaAs based chips is necessary even though they are relatively safe in the presence of low static-electric discharge. Parts built with AlInGaP, GaN, or/and InGaN based chips are **STATIC SENSITIVE devices**. ESD precaution must be taken during design and assembly.

If manual work or processing is needed, please ensure the device is adequately protected from ESD during the process.

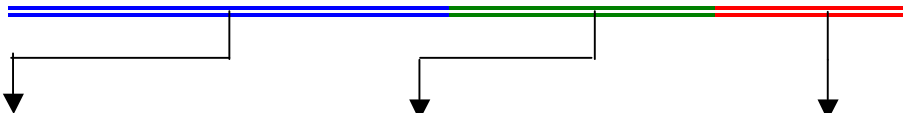
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**Label Specifications**

<b>HARVATEK</b> TECHNOLOGIES		Date: yyyy/mm/dd 
CUSTOMER P/N: 		
HARVATEK P/N: 	QTY: PCS 	
LOT NO: 	QC	
IV BIN: COLOR BIN: VF:		

■ Harvatek P/N:

**H T - 1 9 1 TX - YYYY**



Series Name	Emitting Color	Customer Code
<b>HT-19Y1</b> HT: Harvatek 19Y1: 1.6 (L) x 0.8 (W) x 0.2 (H) mm	TX: White	YYYY Customer Product Code (TBD)

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**Lot No.:**

1	2	3	4	5	6	7	8	9	10
<b>E</b>	<b>1</b>	<b>A</b>	<b>1</b>	<b>A</b>	<b>2</b>	<b>2</b>	<b>L</b>	<b>1</b>	<b>2</b>
Code 1 2		Code 3	Code 4	Code 5	Code 6	Code 7	Code 8	Code 9	Code 10
		Mfg. Year	Mfg. Month	Mfg. Date	Consecutive number		Special code		
Internal Tracing Code		2010-A 2011-B 2012-C 2013-D . .	1:Jan. 2:Feb. ... A:Oct. B:Nov. C:Dec.	1:A 2:B 3:C ... 26:Z 27:7 28:8 29:9 30:3 31:4	01~ZZ		000~ZZZ		

**■ Luminous Intensity (Iv) Bin:**

Bin	Luminous Intensity Range (mcd)		Bin	Luminous Intensity Range (mcd)	
	Minimum	Maximum		Minimum	Maximum
<b>S1</b>	<b>180.0</b>	<b>227.0</b>	<b>S2</b>	<b>227.0</b>	<b>285.0</b>
<b>T1</b>	<b>285.0</b>	<b>360.0</b>	<b>T2</b>	<b>360.0</b>	<b>450.0</b>
<b>U1</b>	<b>450.0</b>	<b>570.0</b>	<b>U2</b>	<b>570.0</b>	<b>715.0</b>

@20mA / Ta=25°C, Tolerance: ± 10%

**■ Forward Voltage (V<sub>F</sub>) Bin:**

Color	Bin Code	Spec. Range
<b>White (TW)</b>	<b>G3</b>	<b>2.6-2.7V</b>
	<b>G4</b>	<b>2.7-2.8V</b>
	<b>H1</b>	<b>2.8-2.9V</b>
	<b>H2</b>	<b>2.9-3.0V</b>
	<b>H3</b>	<b>3.0-3.1V</b>
	<b>H4</b>	<b>3.1-3.2V</b>
	<b>J1</b>	<b>3.2-3.3V</b>
	<b>J2</b>	<b>3.3-3.4v</b>

@20mA / Ta=25°C, Tolerance: ± 0.05 V

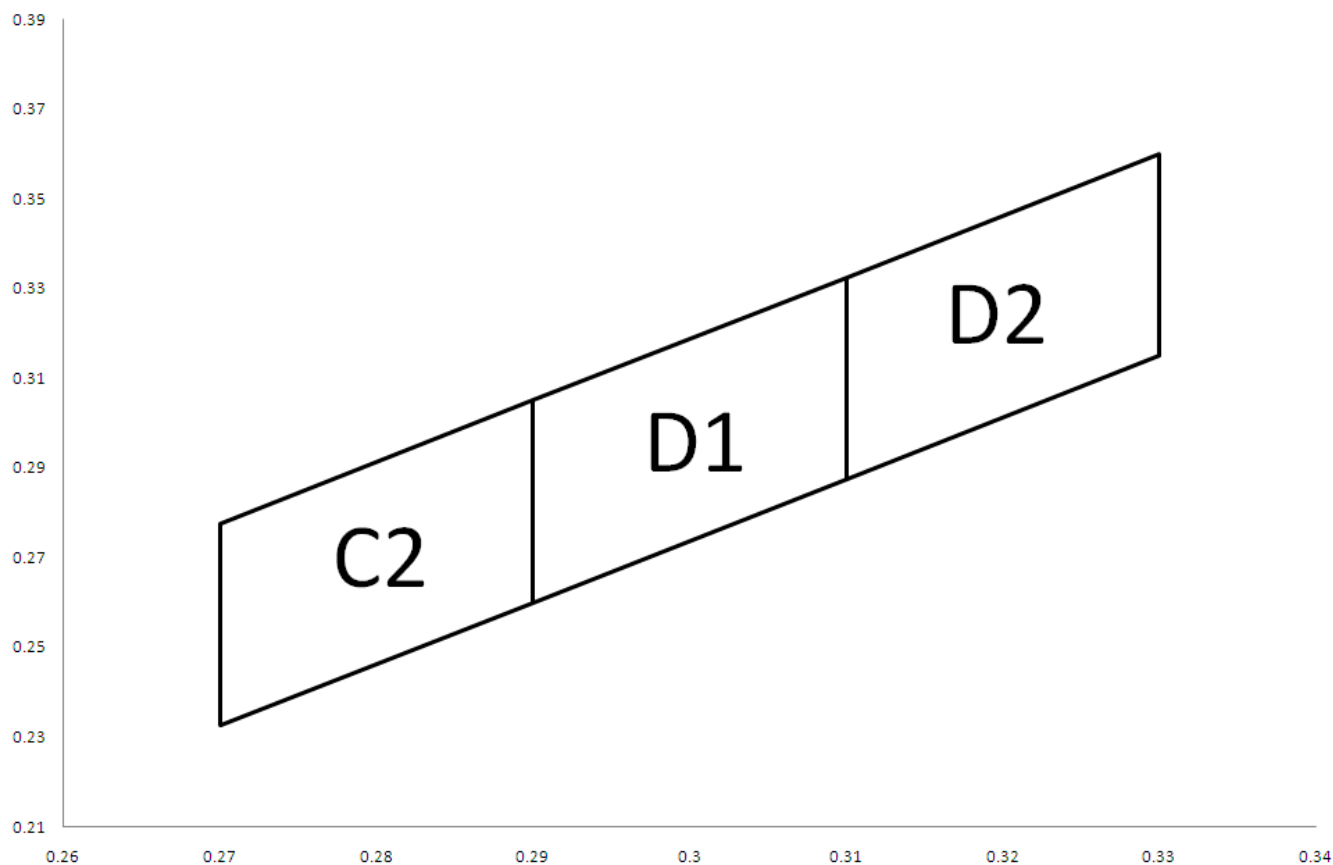
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**Chromaticity Bin (for TW only):**

Rank C2				
x	0.2700	0.2900	0.2900	0.2700
y	0.2775	0.3050	0.2600	0.2325

Rank D2				
x	0.3100	0.3300	0.3300	0.3100
y	0.3325	0.3600	0.3150	0.2875

Rank D1				
x	0.2900	0.3100	0.3100	0.2900
y	0.3050	0.3325	0.2875	0.2600



@20mA / Ta=25°C, Tolerance:  $\pm 0.01$

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## Product Characteristics

### Absolute Maximum Ratings

Product	Emission Color	P <sub>d</sub> (mW)	I <sub>F</sub> (mA)	I <sub>FP</sub> * (mA)	V <sub>R</sub> (V)	T <sub>OP</sub> (°C)	T <sub>ST</sub> (°C)
HT-19Y1TX	White	78	20	80	5	-30°C~+80°C	-40°C~+85°C

\* Condition for I<sub>FP</sub> is pulse of 1/10 duty and 0.1msec width

\*\*Remarks: This product should be operated in forward bias. If a reverse voltage is continuously applied to the product, such operation can cause migration resulting in LED damage.

### Electro-Optical Characteristics

(T<sub>a</sub> 25 °C)

Product	Emission Color	I <sub>F</sub> (mA)	V <sub>F</sub> (V)		λ(nm)			I <sub>V</sub> (mcd)
			typ	max	λ <sub>D</sub>	λ <sub>P</sub>	Δλ	typ
HT-19Y1TX	White	20	2.9	3.4	X=0.30 Y=0.2962	-	-	332

\* Per NIST standards

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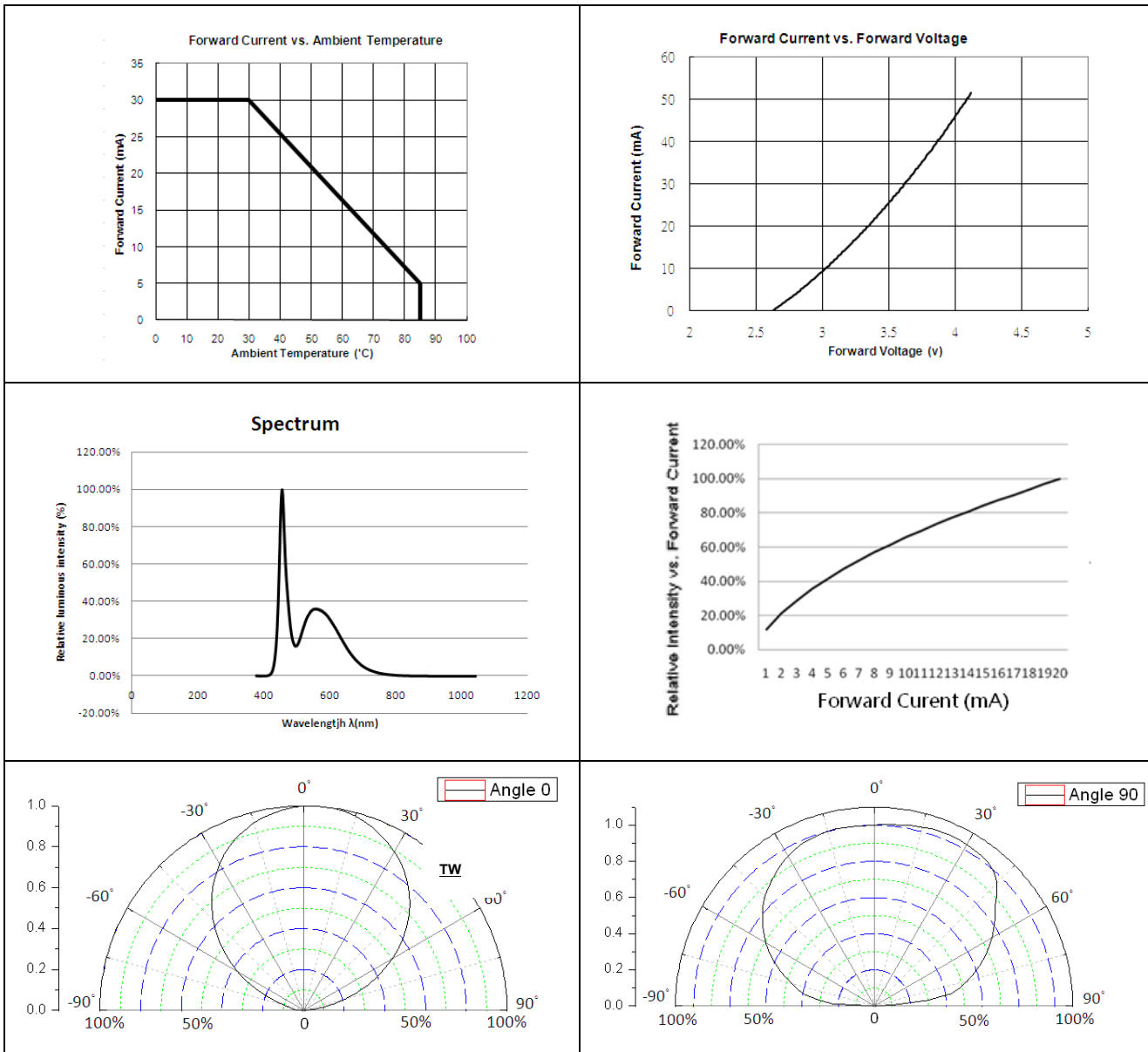
**Package Outline Dimension  
Recommended Soldering Pattern for Reflow Soldering**

Unit: mm Tolerance: +/-0.1

Outline Dimension	Solder Pattern
<p>Technical drawings of the LED package showing top, side, and cathode side views. Dimensions include 0.80, 1.60, 0.20±0.05, and 0.35. Labels include Cathode mark, LED Die, Resin, PCB, and Cathode side. Polarity symbols are also shown.</p>	<p>Soldering pattern diagrams showing dimensions 0.75, 0.90, 0.75, and 0.80. Polarity symbols are also shown.</p>
<p>Soldering terminals may shift in the x, y direction.</p>	<p>Unit: mm</p>

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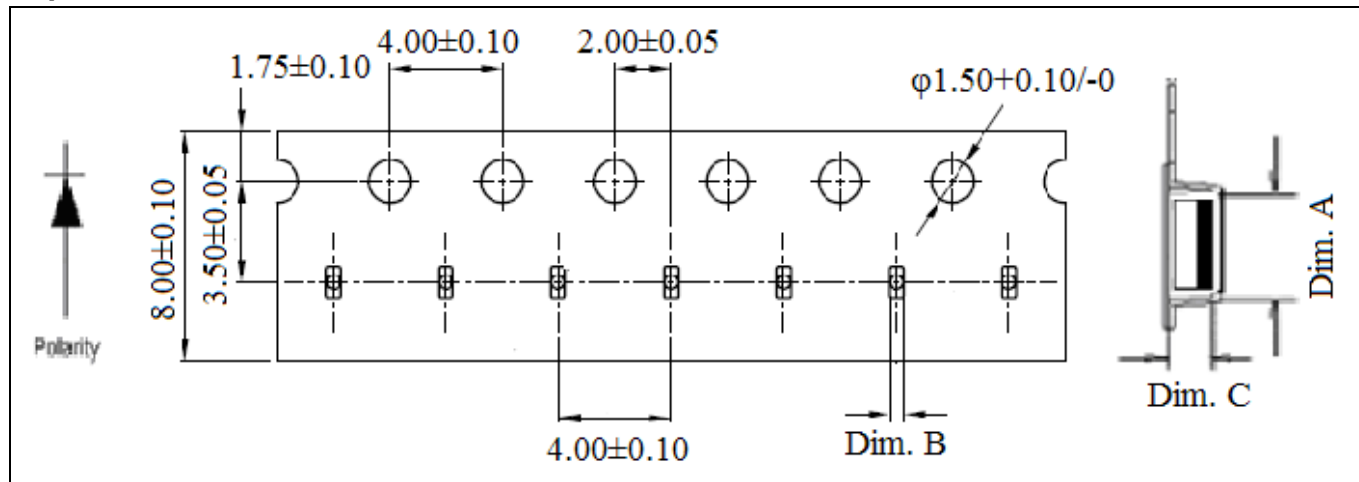
**Characteristic Curves for TW**



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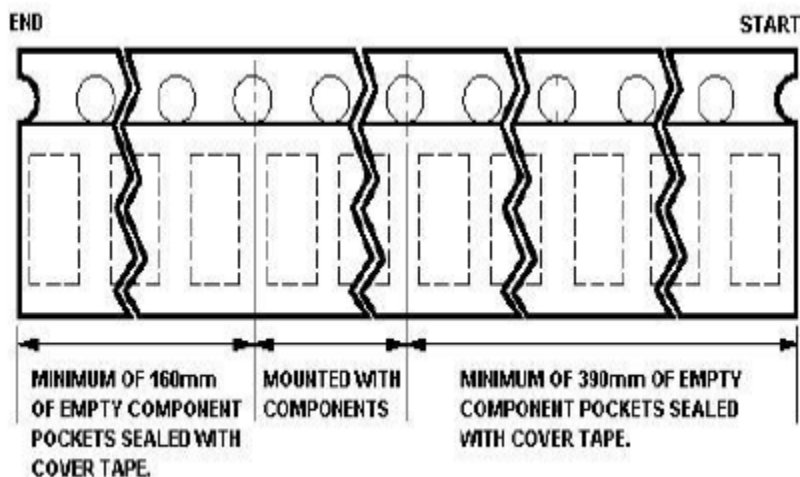
**Packaging**

**Tape Dimension**



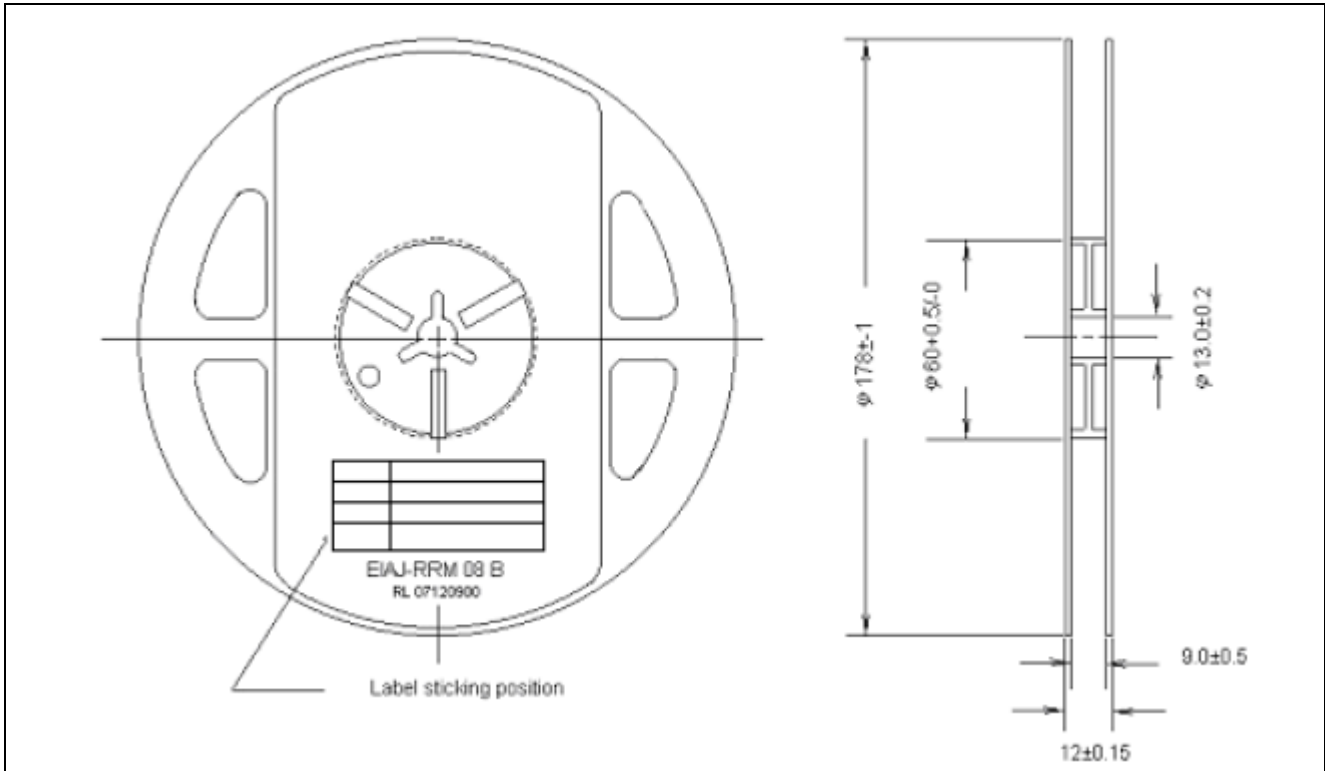
Part No.	Dim. A	Dim. B	Dim. C	Q'ty/Reel
HT-19Y	1.77±0.05	0.97±0.05	0.50±0.05	3K

**Unit: mm**



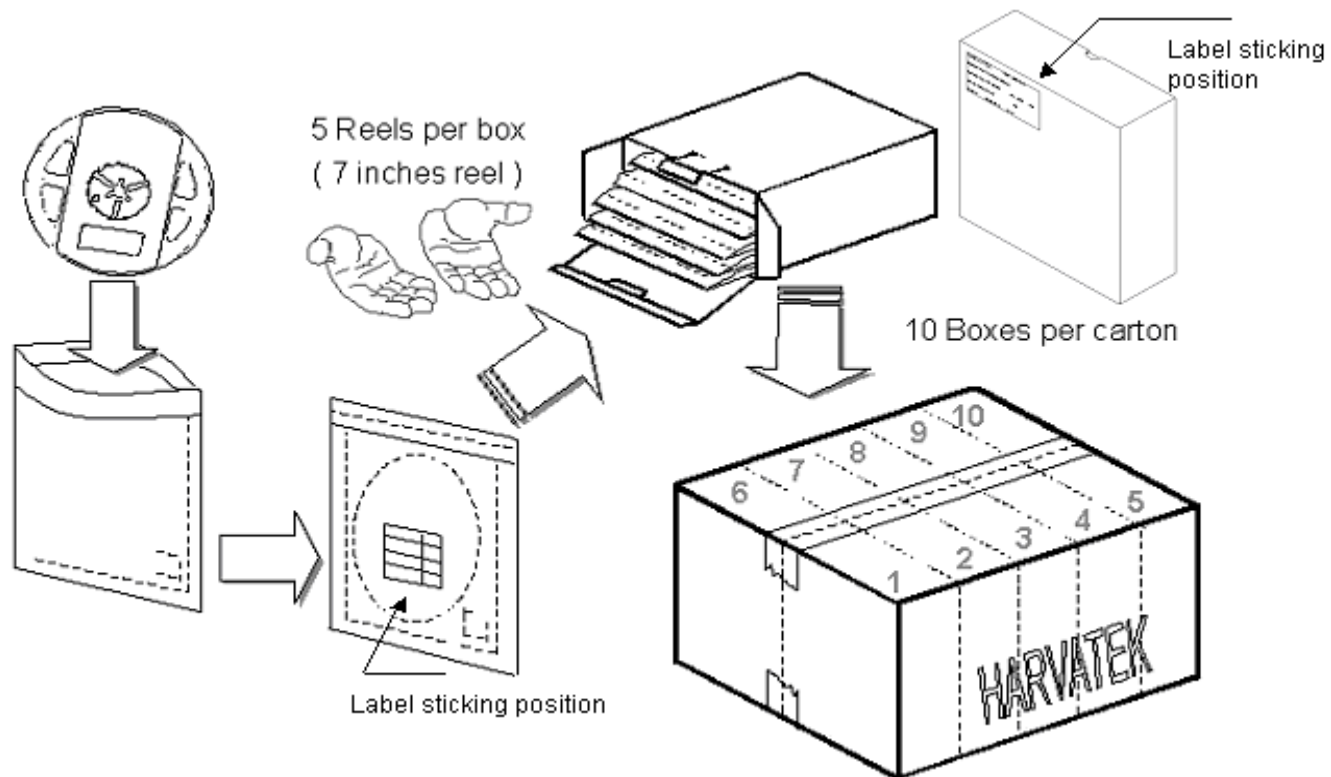
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**Reel Dimension**



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**Packing**



5 boxes per carton is available depending on shipment quantity.

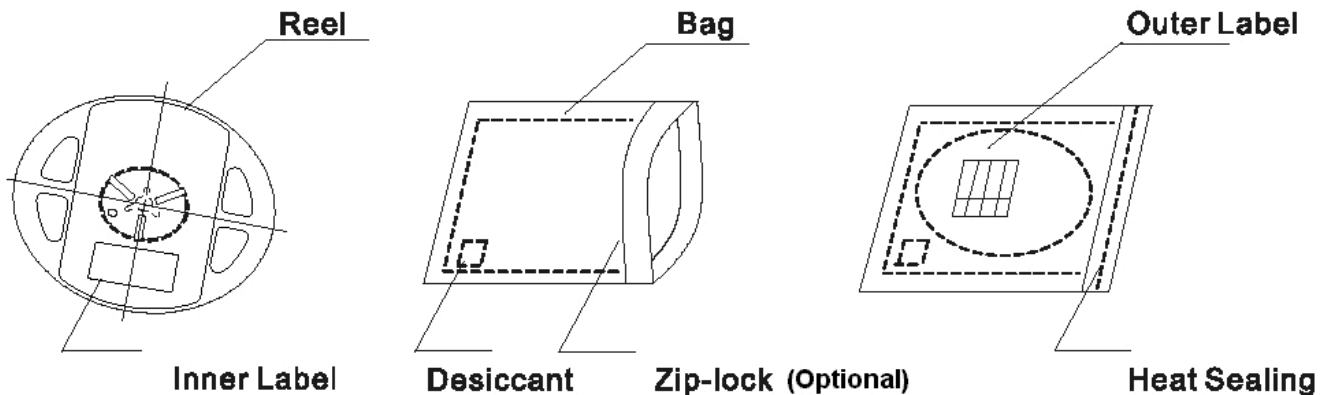
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**Dry Pack**

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:



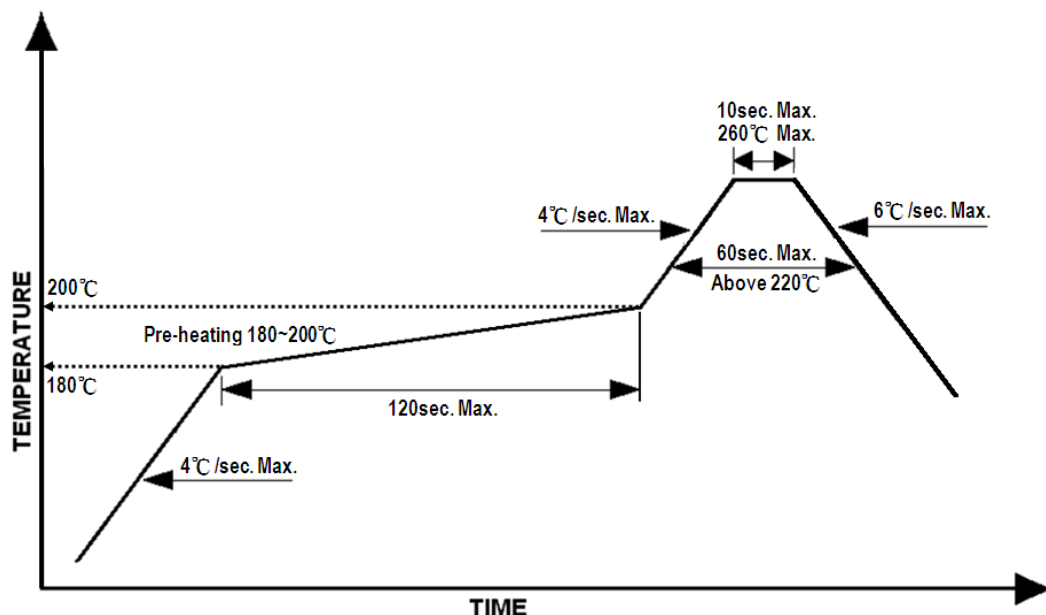
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**Reflow Soldering**

Recommend soldering paste specifications:

1. Operating temp.: Above 220°C, 60 sec.
2. Peak temp.:260°C Max., 10sec 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 following:

Lead-free Solder Profile



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**Reworking**

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

**Cleaning**

Following are cleaning procedures after soldering:

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

**Cautions of Pick and Place**

- Avoid stress on the resin at elevated temperature.
- Avoid rubbing or scraping the resin by any object.
- Electro-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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**Revision History**

Changes since last revision	Page	Version No.	Revision Date
Initial release		1.0	06-19-2013

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