赛亚传感股份有限公司
Saiya Sensor Co., LTD

产品承认书
SPECIFICATION

客户名称 CUSTOMER	
产品名称 PRODUCTION	超声波传感器
产品型号 MODEL	SY-US-18BT
版本号 VERSION NO	A2.0

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A. SCOPE

This specification applies Ultrasonic Sensor SY-US-18BT

B. Features

High S.P.L. and high sensitivity; Compact size ; Very thin ; Open type structure; Automatic soldering.

C. Applications

Object detection; Measuring the distance;l Dynamic body detection

D. Overview

SY-US-18BT/SY-US-18BD are ultrasonic transducer for various detections. SY-US-108R is used to transmit ultrasonic waves. SY-US-108R is used to receive them. SY-US-18BT/SY-US-18BD consist of piezoelectric ceramics, metal plate, resonator and resin case. Resonator has like a funnel shape to transmit ultrasonic waves which is generated by vibration of resonator to the air efficiently(or to concentrate ultrasonic waves from the air on the center of resonance).Sound pressure level(S.P.L.) is the most important characteristic for ultrasonic transducers. For example, in measuring distance application, high S.P.L. transducer enables to detect the further distance.

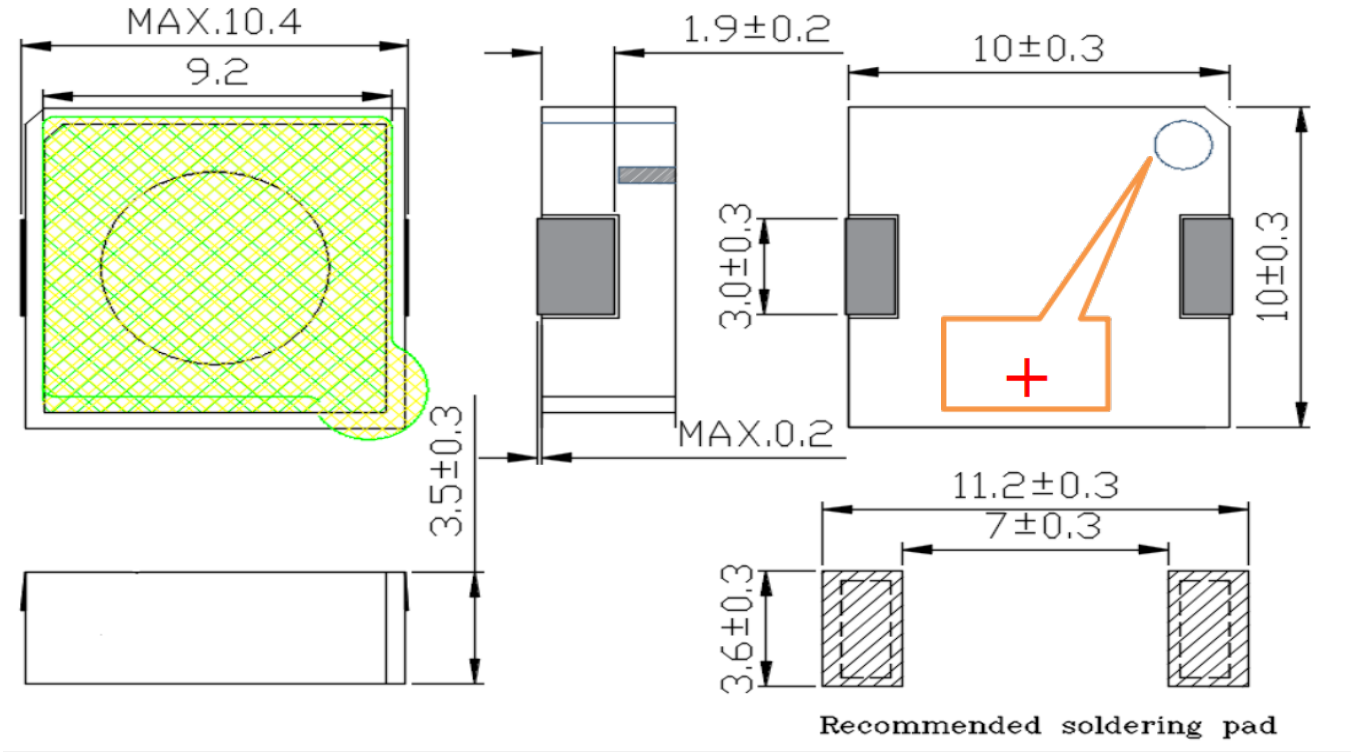
SY-US-18BT/SY-US-18BD cannot be used in outdoor applications because they are open type structure. And they cannot be used for automotive applications. We can support only for consumer applications.

E. SPECIFICATION

No.	Item	Unit	Specification		
			SY-US-108R	SY-US-18BT	SY-US-18BD
1	Construction		Open		
2	Using method		Receiver	Transmitter	Transmitter/Receiver
3	Nominal Frequency	Hz	40.0±1K		
4	Transmitting Sensitivity	dB	N/A	⩾105	⩾105
			at 40.0kHz/6Vp-p/15cm/0dB=20uPa		
5	Receiving Sensitivity	dB	⩾-75	N/A	⩾--75
			at 40.0kHz/6Vp-p/15cm 0dB=1V/Pa		
6	Directivity	deg	±40° (80°, -6 dB)		
7	Capacitance	pF	12000±25%@1KHz		
8	Allowable input voltage	Vrms	30 Vrms @ 40KHz		
9	Detectable range	m	0.2-1.5		
10	Operating Temperature	℃	-30~ +80		
11	Storage Temperature	℃	-40 ~ +85		
12	Housing material		LCP Plastic		
13	Leading wire		Tin Plated Brass(Sn)		
14	Environmental Protection Regulation		RoHS		

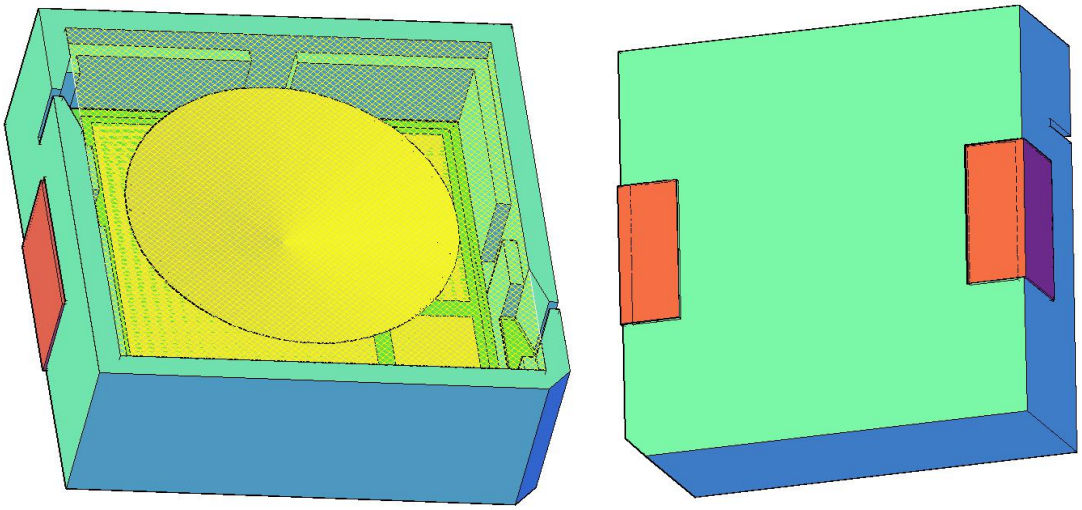
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F. APPEARANCE DRAWING



Remark: T/Transmitter；R/Receiver；D/Transmitter/Receiver

Tol : ± 0.5 **Unit: mm**



G. .TESTING METHOD

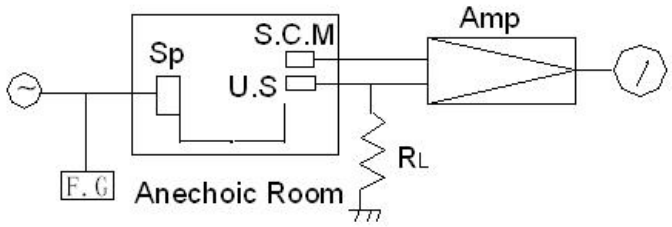
Standard Measurement conditions

Temperature:25±2℃ Humidity:45-65%

Acoustic Characteristics:

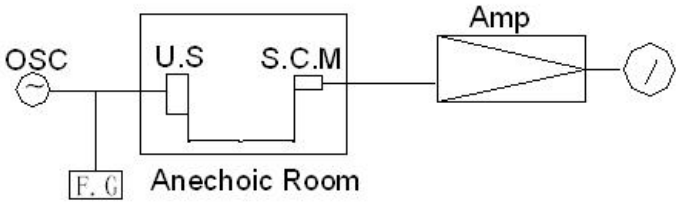
The oscillation frequency, current consumption and sound pressure are measured by the measuring instruments shown below

Receiver



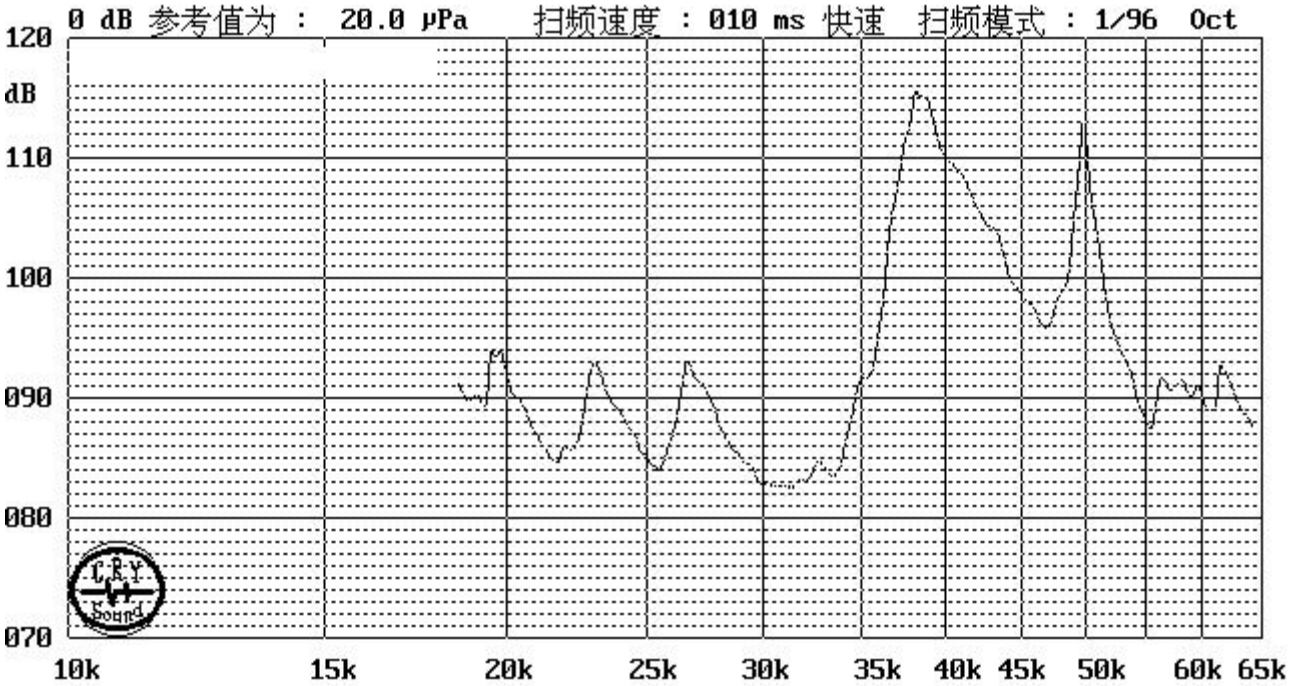
RL: 3.9KΩ
U.S :Ultrasonic Sensor
S.C.M:Standard Cappacitor Microphone
Amp. :Ampifier
OSC. :Oscillator
Sp :Tweeter
F.C :Frequency Counter

Transmitter

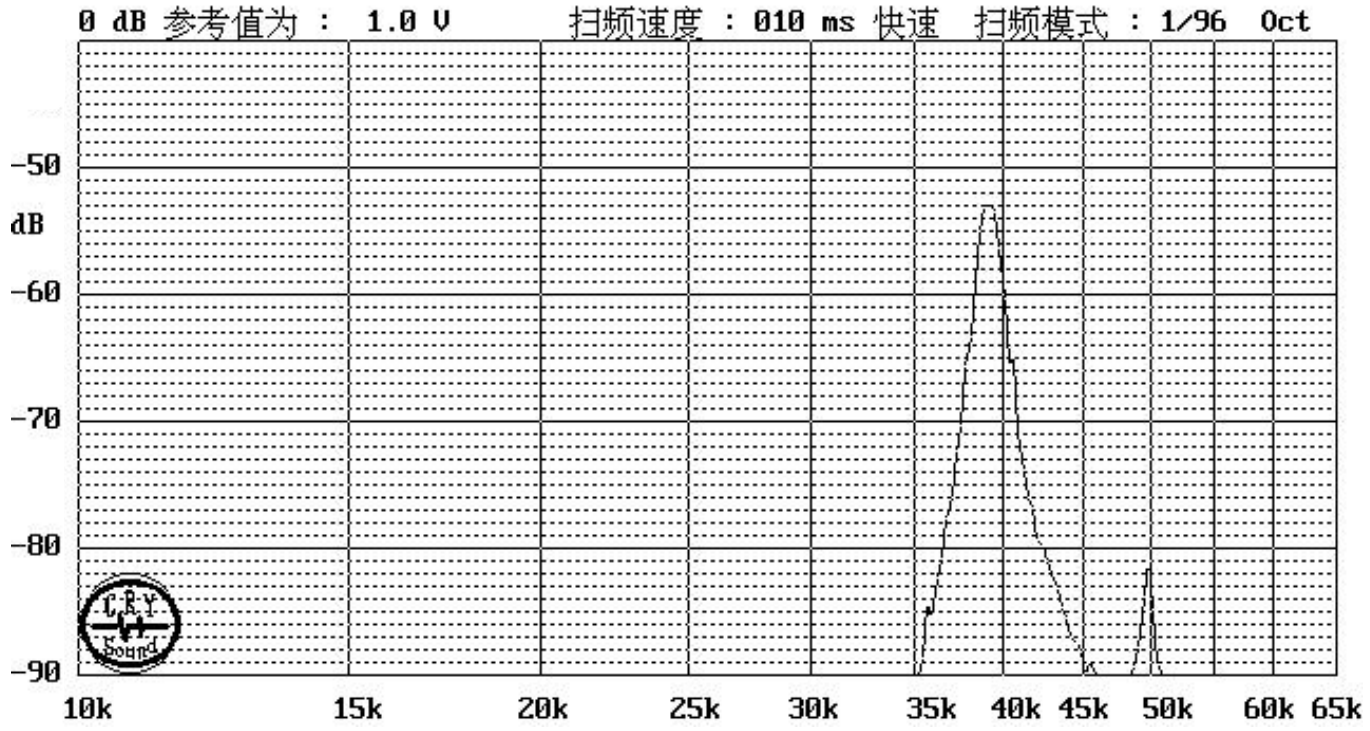


U.S :Ultrasonic Sensor
S.C.M:Standard Cappacitor Microphone
Amp. :Ampifier
Input voltage:10Vrms
F.C :Frequency Counter

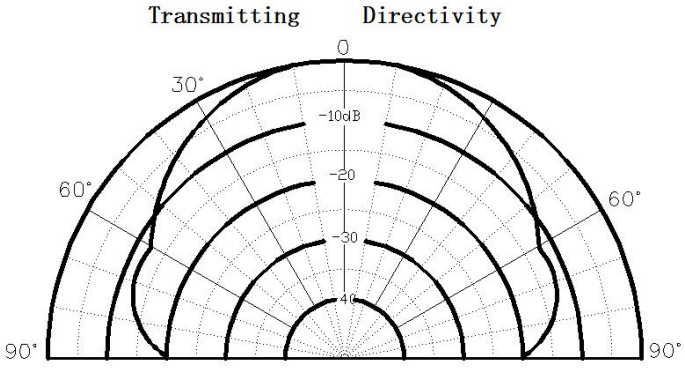
Frequency response characteristic of SPL

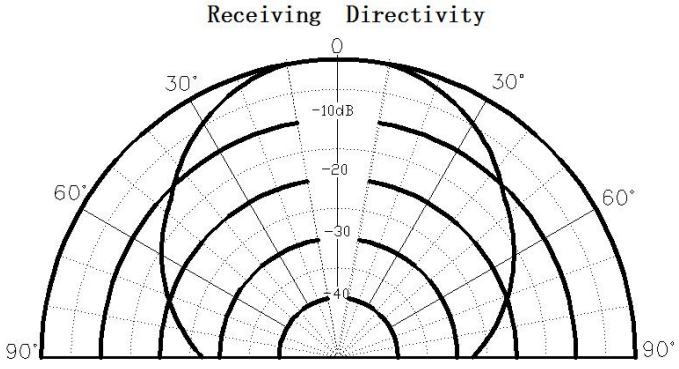


Frequency response characteristic of Sensitivity

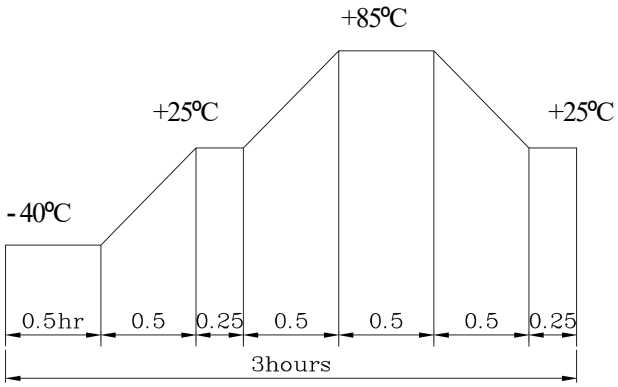


Directivity





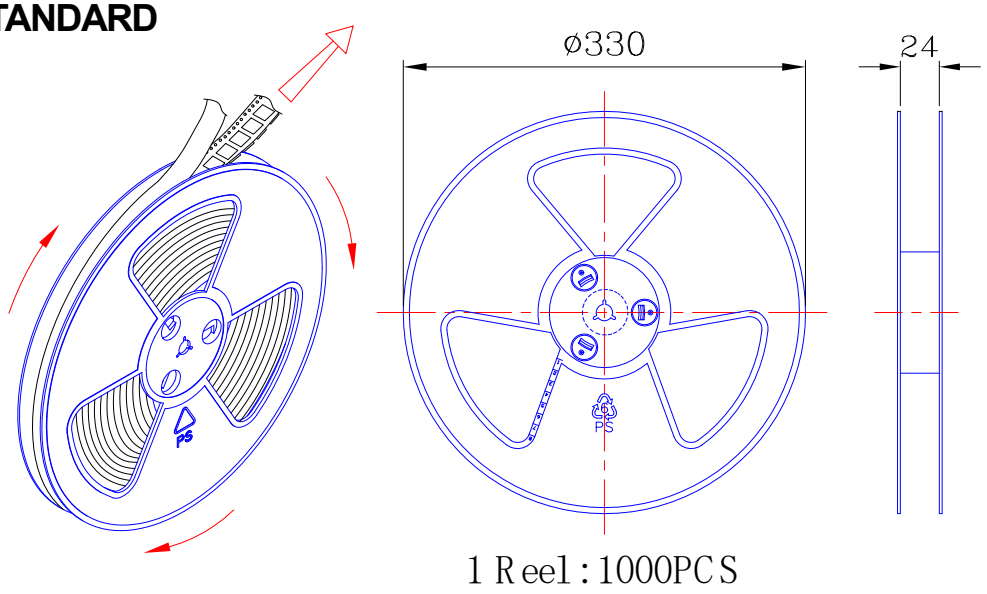
H. RELIABILITY TEST

NO.	ITEM	TEST CONDITION AND REQUIREMENT
1	High Temperature Test (Storage)	After being placed in a chamber with 85±2ºC for100 hours and then being placed in normal condition for 2 hours. Allowable variation of SPL after test: ±6dB.
2	Low Temperature Test (Storage)	After being Placed in a chamber with -40±2ºC for 100 hours and then being placed in normal condition for 2 hours. Allowable variation of SPL after test: ±6dB.
3	Humidity Test	After being Placed in a chamber with 90-95% R.H. at 60±2ºC for 100 hours and then being placed in normal condition for 2 hours. Allowable variation of SPL after test: ±6dB.
4	Temperature Cycle Test	The part shall be subjected to 50cycles. One cycle shall be consist of:  Allowable variation of SPL after test: ±6dB.
5	Drop Test	Drop on a hard wood board of 4cm thick, any directions ,6 times, at the height of 75cm . Allowable variation of SPL after test: ±6dB.
6	Vibration Test	After being applied vibration of amplitude of 1.5mm with 10 to 55 Hz band of vibration frequency to each of 3 perpendicular directions for 2 hours . Allowable variation of SPL after test: ±6dB.
7	Solderability Test	Lead terminals are immersed in rosin for 5 seconds and then immersed in solder bath of +260±5ºC for 3±1 seconds . 90% min. lead terminals shall be wet with solder (Except the edge of terminals).
8	Terminal Strength Pulling Test	The force of 9.8N(1.0kg) is applied to each terminal in axial direction for 10 seconds. No visible damage and cutting off.

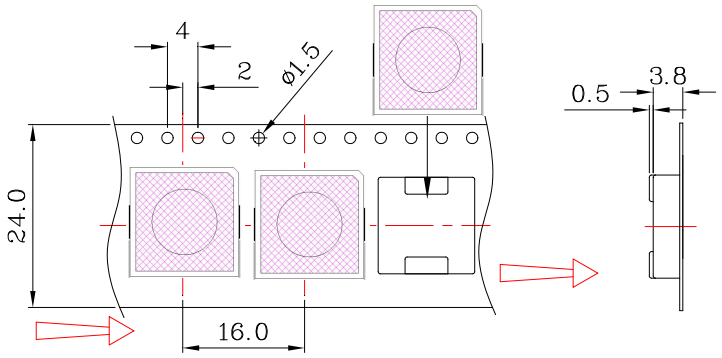
TEST CONDITION.

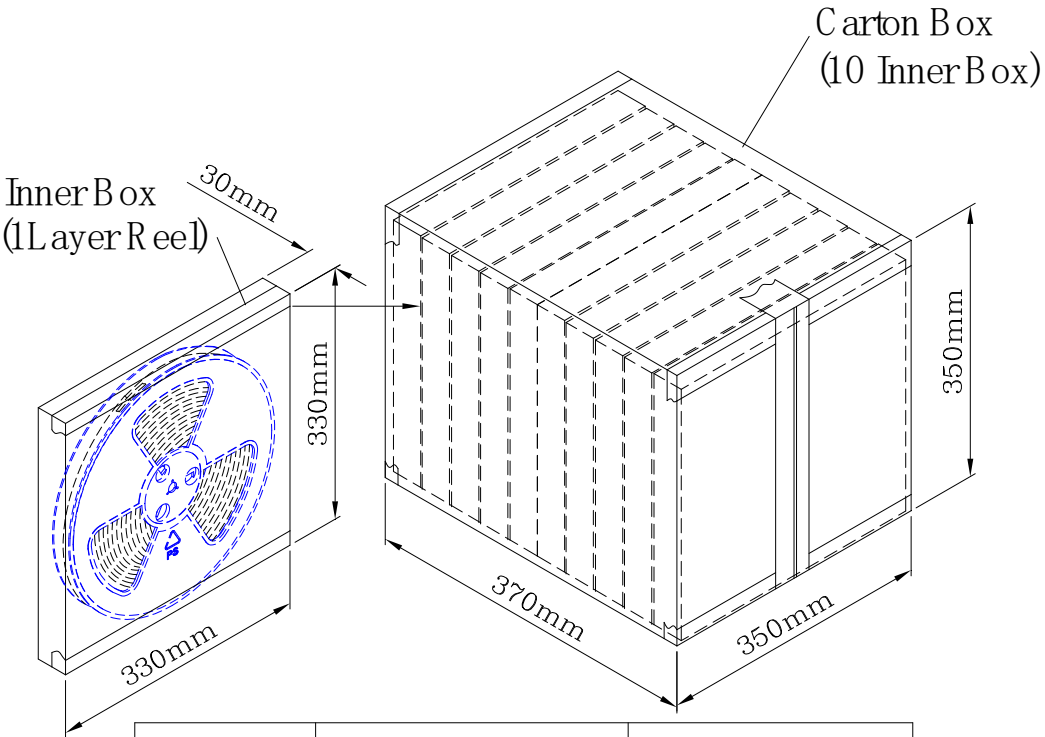
Standard Test Condition	:	a) Temperature : +5 ~ +35℃	b) Humidity : 45-85%	c) Pressure : 860-1060mbar
一般测试条件	:	a) 温度 : +5 ~ +35℃	b) 湿度 : 45-85%	c) 气压 : 860-1060mbar
Judgment Test Condition	:	a) Temperature : +25 ± 2℃	b) Humidity : 60-70%	c) Pressure : 860-1060mbar
争议时测试条件	:	a) 温度 : +25 ± 2℃	b) 湿度 : 60-70%	c) 气压 : 860-1060mbar

I . PACKING STANDARD



1 Reel : 1000PCS





Inner Box	330mm x330mm x30mm	1x1000PCS=1000PCS
Carton Box	350mm x350mm x370mm	10x1000PCS=10,000PCS