A150A Air transducer

Part Number: H2KA150KA1CD00

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1. Introduction

Unictron's A150A ultrasonic transducer is designed to deliver outstanding performance at around 150 kHz frequency. The transducer works as a signal transmitting and receiving unit. This ultrasonic transducer is suitable for proximity measurement, web guiding control, edge position control, non-contact level measurement and robotics, etc.

1.1 Model name

A 150 A

- A = type of transducer
- 150 = frequency 150 kHz
- A = Air transducer

1.2 Part number: H2KA150KA1CD00

H2KA	150	K	A1	C	D	00
Product Serial No.	Operation Frequency: 150 kHz	Serial No.	C: Composite PZT-Air	D: Double: means Transmitter & Receiver in one unit.		System No.

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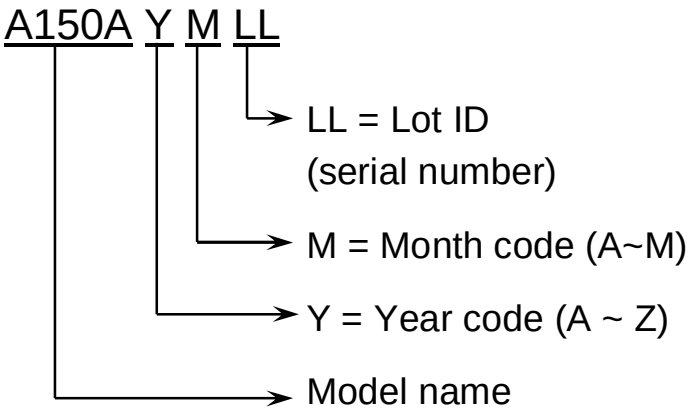
DESIGNED BY : William Wu	APPROVED BY : Jeff Chang		
TITLE : A150A Air transducer		DOCUMENT NO. H2KA150KA1CD00	REV. A

1.3 Marking



Year	Y code	Month	M code
2017	S	Jan	A
2018	T	Feb	B
2019	U	March	C
2020	V	April	D
2021	W	May	E
2022	X	June	F
2023	Y	July	G
2024	Z	August	H
2025	A	Sep	J
2026	B	Oct	K
2027	C	Nov	L
2028	D	Dec	M

(I、O not involve the code)

2. Electrical Characteristics

2.1 Major electrical characteristics and testing conditions

Characteristics	Specifications	Unit
Operation frequency	150	kHz
Overall sensitivity *	5.0 ± 2.0	V_{p-p}
Ringing (T2)	< 950	μs
Capacitance (@ 1kHz, 1Vrms)	1000 ± 20%	pF
Directivity (full angle @-3 dB)	8 ± 2	Degree
Maximum driving voltage (2% Duty Cycle Tone Burst)	500	V_{p-p}
Typical max. sensing range	2.5	meter

* Note: 1. Measured at 25 ± 3°C, 45 to 60% RH.

2. Testing circuit setup: Driving signal: rectangular wave 18 Vp-p, 150 kHz, burst number = 10 pulses, drive interval: 20 ms, gain of receiving circuit: 64 dB (Please refer to 2.2 for details)

3. Dimensions of reflecting metal plate: 400x400mm, reflection distance: 600mm

4. T2 definition shown as below:

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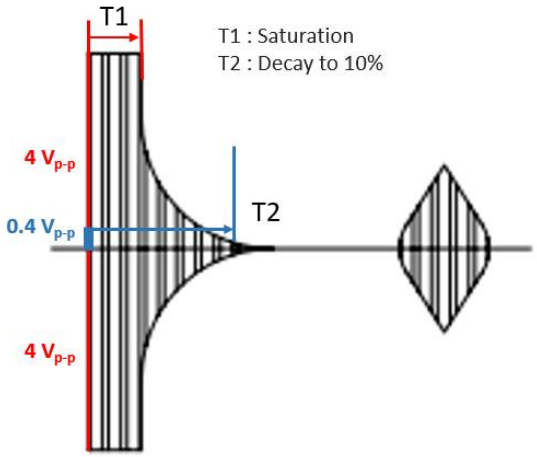
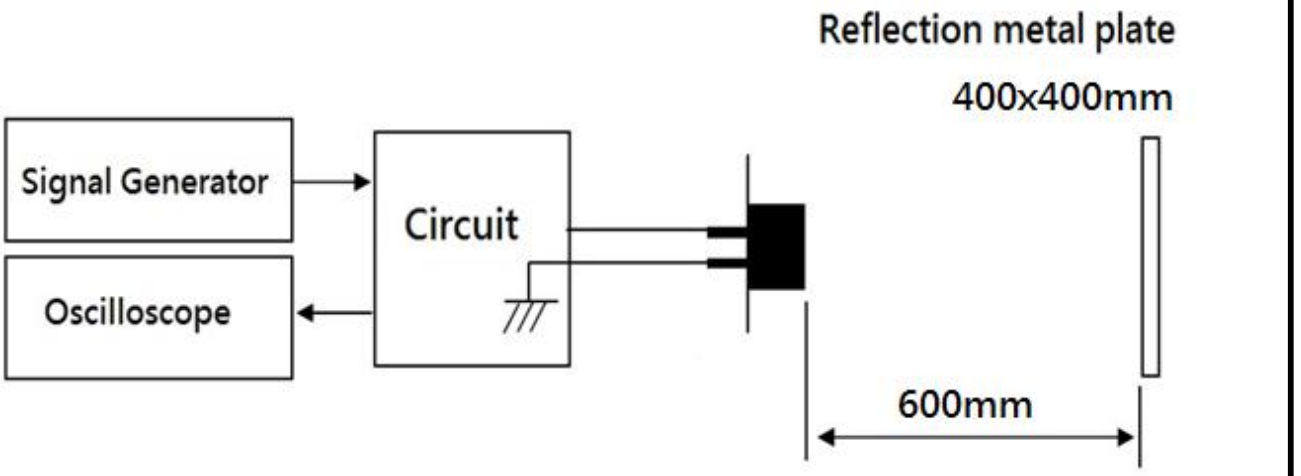


2.2 Performance testing

Typical setup for sensitivity measurement



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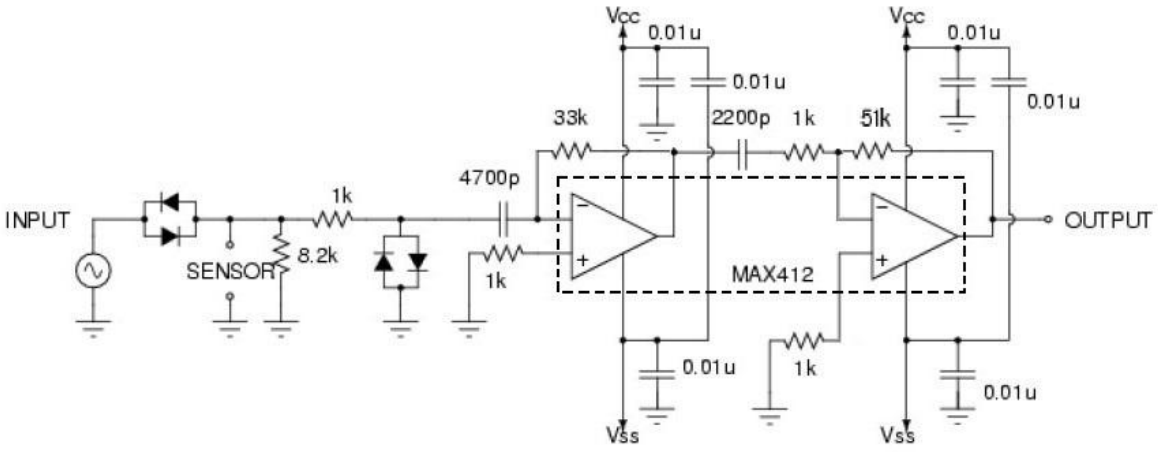
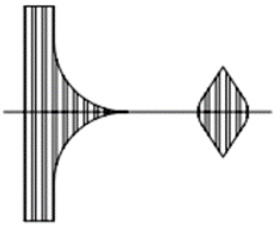
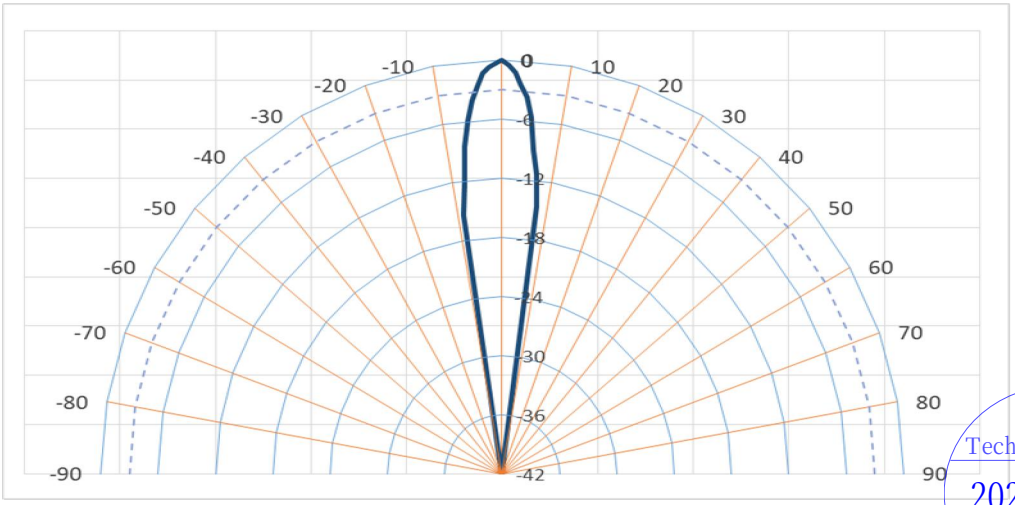


Circuit



Drive signal:
Rectangular 18 Vp-p; Frequency=150 kHz; Driving Interval=20 ms;
Pulse n=10; Gain of receiving circuit: 64 dB

2.3 Typical directivity diagram



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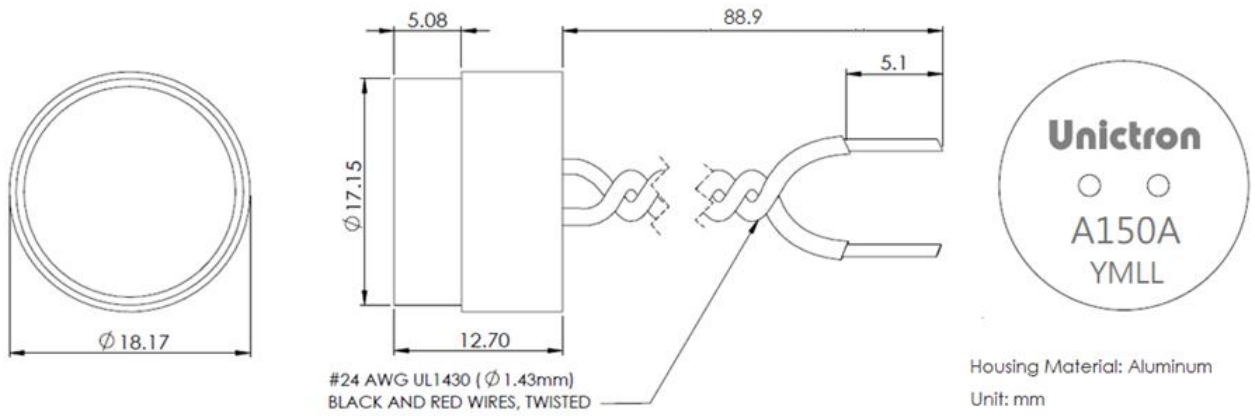
3. Dimensions



Dimensions	Specifications	Unit
Height	12.70 ± 0.1	mm
OD (face)	Φ17.15 ± 0.1	mm
Housing OD	Φ18.17 ± 0.1	mm
Wire (UL1430 #24AWG Ø1.43mm)	88.9 ± 6.4	mm

4. Operation and storage conditions

Operating:

Temperature: -20°C to +70°C

Maximum driving voltage: 500 Vp-p

Storage:

Temperature: -40°C to +85°C

Relative Humidity: 30 to 80%

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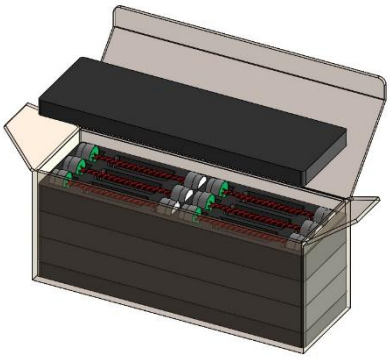
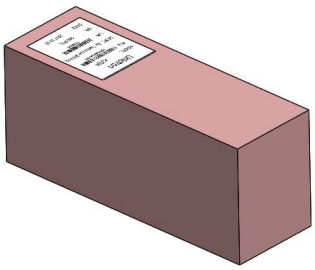
5. Packing

5.1 Inner box

Dimensions	249 x 85 x 111 mm
Quantity of transducers	48 pcs
Reference for gross weight	415 ± 10 g

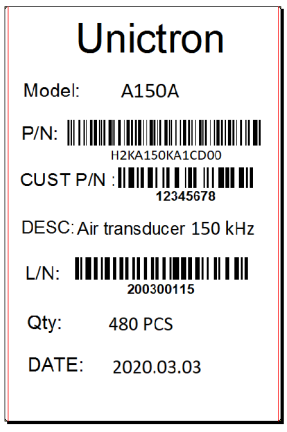


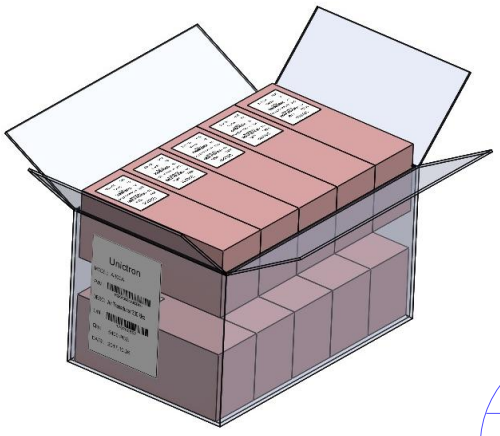


5.2 Carton (outer box) and Label

Dimensions	445 x 260 x 238 mm
Quantity of inner box	10 boxes
Total quantity of transducers	480 pcs
Reference for gross weight	4.2 ± 0.5 kg

Label on carton.





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6. Notes and References

6.1 Piezoelectricity

When exposed to high temperature or high voltage, piezoceramic materials may lose its piezoelectric properties due to depolarization.

6.2 Soldering

Please use the soldering tip to connect the wire of the transducer. The temperature of the soldering tip should not exceed 360°C with maximum soldering time of 3 seconds. The transducer is not designed for reflow soldering process. Do not put the transducer in the reflow oven.

6.3 Electric connection

Do not connect transducer to DC voltage.

6.4 Installation

Noise may be induced when the transducer is subject to vibration. Please protect the transducer with buffer material at installation.

6.5 Not a water-proof device

The transducer is not hermetically sealed. Please don't expose to water, organic solvents, and corrosive gases. Please also keep the surface of the transducer clean, do not touch the surface with skin and do not clean the surface with organic solvent.

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