



Ultrasonic air transducer
Model: A050A
Part Number: H2KA050KA1CD00

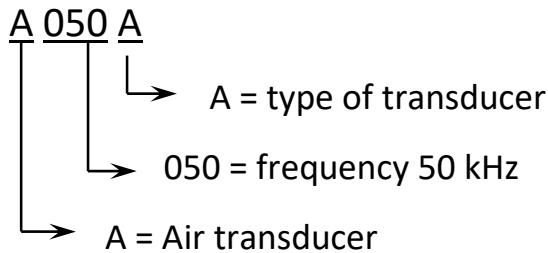
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1 Introduction

Unictron’s A050A ultrasonic transducer is designed to deliver outstanding performance at around 50 kHz frequency. The transducer works as a signal transmitting and receiving unit. This ultrasonic transducer is suitable for non-contact level detection and proximity measurement. In particular, the transducer with the PVDF housing can operate under harsh chemical environment to measure the level of fluids, pastes, and coarse bulk materials.

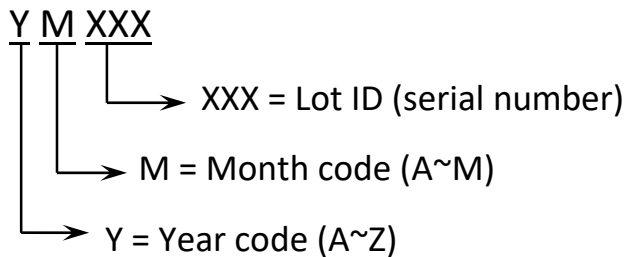
1.1 Model name



1.2 Part number

H2KA050KA1CD00

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

2 Electrical Characteristics

2.1 Major electrical characteristics and testing conditions

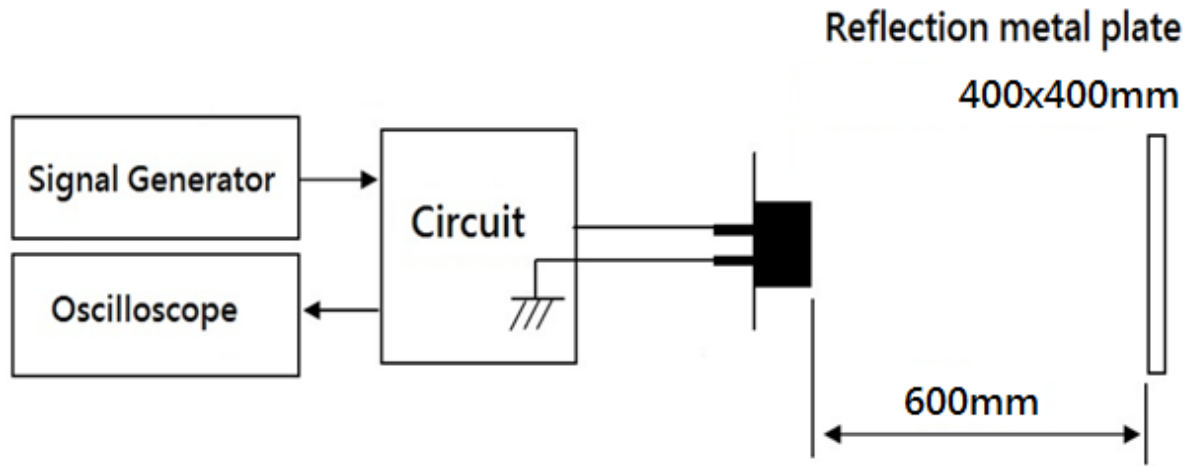
Characteristics	Specifications	Unit
Operation frequency	50	kHz
Overall sensitivity *	min. 4.0	V _{p-p}
Capacitance (@ 1kHz, 1Vrms)	3500 ±20%	pF
Directivity (full angle @-3 dB)	10± 2	Degree
Maximum driving voltage	1000	V _{p-p}
Typical sensing range	0.3~10	meter
Dead zone	max. 0.3	meter

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

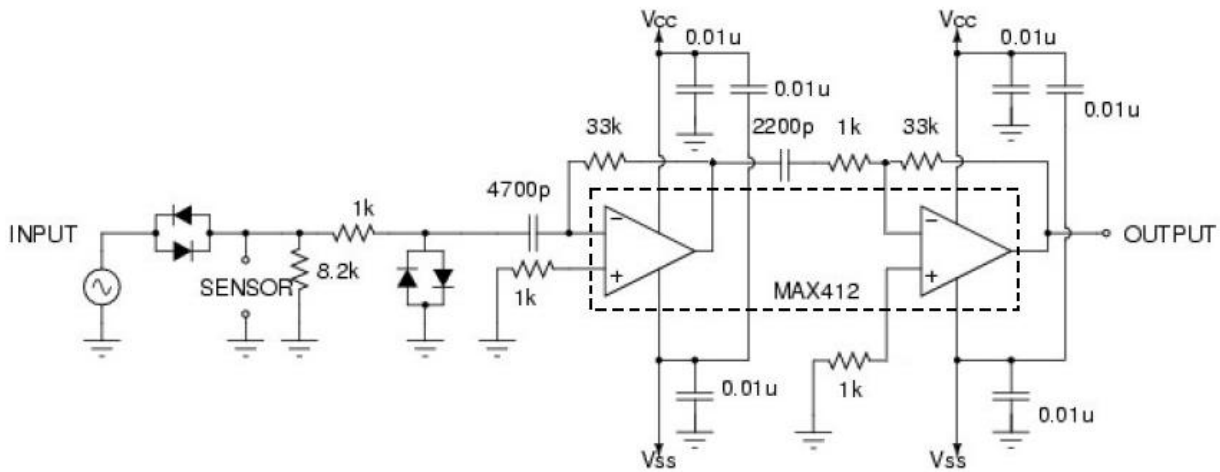
2. Testing circuit setup: Driving signal: rectangular wave 18Vp-p, 50 kHz, burst number= 10 pulses, drive interval: 20 ms, gain of receiving circuit: 60 dB (Please refer to 2.2 for details)
3. Dimensions of reflecting metal plate: 400x400mm, reflection distance: 600mm

2.2 Performance testing

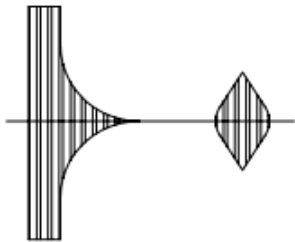
Typical setup for sensitivity measurement



Measurement setup



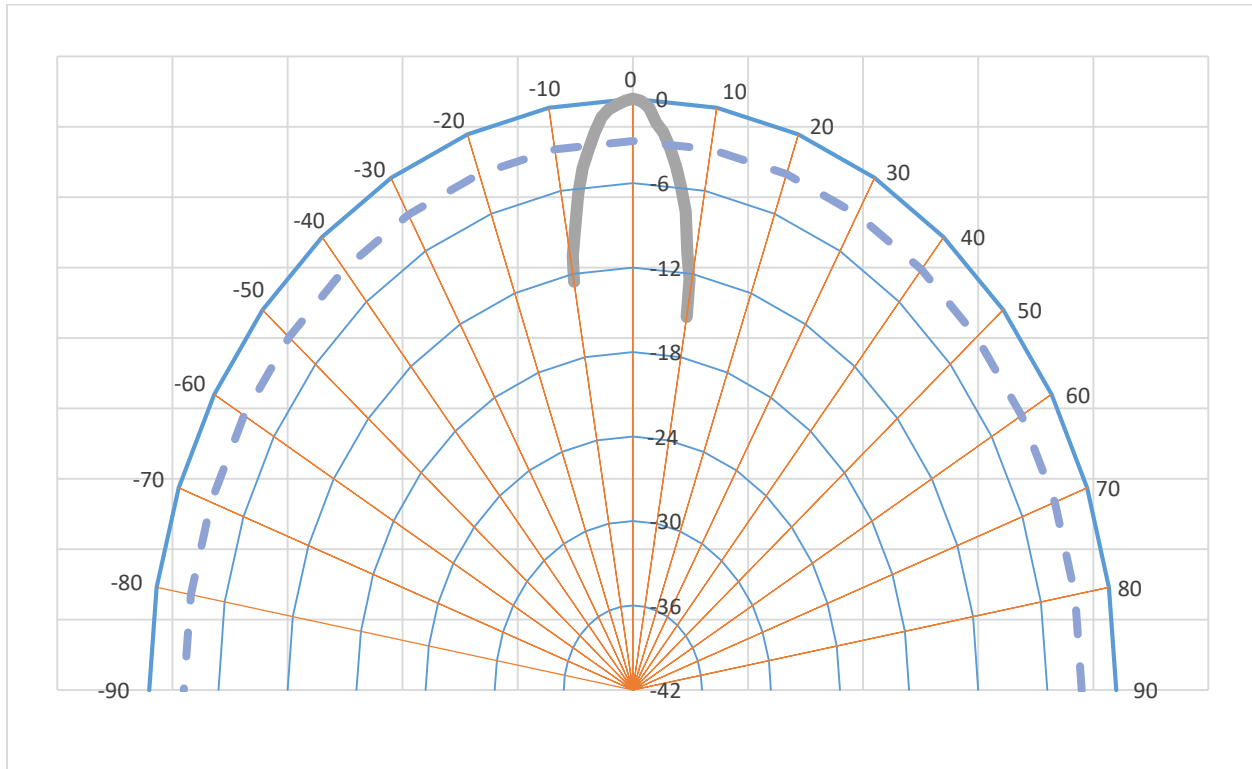
Circuit



Drive signal:

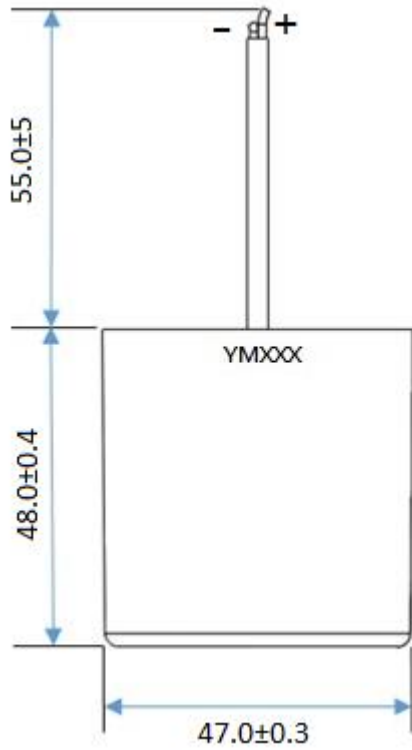
Rectangular 18 Vp-p; Frequency=50 kHz; Driving Interval=20ms; Pulse n=10; Gain of receiving circuit: 60 dB

2.3 Typical directivity diagram

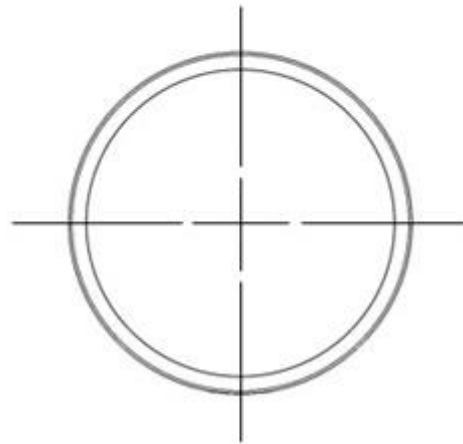


Directivity (for reference only)

3 Dimensions



Housing material: PVDF
Unit: mm



Dimensions	Specifications	Unit
Height	48.0± 0.4	mm
OD (face)	47.0± 0.3	mm
OD (open end)	48.0± 0.3	mm
ID (open end)	43.0± 0.25	mm
Cavity depth	Min. 26.5	mm
Wire (RG174U, 50 ohm, Ø2.8mm)	L55.0±5	mm

4 Operating and storage conditions

Operating:

Temperature: -40°C to +85°C

Maximum driving voltage: 1000 V_{P-P}

Storage:

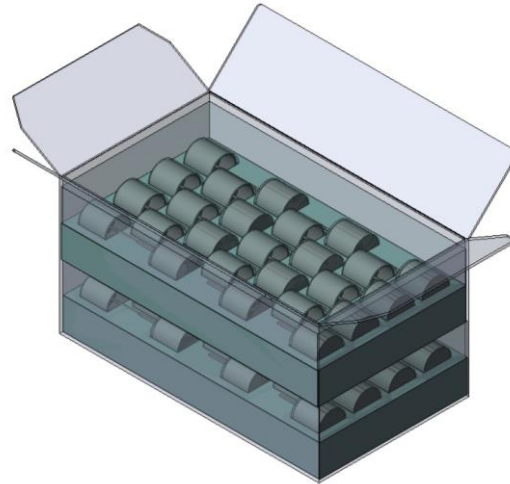
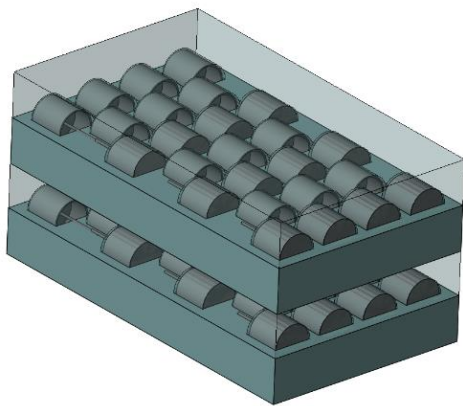
Temperature: -40°C to +85°C

Relative Humidity: 30 to 80%

5 Packing

5.1 Package :




Quantity of transducers	50 pcs (25 pcs x 2 holders)
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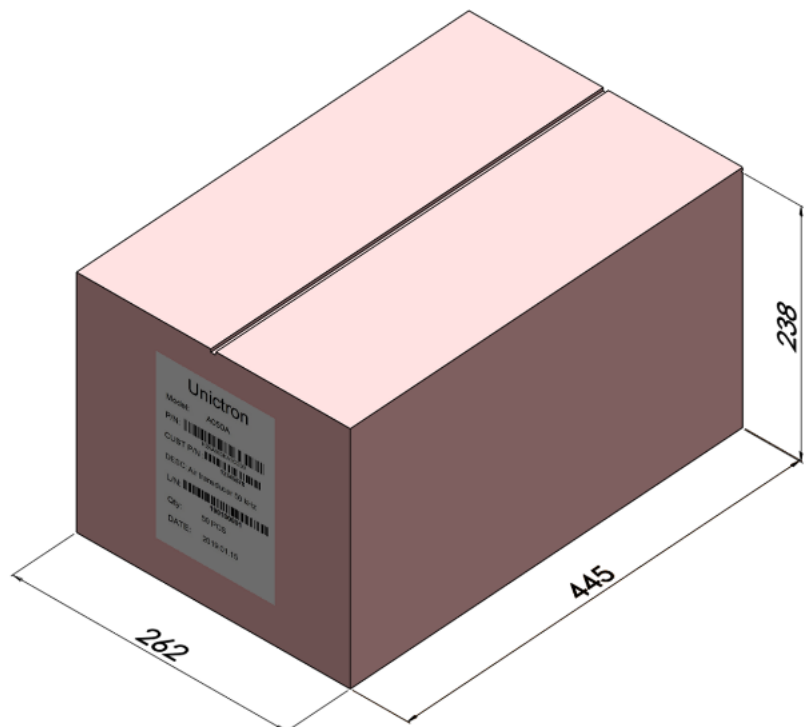


5.2 Carton and Label:

Carton Dimensions	445 x 262x 238mm
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Label on carton:

Unictron	
Model:	A050A
P/N:	 H2KA050KA1CD00
CUST P/N :	 12345678
DESC:	Air transducer 50 kHz
L/N:	 190100001
Qty:	50 PCS
DATE:	2019.01.15



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 transducer onto circuit. 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 the 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 Chemical resistance

The housing of the transducer is made of PVDF for chemical resistance. It is particularly suitable for the non-contact level detection in chemical tanks.

Data presented in this specification were measured under the conditions specified above. When measuring conditions are different (e.g. relative humidity or ambient temperature), results may differ.

Information presented in this specification is believed to be correct as of the date of publishing. Unictron Technologies Corporation reserves the rights to change the specification without prior notice. Please consult Unictron's engineering team about the latest information before using this product.

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