ULTRASONIC TRANSDUCER

SPECIFICATIONS

Model Name : ST-C209W-N2

Date of Preparation : 2020-09-25

Supplier	Prepared	Checked	Approved
SENSORTEC	Lu bo	-	Ko yong seong
Customer	**Prepared**	**Checked**	**Approved**

SENSORTEC
ULTRASONIC SENSOR TECHNOLOGY

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SPECIFICATIONS

Issued Date	2012-09-05
Revision Date	2020-09-25

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0. Revision Log

REV No.	Symbol	Descriptions of Changed	Revision Date	Prepared by
0		Prepared initial version	**2012-09-05**	Lu bo
1		Product drawing changes	**2020-09-25**	Lu bo

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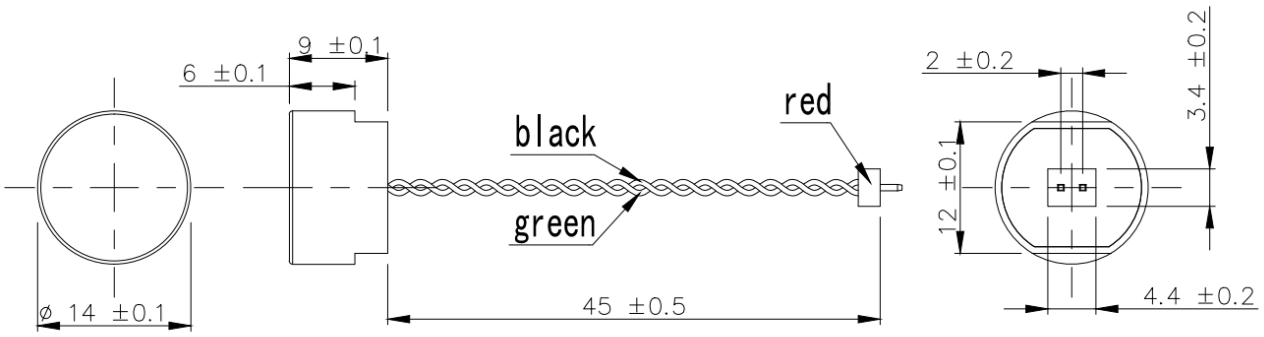
Model : ST-C209W-N2

1. Outline of Product (based on painted product)



2. General Specifications

※ test condition: 25 ± 3 ℃ , 50 ± 10 %RH

Items		Min	Typ	Max	Unit	Description
Resonant Frequency		56.5	58	59.5	kHz	
Resonant Resistance		300			Ω	@Resonant Frequency
Capacitance		1275	1500	1725	pF	@1kHz
Decay Time		0.60		1.40	ms	With Sensortec STP-368 Circuit for 58kHz
Overall sensitivity		1.70			Vop	With Sensortec STP-368 Circuit for 58kHz
Directivity	Wide	70	80	90	Deg	Typical, -6dB down angle from front side O/S, NOTE #A
	Narrow	35	40	45		
Insulation Resistance		100			MΩ	@100V DC
Maximum Input Voltage				160	Vp-p	@0.25ms on/60ms off
Operating Temperature		-40		85	℃	
Storage Temperature		-40		85	℃	
Detectable Range		0.3		2.0	m	NOTE #B

Note

#A. Directivity is a reference value and it may be changed according to the measurement conditions.

#B. Detectable range is a reference value and it may be changed according to the terms of applications.

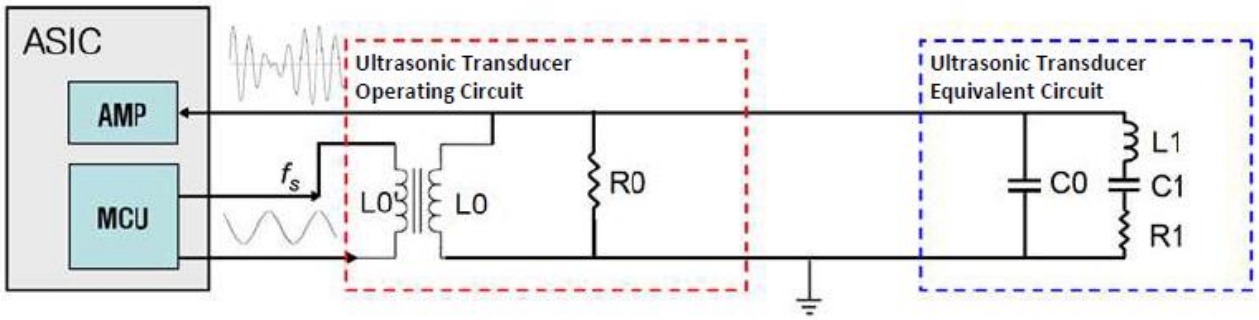
3. Dynamic Performance

Note

The contents in this article are reference values measured by test circuit provided by SensorTec R&D center.

It may be changed according to the terms of applications.

(1)Test Circuit Diagram



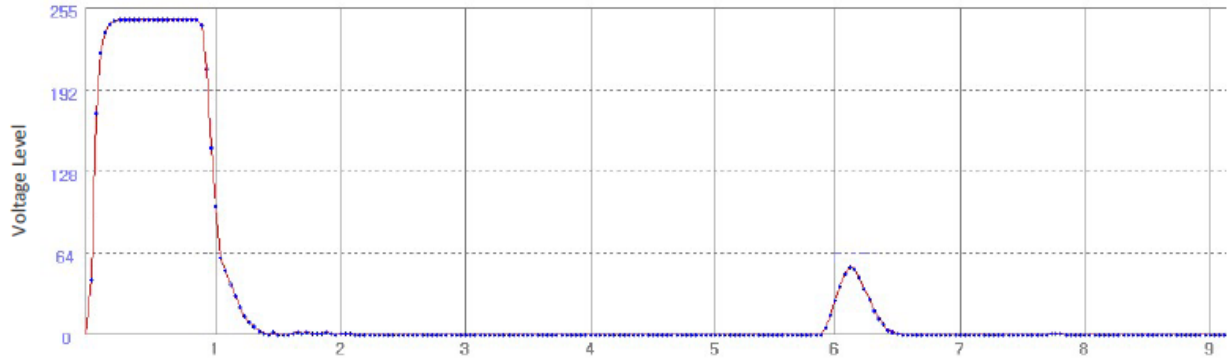
(2) Test Conditions

Operating Frequency	58.394kHz	Driving Current	160mA
Operating Pulse	12ea	Amplifier Gain	48.0dB

(3) Dynamic Performance

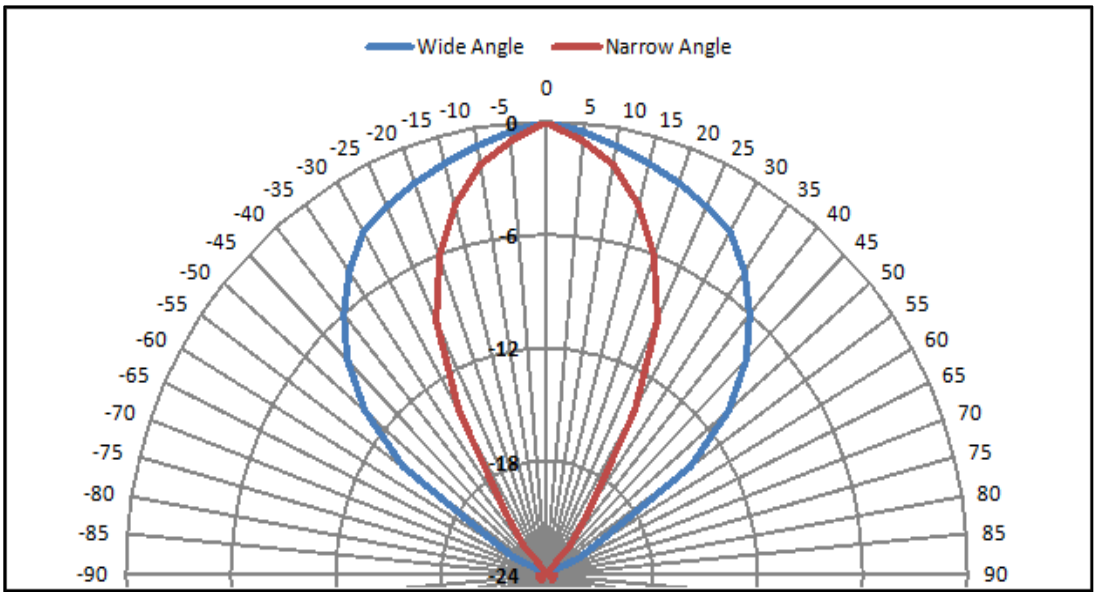
Item		Min	Typ	Max	UNIT	Description
Decay Time	Room Temp.	0.6		1.40	ms	-
O/S		1.70			V	O/S : Overall Sensitivity Test Target : Φ75mm PVC Pipe at 100cm

(4) Dynamic Performance Example



(5) Overall Sensitivity Beam Patterns (Typ.)

※test condition : 25 ± 3 ℃ , 50 ± 10 %RH



Note) Test Target : Φ75mm PVC Pipe at 100cm

Beam pattern is a reference value and it may be changed according to the measurement conditions.

4. Environmental Specification

After the ultrasonic sensor has passed the following reliability test, except for the appearance degradation and cracks, the characteristics and specifications meet the requirements

Item	Test Condition	After Tested
High Temperature Test	85℃ ± 3℃ 1,000 hours	Sensitivity range±3dB
Low Temperature Test	-40℃ ± 3℃ 1,000 hours	
High Temperature & High Humidity Test	85℃ ± 3℃, 85%RH ± 5%RH 500 hours	
Thermal shock test	500 cycles repeated under the conditions below : One cycle as +85℃ ± 3℃ for 30 minutes & -40℃ ± 3℃ for 30 minutes Slope time : Max 5 minutes ※ Transducer is short circuit during test	
Vibration Test	Use a vibration tester to conduct the test under the conditions below : (1) Amplitude : 1.5mm , (2) Vibration Frequency : 10Hz ~ 55Hz (3) Sweep Period : 1 minute , (4) Direction : 3 directions (x, y, z axis) (5) Test Time : 2 hours each in 3 directions (Totally 6 hours)	
Drop Test	Free drop 2 times from the height of 1 meter on the concrete floor	

Note:) After tested above, return to the ordinary conditions of 25 ± 3 ℃ , 50 ± 10 %RH for 24 hours, and the variation of the overall sensitivity is within 3 dB compared with initial value of before test.