STRATASYS P.N: DID-00078
M.P.N: HV-F5901UVTWCXA

Harvatek International 5.9mm ROUND LED
HV-F5901UVTWCXA

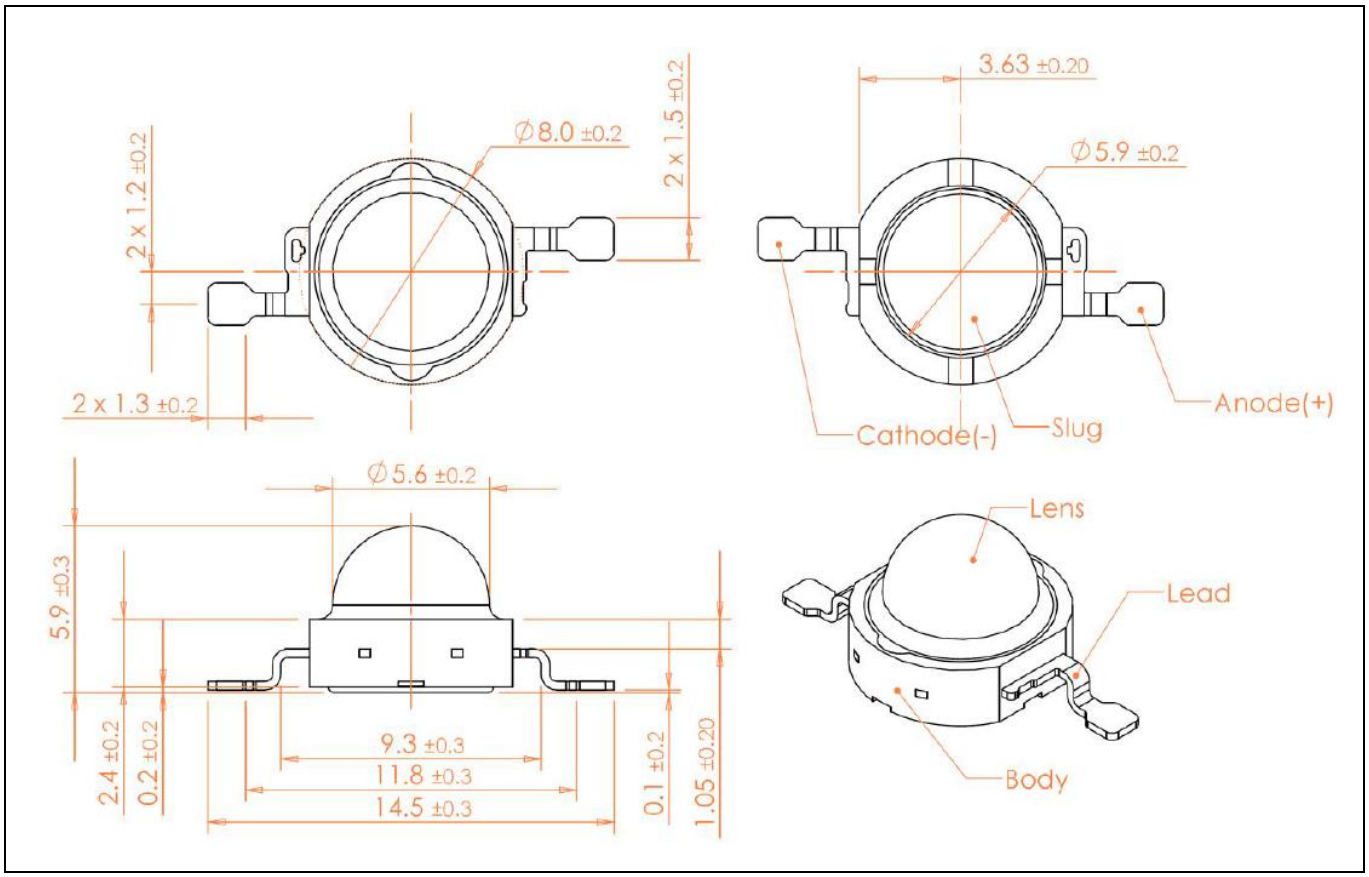
Orderable Information

H V - F 5 9 0 1 U V T W C X A

Series Name	Color Code	Remark
HV： Harvatek Round LED	F5901: 5.9mm ROUND LED, 5.9mm Lens UVT : Ultraviolet WC : Water Clear X : R = Reel T = Tube A : Ver no.	

Features:

- Stable Color
- Popular 5.9mm through hole package, 5.9mm lens height.
- Water Clear lens



Note:

1. The anode side of the device is denoted by a hole in the lead frame.
2. Electrical insulation between the case and the board is required.
3. Drawings are not to scale.
4. All dimensions are all in millimeter.
5. All dimensions without tolerance are for reference only.
6. Specifications are subject to change without notice.

Characteristics at I_F = 350mA (@ 25℃)

Parameter	Symbol	Value			Unit
		Min	Typical	Max	
Radiometric power(1)	Po	145	200	--	mW
Peak wavelength(3)	λ_p	375	385	390	nm
View angle	$2\Theta_{1/2}$	--	135	--	degree
Forward voltage(4)	V_F	3.0	--	4.0	V

Note:

1. The typical radiometric power of HARVATEK will be upgraded per season.
2. Minimum radiometric power performance guaranteed within published operating conditions. HV maintains a tolerance of ±10% on radiometric power measurements.
3. HV maintains a tolerance of ±1nm for peak wavelength measurement.
4. HV maintains a tolerance of±0.06V on forward voltage measurement.

Product Binning

HARVATEK emitters are labeled using 6-digit alphanumeric bin code. The formats are explained as follows:

AB CD EF

Where:

AB - designates radiometric power bin.
CD - designates peak wavelength bin.
EF - designates forward voltage bin.

Radiometric power binning information (AB)

Bin Code	Min.	Max.	Unit
K0	145	175	mW
L0	175	225	
M0	225	275	
N0	275	355	

Peak wavelength binning information (CD)

Bin Code	Min.	Max.	Unit
G0	375	380	nm
H0	380	385	
J0	385	390	

Forward voltage binning information (EF)

Bin Code	Min.	Max.	Unit
J0	3.0	3.2	V
K0	3.2	3.4	
L0	3.4	3.6	
M0	3.6	3.8	
N0	3.8	4.0	

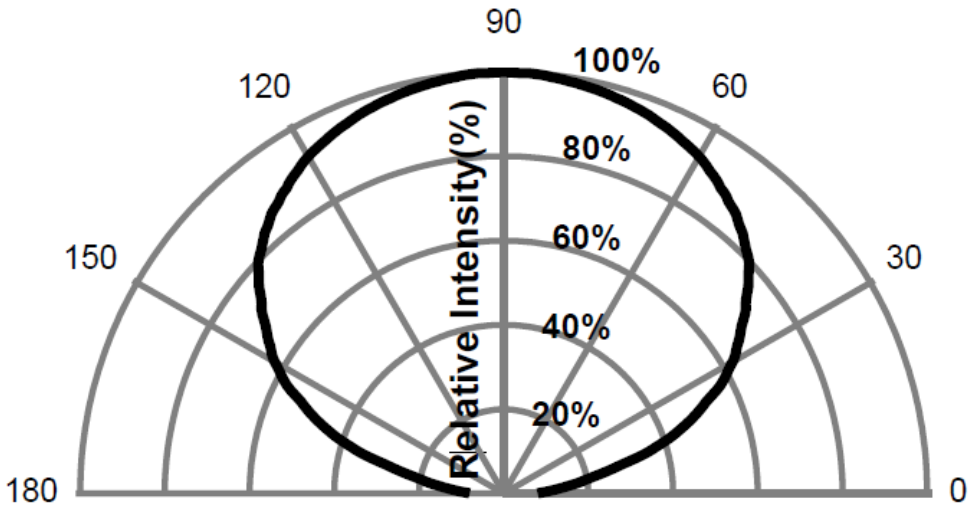
Absolute Maximum Ratings

Parameter	1W
Peak Forward Current (1/10 Duty Cycle at 1KHz)	700mA
Continuous Forward Current	500mA
LED Junction Temperature	120℃
Operation Temperature	-40℃ ~+105℃
Storage Temperature	-40℃ ~+120℃
ESD Sensitivity(1)	> 8,000V Human Body Model (HBM) Class 2 JESD22-A114-B
Reverse Voltage (V)	not designed for reverse operation

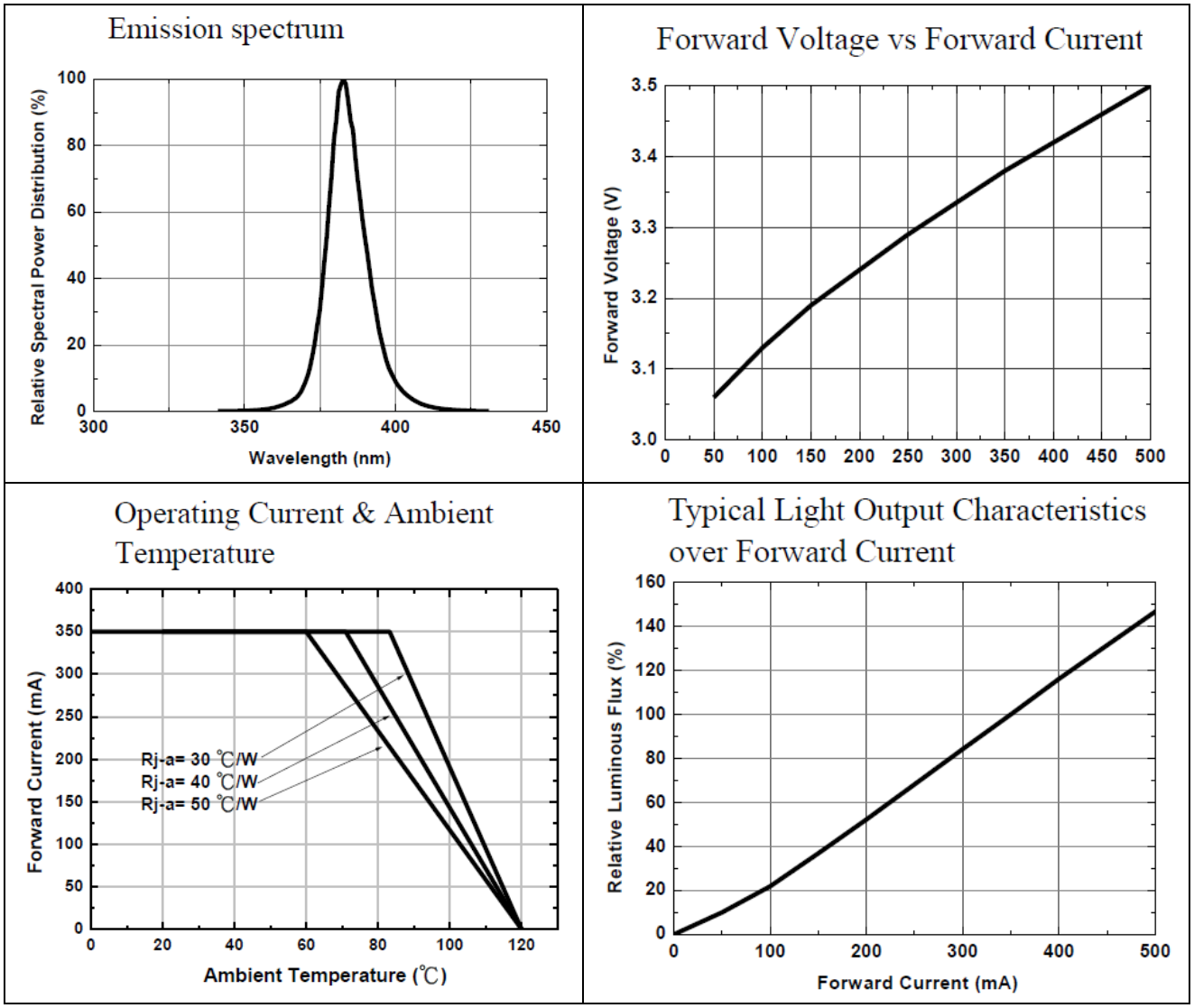
Note:

1. The zener chip is included to protect the product from ESD.

■ Typical Polar Radiation Pattern



Optical & Electrical characteristics

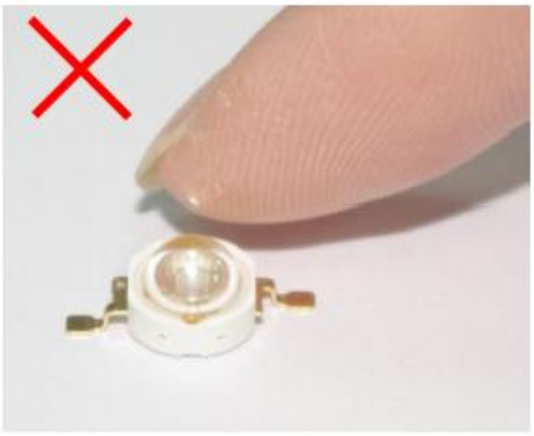


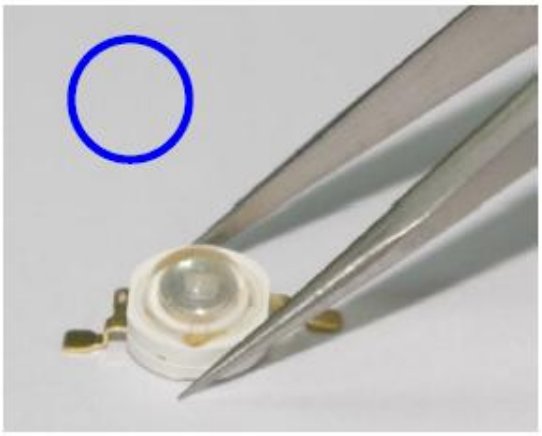
Storage

- Do not open the moisture proof bag before the devices are ready to use.
- Before the package is opened, LEDs should be stored at temperatures less than 30℃ and humidity less than 50%.
- After the package is opened, LEDs should be stored at temperatures less than 30℃ and humidity less than 30%.
- LEDs should be used within 168 hours (7 days) after the package is opened.
- Before using LEDs, baking treatment should be implemented based on the following conditions: pre-curing at 60±5℃ for 24 hours.

■ Handling Precaution

The softness and dust affinity of silicone molding lens constrain the handling of LED. Thus, some handling indications of HARVATEK emitters are presented for possible damage prevention and excellent reliability.
Avoid leaving fingerprints or scratches (by sharp tools) on the silicone resin parts.





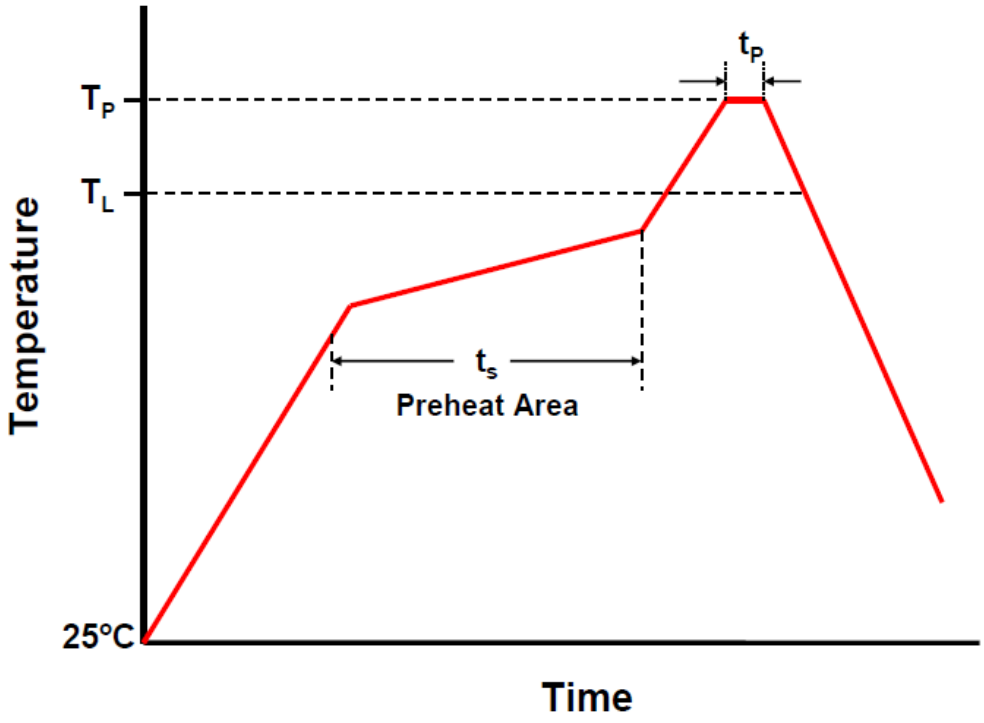
- Do not force over 2000g impact or pressure on the silicone molding lens.

- The LEDs should only be picked up by making contact with the sides of the LED body.
- In case of pick-and-place nozzle for surface mount assembly, avoid directly contacting the lens with nozzle. The pickup tool was recommended and shown as below

Solder Reflow Process Parameters

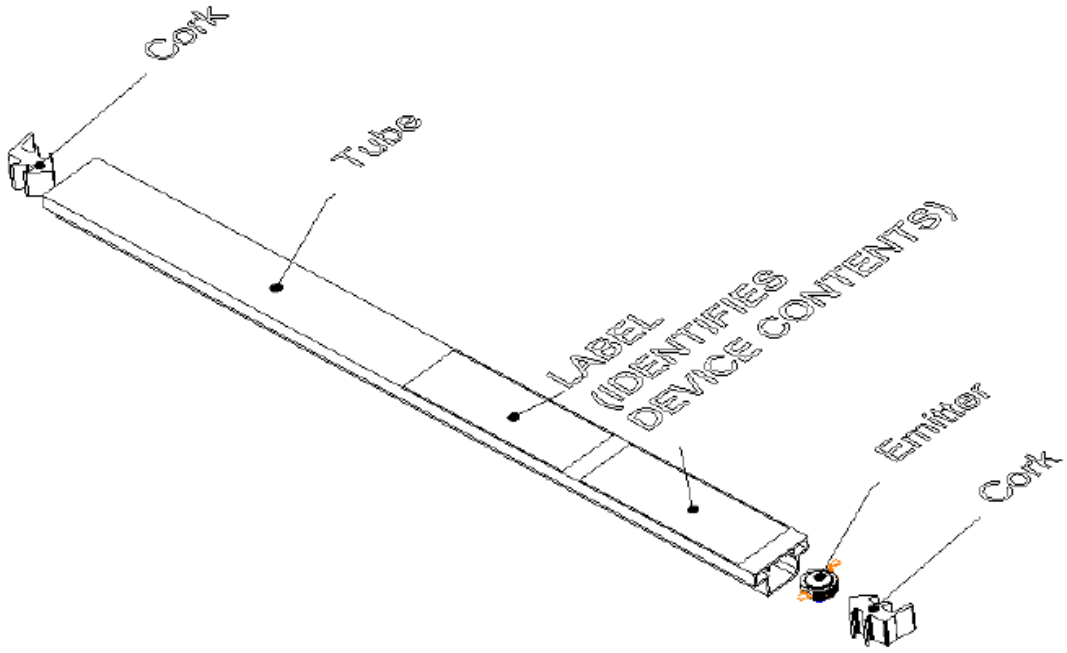
Reflow soldering of Helixeon emitters requires effective control of heating and cooling. Both the rate of heating and cooling and the absolute temperatures reached are critical in assuring the formation of a reliable solder joint while avoiding damage to the emitter during the reflow process. The following reflow soldering profiles are provided for reference. It is recommended that users follow the recommended soldering profile provided by the manufacturer of the solder paste used.

Reliability Test List

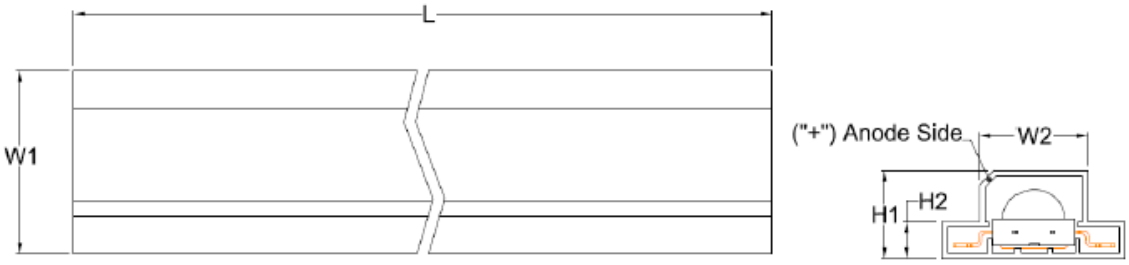


Profile Feature	Lead Free Assembly
Ramp-Up Rate	2-3 °C/s
Preheat Temperature	150-200 °C
Preheat Time (t_s)	60-120 s
Liquid Temperature (T_L)	217 °C
Time maintained above T_L	30-60 s
Peak Temperature (T_p)	235±5 °C
Peak Time (t_p)	Max 20 s
Ramp-Down Rate	Max 6 °C/s

Tube Package Specifications



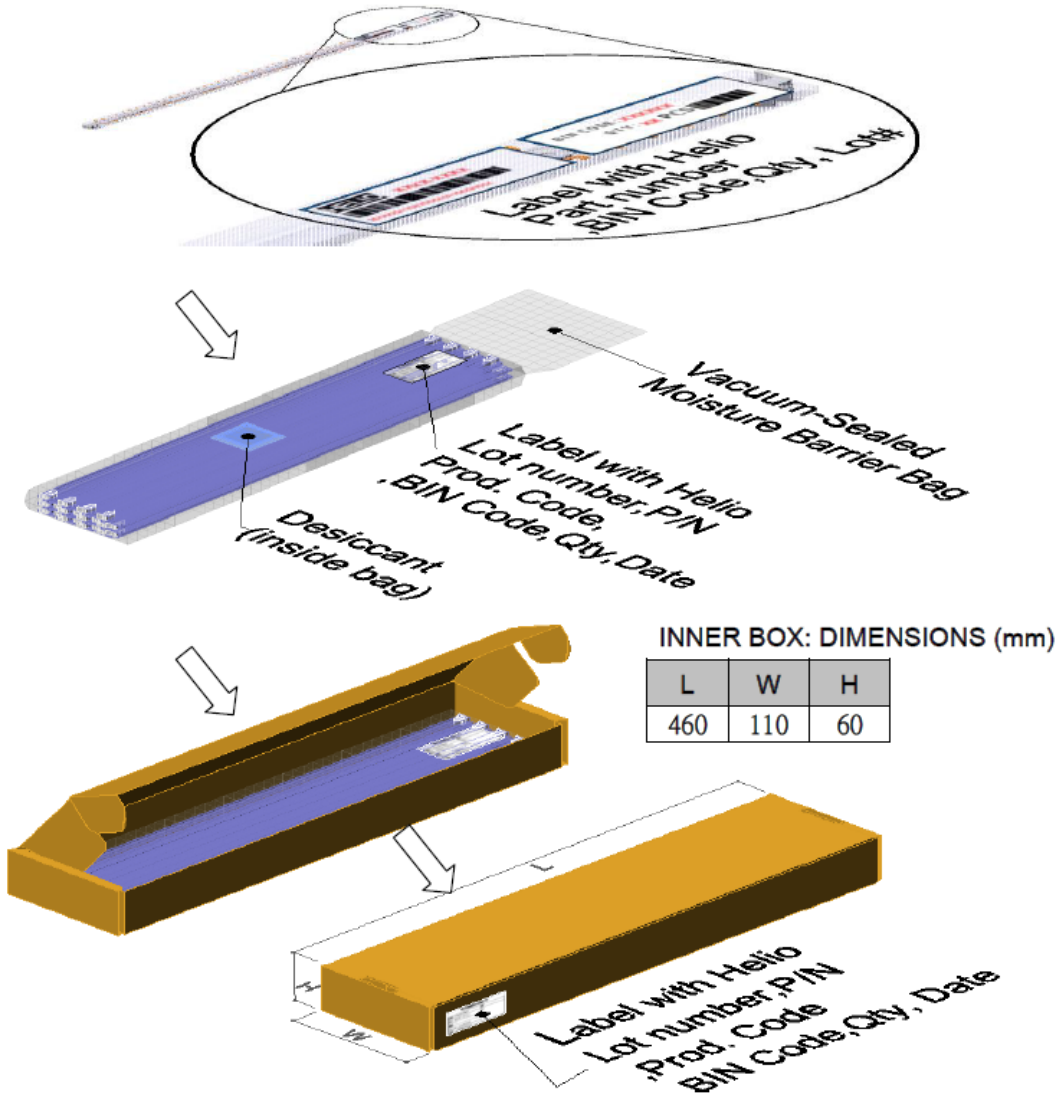
TUBE DIMENSIONS



UNIT : mm

W1	W2	H1	H2	L
16.5 ±0.2	9.7 ±0.2	7.9 ±0.2	3.3 ±0.2	420.0 ±1.0

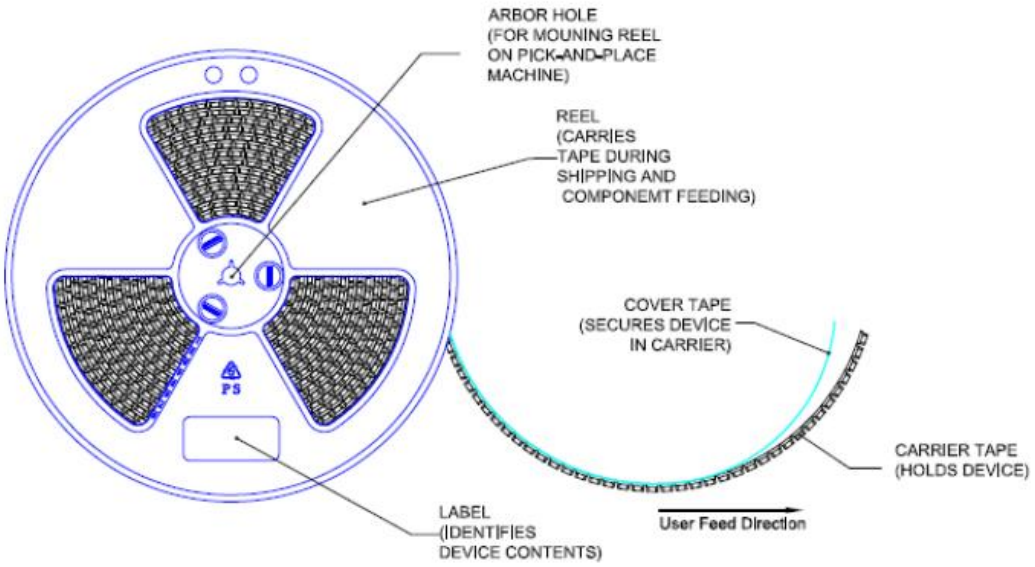
Packaging



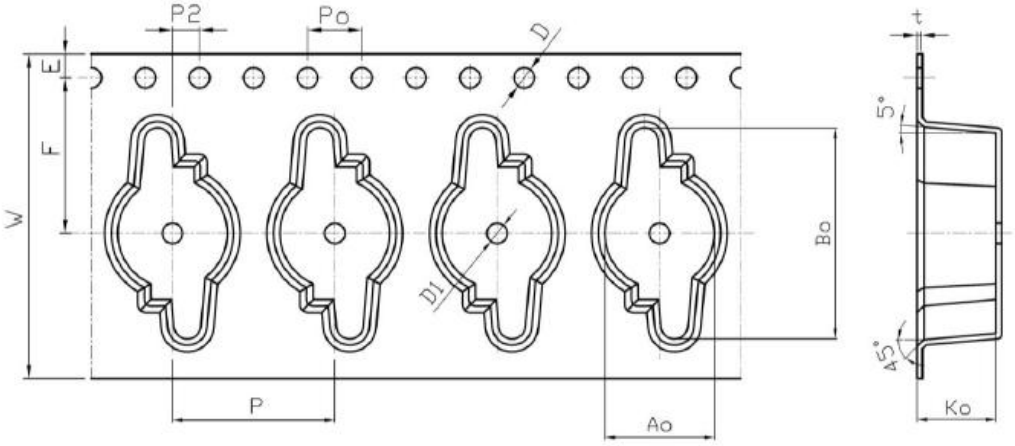
INNER BOX: DIMENSIONS (mm)

L	W	H
460	110	60

Tape-and-Reel Package Specifications



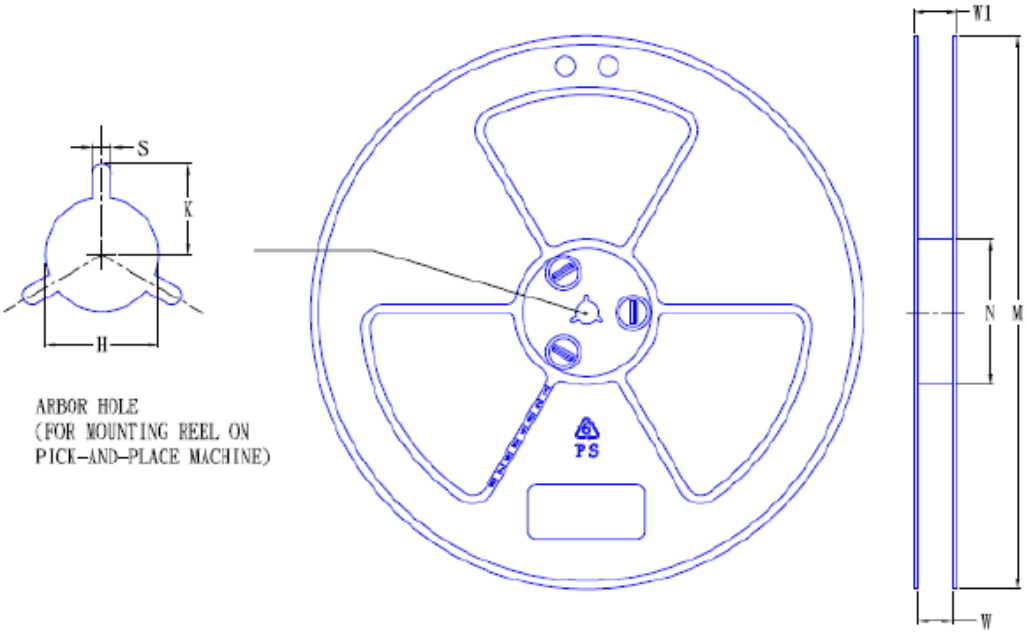
■ CARRIER TAPE DIMENSIONS (2 PINS)



UNIT : mm

W	P	E	F	P2	D	D1	P0	A0	B0	K0	T
24.0 ±0.3	12.0 ±0.1	1.75 ±0.1	11.5 ±0.1	2.0 ±0.1	1.5 +0.1	1.5 ±0.1	4.0 ±0.1	8.2 ±0.1	15.6 ±0.1	5.85 ±0.1	0.5 ±0.05

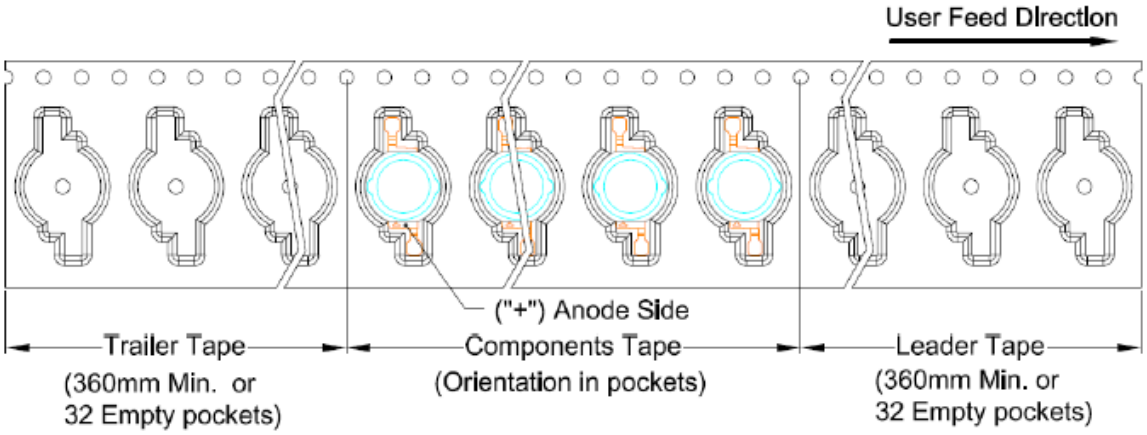
REEL DIMENSIONS



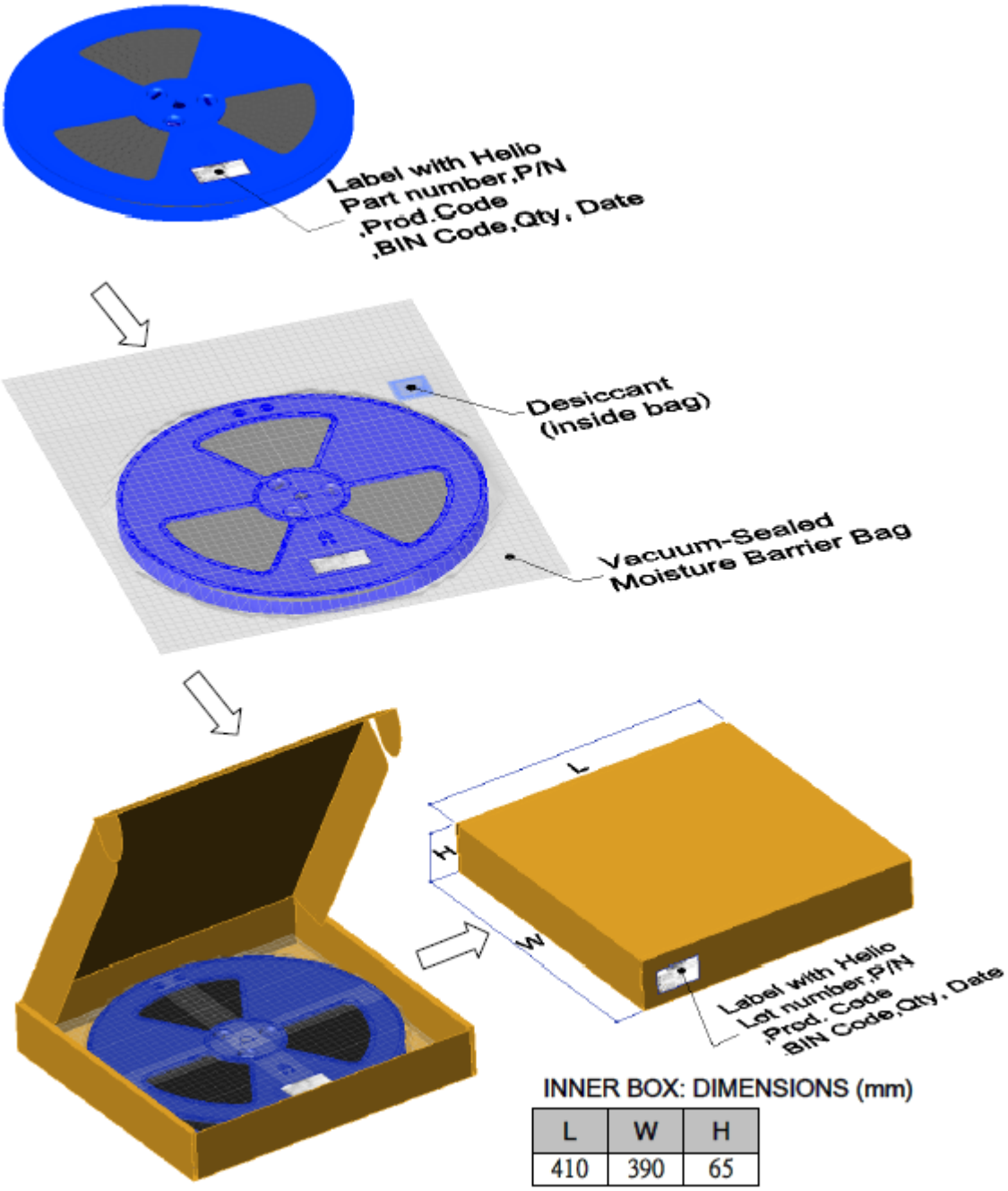
UNIT : mm

M	N	W	W1	H	K	S
ϕ380.0 ±1.0	ϕ100.0 ±1.0	24.6 ±0.5	30.6 ±0.5	ϕ13.5 ±0.5	10.45 ±0.5	2.5 ±0.5

Leader/Trailer and Orientation(2 PINS)



Packaging



INNER BOX: DIMENSIONS (mm)

L	W	H
410	390	65

Revision History

Changes since last revision	Page	Version No.	Revision Date
New Format		1.0	04-15-2015