

请承认书

Version No.: <u>V2.0</u>

| 常 | 州 | 昊 | 翔 | 电 | 子 | 有 | 限 | 公 | 司 |
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| Changzhou <i>HaoXiang</i> Electronic Co., LTD | | | | | | | | | |
| 客 | 产名 | 名 称 | | | | | | | |
| CL | ISTOME | ER NA | MER: | | | | | | |
|) · | 品 4 | 名 称 | | | | | | | |
| COMMODITY : Ultrasonic Sensor | | | | | | | | | |
| 产品型号 | | | | | | | | | |
| MC | DDEL N | 0 | : | | TDA-7 | Γ1612 | -25P | -AO | |
| 客 | 户》 | 斗 号 | | | | | | | |
| PA | RT NO | | : | | | | | | |
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| 审 | 核 | | 秦皓 | | 主 | 办 | | 潘莲 Sep | ot.17,2020 |
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A. MODEL: TDA-T1612-25P-AO

B. SPECIFICATION

| No. | Item | Specification | Condition |
|-----|-------------------------------------|---------------|---|
| 1 | Structure | Open | |
| 2 | Using Method | Transmitter | |
| 3 | Nominal Frequency | 25±2KHz | |
| 4 | Transmitting Sound Pressure Level | Min. 110dB | at 25KHz (0dB=0.02mPa) See Fig.1 (10V/30cm/sine wave) |
| 5 | Receive Sensitivity | | at 25KHz (0dB=V/Pa) See Fig.2 |
| 6 | Capacitance | 2400 ± 30%pF | at 1kHz |
| 7 | Directivity | 80deg | |
| 8 | Allowable input voltage | 30Vp-p | |
| 9 | Operating temperature | -30℃~+70℃ | |
| 10 | Material | Aluminium | |
| 11 | Terminal | Pin Type | See appearance drawing |
| 12 | Environmental Protection Regulation | RoHS | |

C. MECHANICAL AND VIBRATION TEST

| No. | Item | Test condition | Evaluation standard |
|-----|----------------|--|--|
| 1 | l a . . | Acceleration : sine 980 m/s2 (100G) Direction : 3 directions Shock time : 3 times / directions | The variation of the Sound Pressure Level at 25kHz is within 3dB compared with initial figures at 25 degC after following test conditions |
| 2 | Vibration Test | Vibration frequency: 10 to 70 Hz Sweep Period: 5 min. Acceleration: 43.12 m/s2 (4.4G) Directions: 3 directions Time: 50 min. / direction | The variation of the S.P.L at 25kHz is within 3dB compared with initial figures at 25 degC after following test conditions |
| 3 | Drop Test | Height : 1 meter onto concrete floor Times : 10 times | The variation of the S.P.L at 25kHz is within 6dB compared with initial figures at 25 degC after following test conditions |
| 4 | Pull Strength | There should be no substantial damage after 2.45 N of force. | No interference in operation |

D. ENVIRONMENTAL TEST

| No. | Item | Condition | Evaluation standard | |
|-----|------------------------|--|---|--|
| 1 | High Temperature | After being placed in a chamber at $+70 \pm 3$ degC for 36 hours. | The variation of the S.P.L at 25kHz is within 3dB compared with initial | |
| 2 | Low Temperature | After being placed in a chamber at -30 ± 3 degC for 36 hours. | figures at 25 degC in 24 hours after following test conditions | |
| 3 | Humidity | After being placed in a chamber at +60 \pm 3 degCand 90 \pm 5% relative humidity for 36 hours. | The variation of the S.P.L at 25kHz is within 6dB compared with initial figures at 25 degC in 24hours after following test conditions | |
| 4 | Temperature Cycle test | Temperature: +70 ± 3 degC, 1 hour -30 ± 3 degC, 1 hour Cycles: 10 cycles | | |

TEST CONDITION

Standard Test Condition : a) Temperature : $+5 \sim +35^{\circ}$ C b) Humidity : 45-85% c) Pressure : 860-1060mbar **Judgment Test Condition:** a) Temperature : $+25\pm2^{\circ}$ C b) Humidity : 60-70% c) Pressure : 860-1060mbar

E. MEASURING METHOD(SPEAKER MODE)

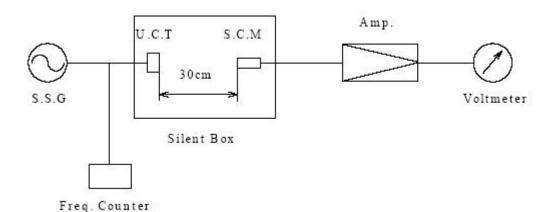


Fig.1 (transmitter)

S.S.G : Sine wave Signal Generator

U.C.T : Ultrasonic Ceramic Transducer

S.C.M : Standard Condenser Microphone (Brüel & Kjær 4135)

Amp. : Amplifier (Brüel & Kjær 2610)

Input Vol. : 10Vr.m.s.

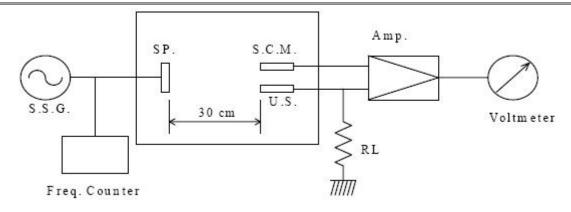


Fig.2 (receiver)

S.S.G : Sine wave Signal Generator

U.C.T : Ultrasonic Ceramic Transducer

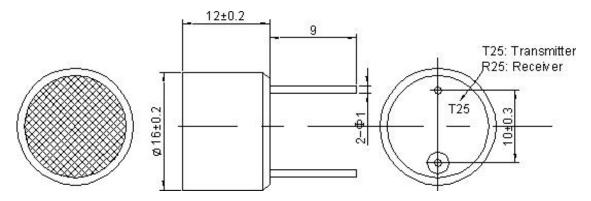
S.C.M : Standard Condenser Microphone (Brüel & Kjær 4135)

Amp. : Amplifier (Brüel & Kjær 2610)

SP.: Tweeter (S.P.L 94dB)

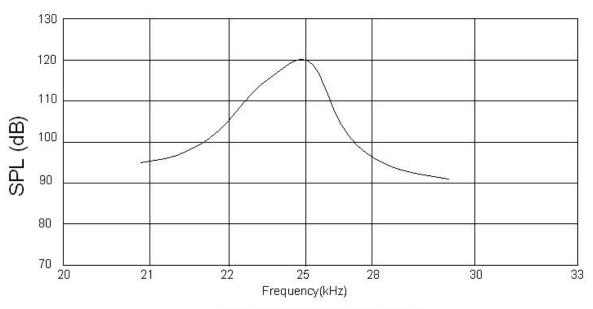
RL : 3.9 kΩ

F.APPEARANCE DRAWING

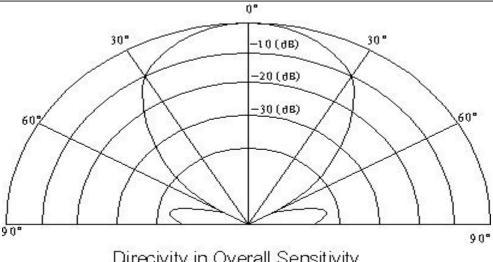


Unit: mm Tolerance: ±0.5mm

G. FREQUENCY CURVE



Frequency Characteristics



Direcivity in Overall Sensitivity

H. NOTICE ON PRODUCT STORAGE

a. Please store the products in room where the temperature / humidity is stable. And avoid such places where there are large temperature changes. Please store the products under the following conditions:

Temperature: -10 to +40 (degree C)

Humidity: 15 to 85% R.H.

b. Expire date (Shelf life) of the products is 6 months after delivery under the conditions of a sealed and an unopened package. Please use the products within 6 months after delivery. If you store the products for a long time (more than 6months), use carefully because the products may be degraded in the solder-ability and/or rusty.

Please confirm solder-ability and characteristics for the products regularly.

C. Please use the products immediately after the package is opened, because the characteristics may be reduced in quality, and/or be degraded in the solder-ability due to storage under the poor condition.

I. REVISION

| No. | DATE | DESCRIPTION | REMARK | VERSION |
|-----|--------------|-------------------|------------------|---------|
| 1 | Sept.17,2020 | Initial condition | TDA-T1612-25P-AO | V2.0 |
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