



PUIaudio



Data Sheet

UR-1640K-TT-2-R

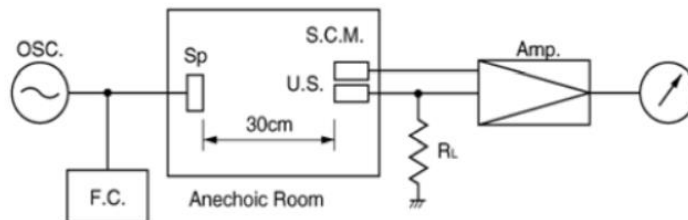
Features:

- 40,000Hz Ultrasonic Receiver
- Pairs with transmitter UT-1640K-TT-2-R

Specifications

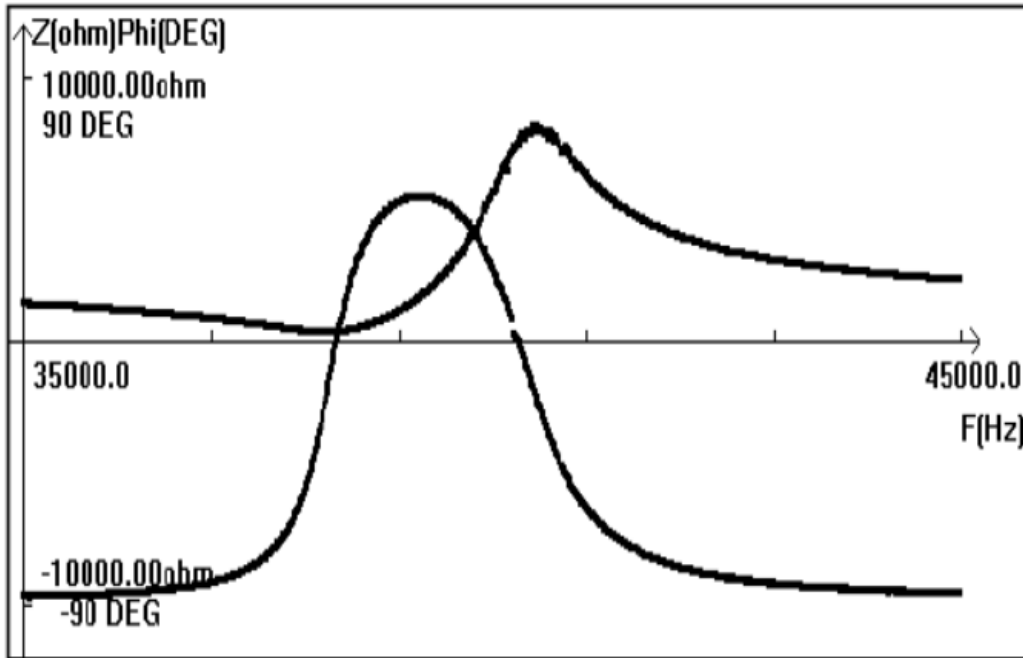
Parameters	Values	Units
Max Drive Voltage	20	Vrms
Capacitance	2100 ± 20%	pF
Sensitivity (0dB=1V/uBAR)	≥-60	dBA
Center Frequency	40,000 ± 1,000	Hz
Bandwidth	2500	Hz
Directivity (-6dB)	80° typical	-
Housing Material	Aluminum	-
Terminal Material	Sn plated Copper	-
Weight	4.8	Grams
Ingress Protection Rating	None	-
Acceptable Soldering Methods	Hand Solder Only	Iron temp 350C Solder time 3-10sec
Environmental Compliances	ROHS/REACH	Exempt. 7c-1
Moisture Sensitivity Level	NA	-
Storage Temperature	-30 to 80	°C
Operating Temperature	-20 to 70	°C

Measurement Method (40kHz, 30cm, 10Vrms)

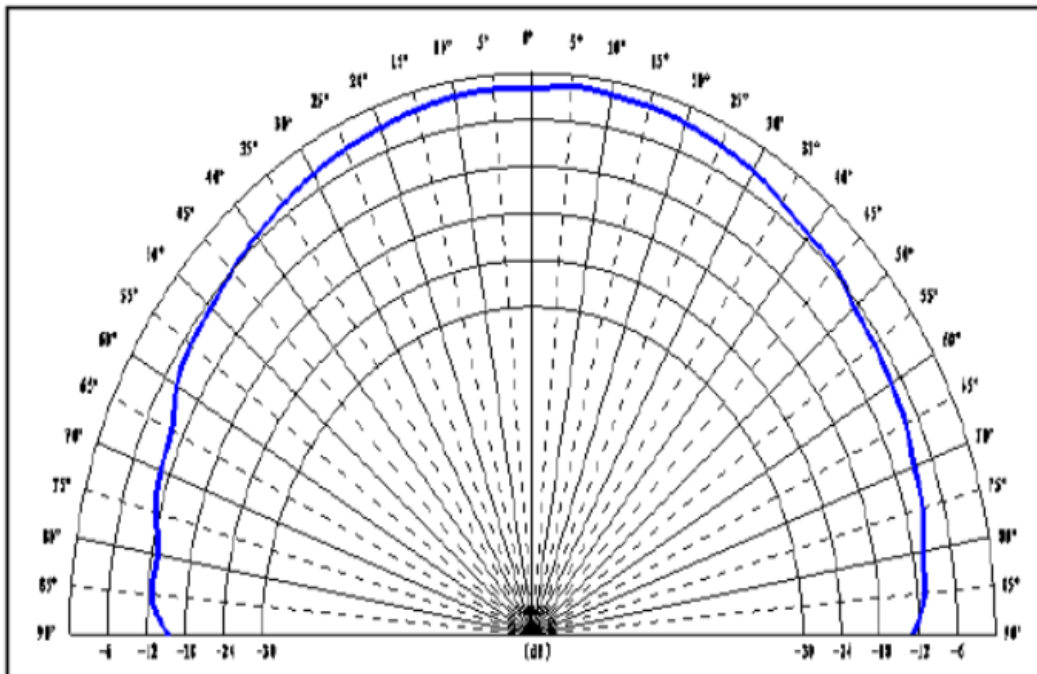


- RL :3.9kΩ
 U.S. :Ultrasonic Sensor
 S.C.M. :Standard Capacitor Microphone (Brüel&Kjær 4135)
 Amp. :Amplifier (Brüel&Kjær 2610)
 OSC. :Oscillator
 Sp. :Tweeter
 F.C. :Frequency Counter 0dB=2x10⁻⁴µbar

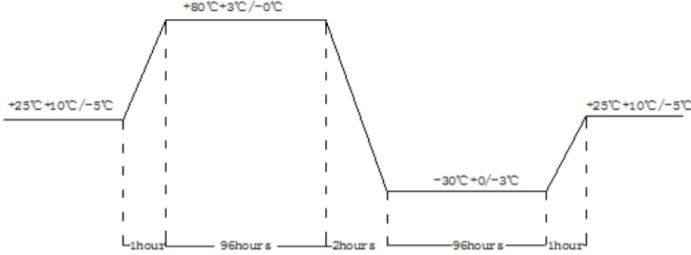

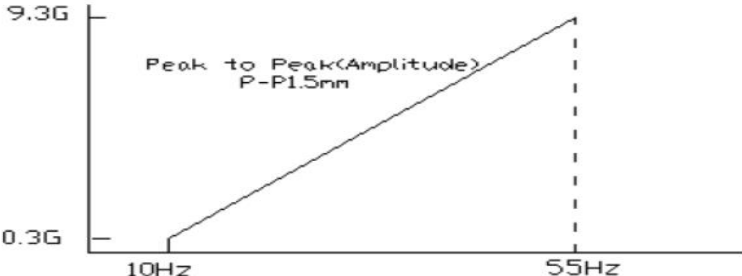
Typical Frequency Response



Beam Angle

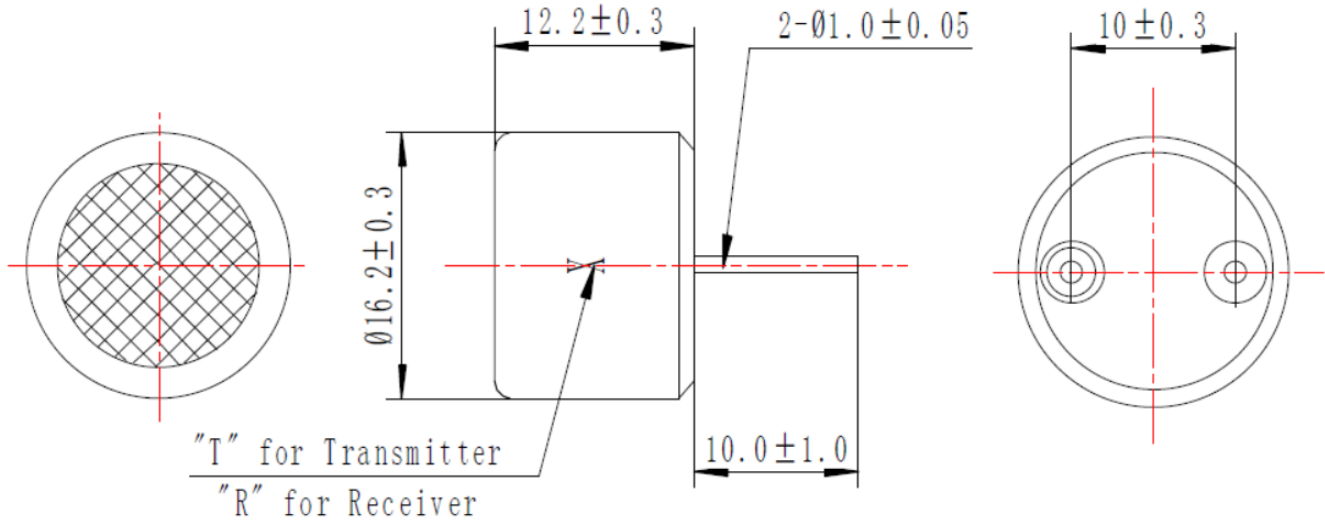


Reliability Testing

Type of Test	Test Specifications
High and Low Temperature Test	-20C to 70C in relative humidity of 30%. SPL and peak sensitivity shall not change by more than 15dB within the temp range from high to low.
Humidity Test	Humidity of 10% to 90% at temperature of 25C. SPL and sensitivity shall not change by more than 6dB within the humidity range.
Storage Temperature Testing	<p>Storage at 80C for 96hrs and at -30C for 96hrs followed by normalized period at 25C. See figure.</p>  <p>The graph shows a temperature profile for storage testing. It starts at a baseline of +25°C ±10°C / -5°C. It then ramps up to +80°C ±3°C / -0°C, where it remains for 96 hours. It then ramps down to -30°C ±0°C / -3°C, where it remains for 96 hours. Finally, it ramps up to a normalized period at +25°C ±10°C / -5°C for 1 hour. The ramp times are indicated as 1 hour for the first ramp and 2 hours for the second ramp.</p>
Temperature Cycle Testing	<p>Operation at 95%RH and 40C for 100hrs followed by normalization period for 24hrs at 30%RH and 25C. See figure.</p>  <p>The graph shows a temperature and humidity profile for temperature cycle testing. It starts at a baseline of 25°C 30% RH. It then ramps up to 40°C 95% RH, where it remains for 100 hours. It then ramps down to 25°C 30% RH, where it remains for 24 hours. The ramp time is indicated as 15 minutes.</p>
Vibration Test	<p>Vibration at 10Hz to 55Hz, 1.5mm amplitude, 1min sweep in each x/y/z direction 3 times for 3hrs. See figure.</p>  <p>The graph shows a vibration profile. The vertical axis is labeled 'Peak to Peak (Amplitude) P-P1.5mm' with values 0.3G and 9.3G. The horizontal axis is labeled with frequencies 10Hz and 55Hz. The profile shows a linear increase in amplitude from 0.3G at 10Hz to 9.3G at 55Hz.</p>
Drop Test	Drop sensor from 700mm onto surface of 10mm thick wooden board in 2 directions.

All sensitivity and SPL shall be within 3dB of specified values after subjected to these conditions unless otherwise noted.

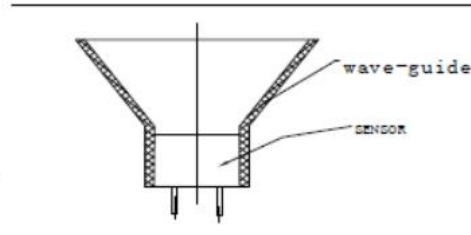
Dimensions



Design Notes

- This sensor is designed for use in air environment. Do not use it in liquid.
该探头是按照应用于空气环境而设计的，禁止用于液体环境。
- In the case where secondary accidents due to operation failure or malfunctions can be anticipated, add a fail safe function to the design.
- 为了防止归于操作失败或者故障所致的可预测的次要事故，给设计增加一个失效安全功能。

■ In the case where this sensor is to be Shocked or impacted, fit a "V" wave-guide on the sensor (see the following drawing), which also is to improve receiving sensitivity .
为了防止探头受到外力的冲击或挤压，并加强探头的接收能力，应给探头加上V型波导管。如图示：



2. USAGE RESTRICTION/PRECAUTIONS 使用限制/预防:

■ To prevent sensor malfunctions, operational failure or any deterioration of its characteristics, do not use this sensor in the following, or similar conditions:
为了防止探头故障，操作失败，或者其任何性能退化，禁止使用本探头于以下情况或者相似环境条件：

- a) strong shock or vibration. 强烈的冲击或者振荡情况；
- b) high temperature and humidity for a long time. 长时间处于高温高湿的环境；
- c) orrosive gases or sea breeze. 腐蚀气体或者海风环境；
- d) an atmosphere of organic solvents. 有机溶剂环境；
- e) dirty and dusty environments that may contaminate the sensor front.
可能污染探头顶部的肮脏、灰尘环境；
- f) Over specified allowable input voltage . 超过指定允许输入电压的条件。

■ Do not solder adding stress on outer lead, also do not apply stress like spin or pressure after soldering. In case you form the leads, support the root firmly.
禁止在焊接插针脚时施加应力和刚焊接后施加旋转应力或压应力。在焊接引线时，应紧紧地支撑住

Specifications Revisions

Revision	Description	Date
-	Released from Engineering	6/1/2016
A	Add Bandwidth, Change pin length tolerance to 1mm	1/6/2020

Note:

1. Unless otherwise specified:
 - A. All dimensions are in millimeters.
 - B. Default tolerances are $\pm 0.5\text{mm}$ and angles are $\pm 3^\circ$.
2. Specifications subject to change or withdrawal without notice.