



soberton inc.

# US ULTRASONIC TRANSDUCER

Acoustic Product Specification

Product Number: US-4112



Release | Revision: B/2018

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## Specifications

Item	Unit	Specification	Condition
Rated Voltage	Vrms	2.83	
Operating Voltage	VDC	10 Max.	
Mean Current	mA	30 Max.	At 2.83Vrms
Sound Output	dBa	90	At 30cm/2.83Vrms
Resonant Frequency	KHz	2.5 ~ 50	
Operating Frequency	KHz	20 ±5	
Operating Temp	°C	-20 ~ +60	
Storage Temp	°C	-20 ~ +70	
Dimension	mm	Ø41.0× H12.0	
Weight	gram	5	
Material		ABS (black)	See Dimensions
Paper Cone		Mylar cone	6 months preservation at +25±3°C Humidity 40%
IP Level		IP67	
Environmental Protection Regulation		RoHS	

### Test condition:

Temperature: +25±2 °C    Related humidity: 65±5%    Air Pressure: 86~106KPa

## Mechanical Characteristics

Item	Test condition	Evaluation standard
Lead Wire Pull Strength	The pull force shall be applied to double lead wire: Horizontal: 3.0N(0.306kg) for 30 seconds. Vertical: 2.0N(0.204kg) for 30 seconds.	No damage and cutting off
Vibration	The buzzer shall be measured after a vibration of amplitude of 1.5mm with 10Hz to 55Hz band of vibration frequency is applied to each of 3 perpendicular directions for 2 hours.	The value of oscillation frequency/ current consumption should be in ±10% compared with initial ones.
Drop Test	The part is be dropped from a height of 70cm onto a 40mm thick wooden board 3 times in 3 axes(X,Y,Z). A total of 9 times.	The SPL should be in ±10dB compared with initial one.



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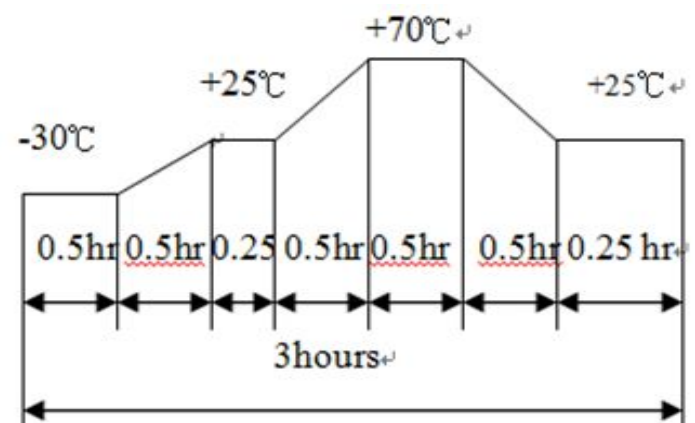
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## Environment Test

Item	Test condition	Evaluation standard
High temp. test	The part is placed in a chamber at +70°C for 96 hours	Being placed for 4 hours at +25°C, buzzer shall be measured.
Low temp. test	The part is placed in a chamber at -30°C for 96 hours	The value of oscillation, frequency / current consumption should be in ±10% compared with initial ones.
Humidity test	The part is placed in a chamber at +70°C and 90±5% relative humidity for 96 hours	The SPL should be in ±10dB compared with initial one.

Temp cycle test The part shall be subjected to 5 cycles. Each cycle shall consist of:



## Reliability Test

Item	Test condition	Evaluation standard
Operating Life Test	1. Continuous life test 48 hours of continuous operation at +55°C with the maximum rated voltage applied	After the test, the part shall meet specifications without any degradation in appearance and performance except SPL.
	2. Intermittent life test A duty cycle of 1 minute on, 1 minutes off, a minimum of 1000 times at +25±2°C and the maximum rated voltage applied	After 4 hours at +25°C, the SPL should be in ±10dBA compared with initial one.

### Standard test condition:

- a) Temperature: +5~+35°C
- b) Humidity: 45~85%
- c) Pressure: 86~106KPa



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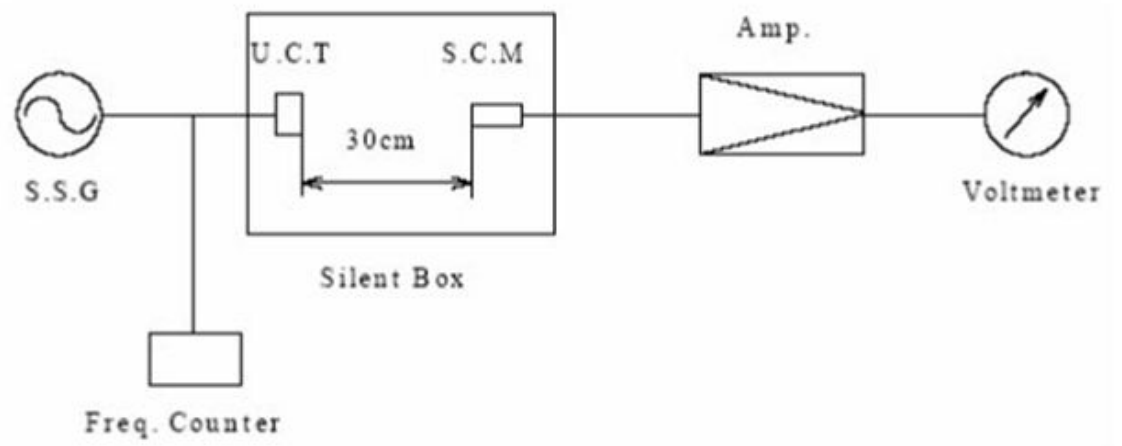
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## Measuring Method

### S.P.L Measuring Circuit



- S.S.G : Sine wave Signal Generator
- U.C.T : Ultrasonic Ceramic Transducer
- S.C.M : Standard Condenser Microphone (Brüel & Kjør 4135)
- Amp. : Amplifier (Brüel & Kjør 2610)
- Input Vol. : 2.83Vr.m.s



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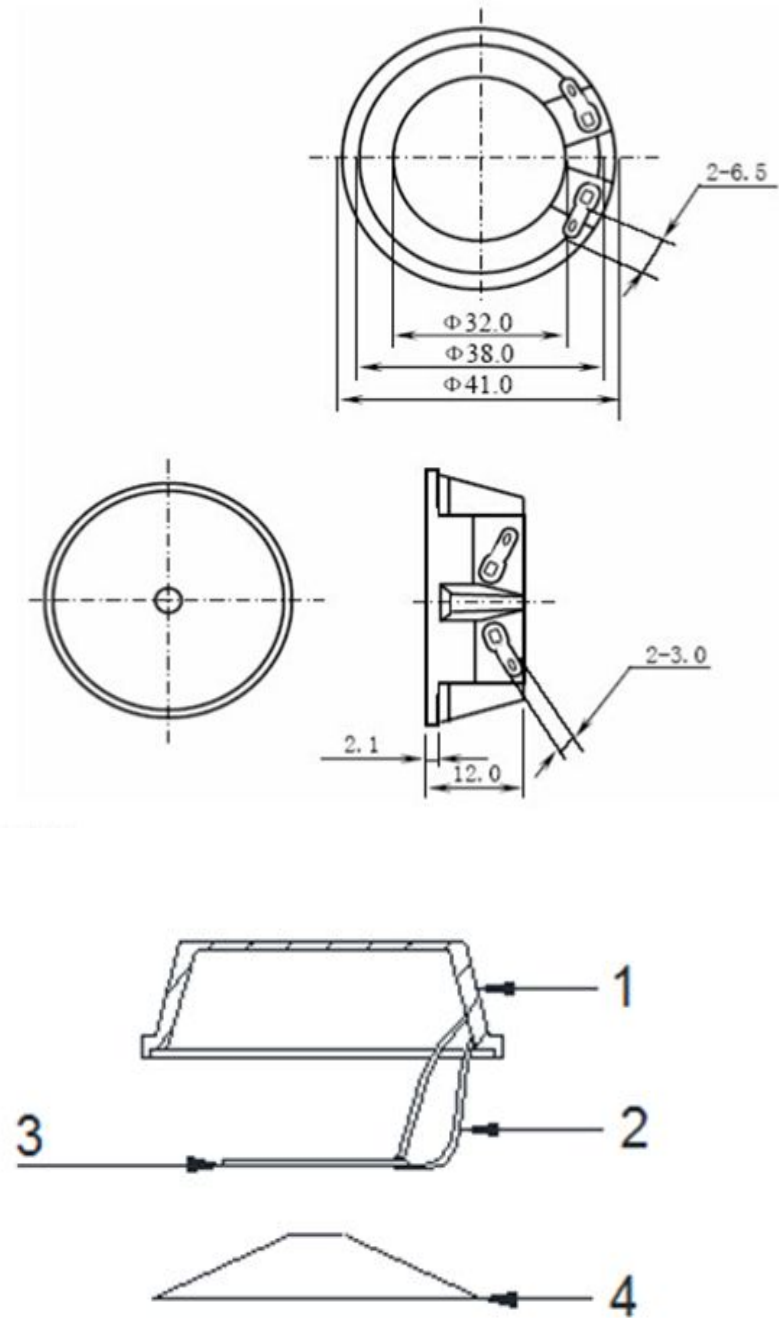
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## Dimensions

Tolerance:  $\pm 0.5$  (unit: mm)



No.	Part Name	Material	Quantity
1	Case	ABS	1
2	Wire	Copper	2
3	Piezo	Brass + ceramic	1
4	Diaphragm	Polyetherimide	1



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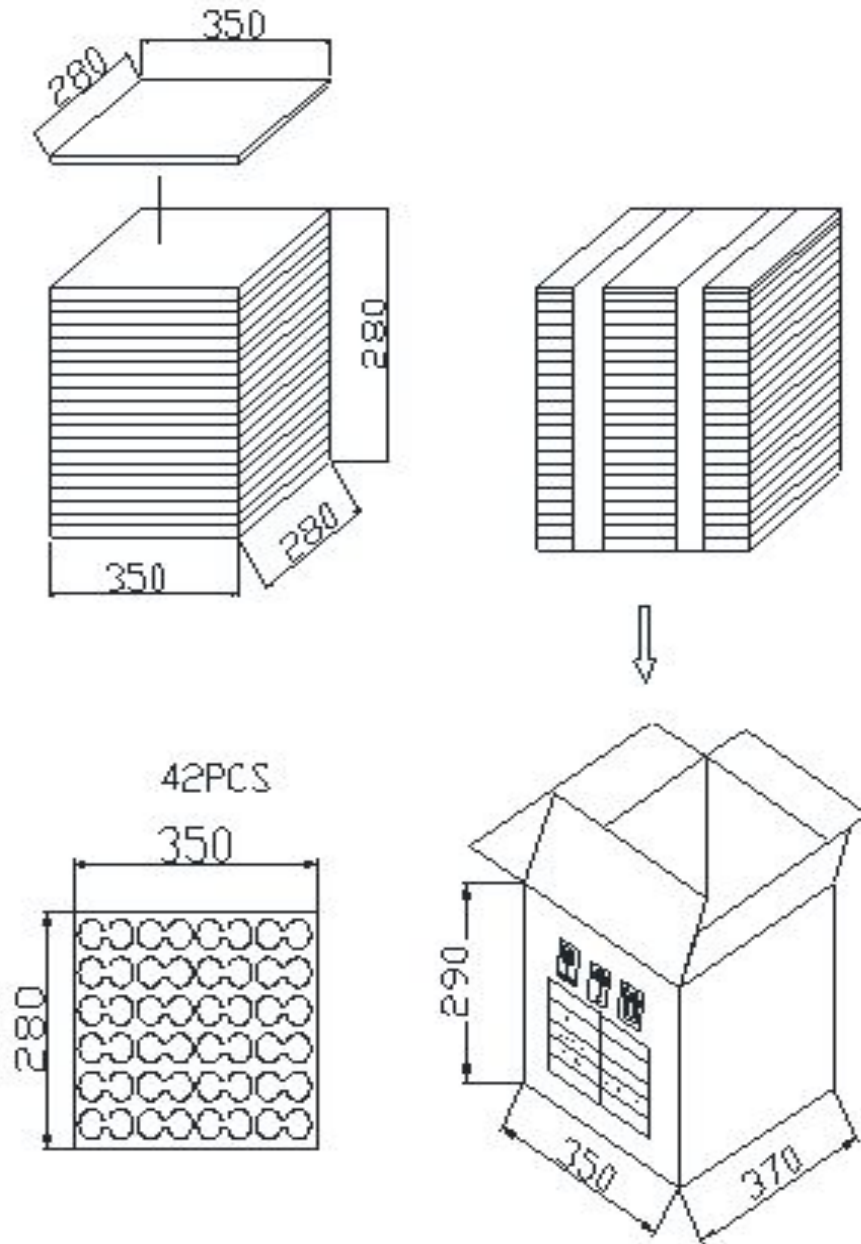
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## Details

	Size (mm)	Quantity (pcs)
Carton	350 x 280 x 17	42
Tray x 16	350 x 280 x 280	672
Box	370 x 350 x 280	672