

# A300A Air Transducer

**Part Number: H2KA300KA1CD00**

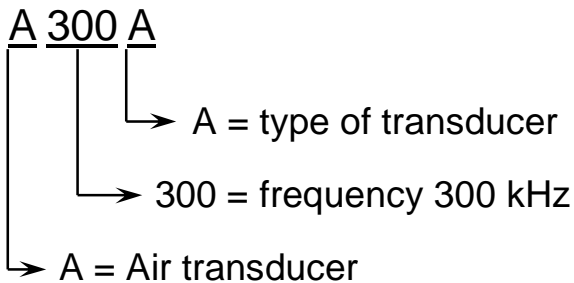


# 1. Introduction:

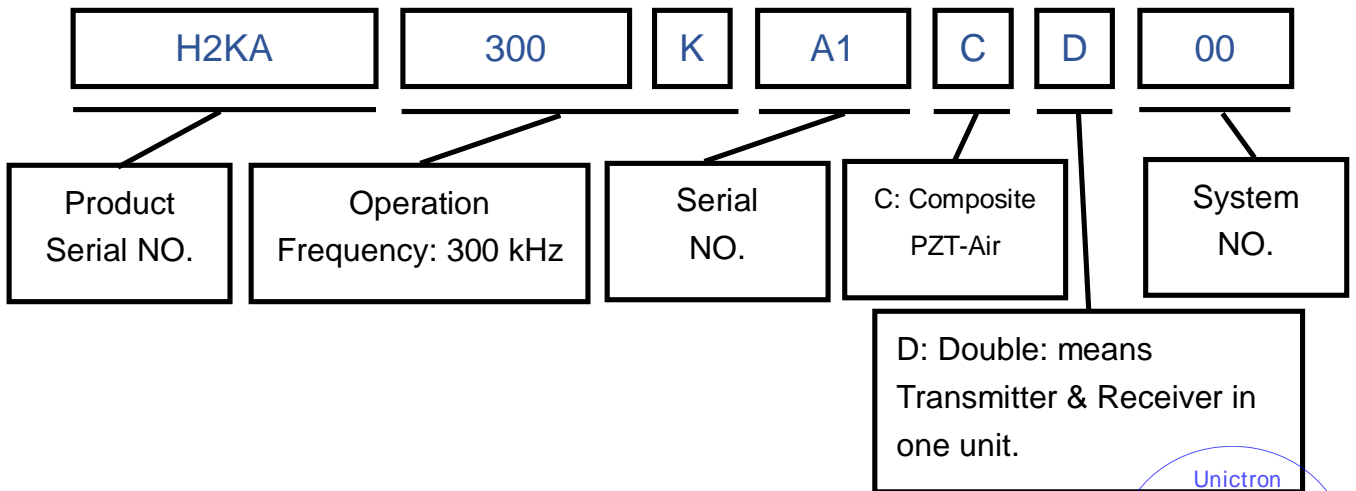
Unictron's A300A ultrasonic transducer is designed to deliver outstanding performance at around 300 kHz frequency. The transducer works as a signal transmitting and receiving unit. This ultrasonic transducer is particularly suitable for double layer detection, edge detection and web guiding, splice detection, label detection and proximity measurement, etc. It will work reliably regardless of materials under detection, for example: paper, glass, transparent plastics, shiny metal, cardboard, etc.




## 1.1 Model name

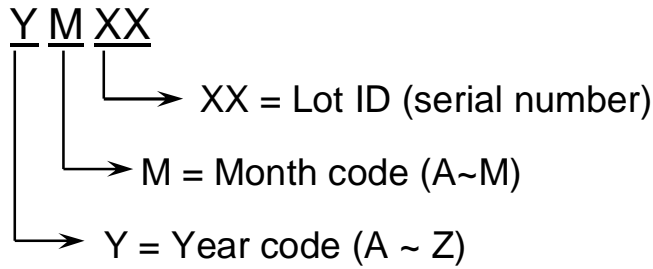


## 1.2 Part number : H2KA300KA1CD00



TOLERANCES (UNLESS SPECIFIED OTHERWISE) X = ±      X.X = ±      X.XX = ± ANGLES = ±      HOLE DIA = ±		 詠業科技股份有限公司 Unictron Technologies Corporation Website: www.unictron.com		
SCALE : free	UNIT : mm			
DRAWN By : Sam Chen	CHECKED BY: Long Chen	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND MAY NOT BE REPRODUCED OR USED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION FROM UNICTRON.		
DESIGNED BY : Bryant Liao	APPROVED BY : Jeff Chang			
TITLE : A300A Air Transducer		DOCUMENT NO.	H2KA300KA1CD00	REV. B

### 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	300	kHz
Overall sensitivity *	min. 1.8	V <sub>p-p</sub>
Capacitance (@ 1kHz, 1Vrms)	1300 ±20%	pF
Directivity ( half angle @-6 dB )	5	Degree
Maximum driving voltage	50	V <sub>p-p</sub>
Insulation Resistance (@ 100V DC )	100 (min.)	Mega Ohm

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

2. Testing circuit setup: Driving signal: 10Vp-p, 300 kHz, burst number= 5 pulses,  
drive interval: 3.33ms, gain of receiving circuit: 60 dB

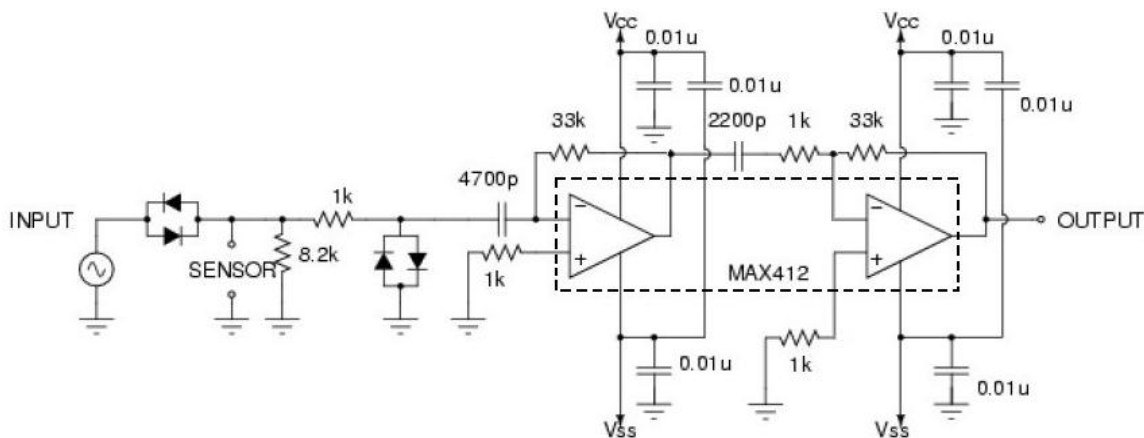
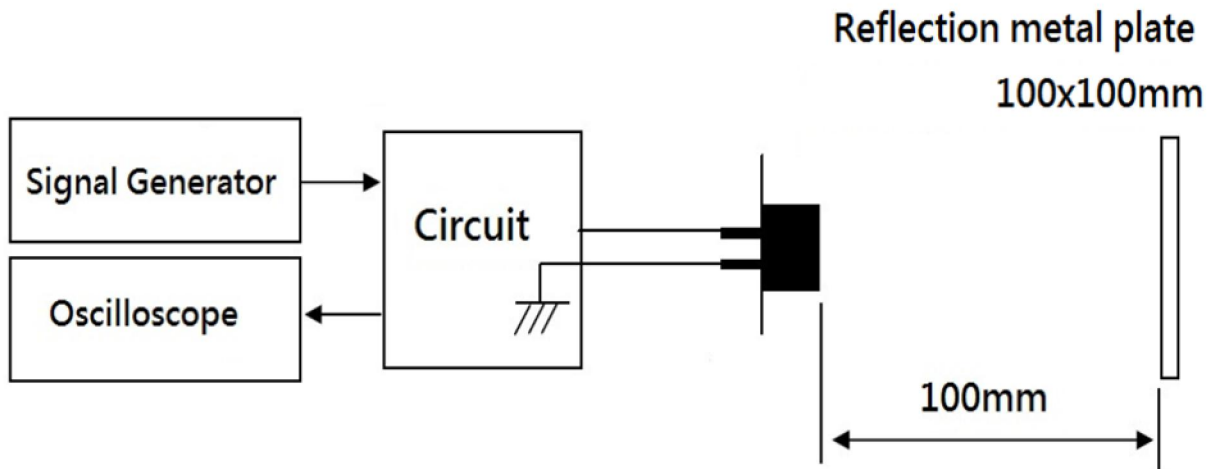
3. Dimensions of reflecting metal plate: 100x100mm, reflection distance: 100mm



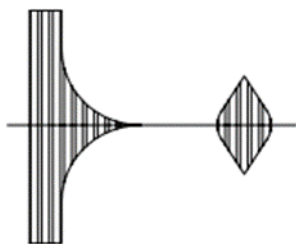
TOLERANCES (UNLESS SPECIFIED OTHERWISE) <b>X = ±      X . X = ±      X . XX =</b> <b>ANGLES = ±      HOLE DIA = ±</b>		 <b>詠業科技股份有限公司</b> Unictron Technologies Corporation Website: www.unictron.com			
SCALE : free	UNIT : mm				
DRAWN By : Sam Chen	CHECKED BY: Long Chen	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND MAY NOT BE REPRODUCED OR USED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION FROM UNICTRON.			
DESIGNED BY : Bryant Liao	APPROVED BY : Jeff Chang				
TITLE : A300A Air Transducer		DOCUMENT NO.	H2KA300KA1CD00	REV.	B

## 2.2 Performance testing

Typical setup for sensitivity measurement




### Circuit



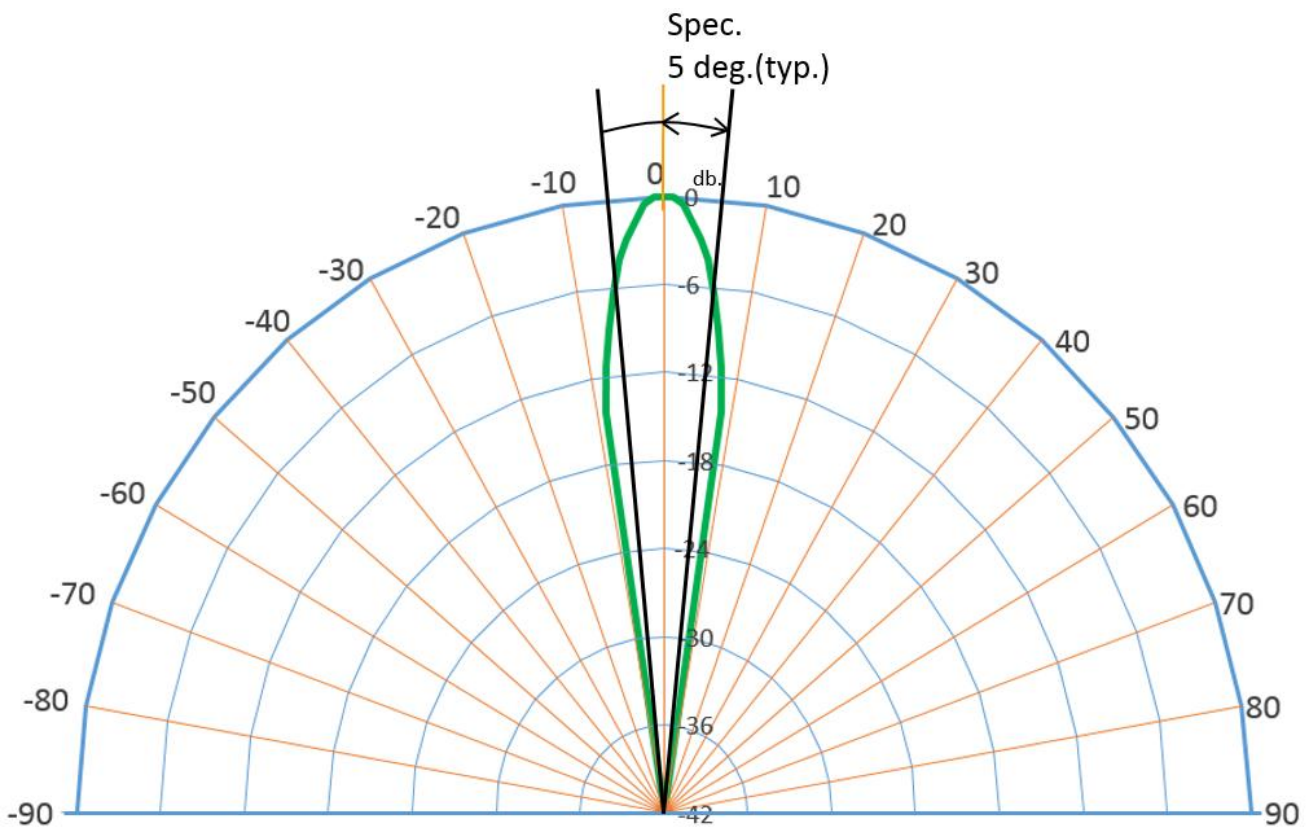
#### Drive signal:

10 V p-p; Frequency=300 kHz; Driving Interval=3.33ms; Pulse n=5;  
 Gain of receiving circuit: 60 dB




TOLERANCES (UNLESS SPECIFIED OTHERWISE) $X = \pm$ $X.X = \pm$ $X.XX =$ <b>ANGLES</b> = $\pm$ <b>HOLE DIA</b> = $\pm$		 <b>詠業科技股份有限公司</b> Unictron Technologies Corporation Website: www.unictron.com		
SCALE : free	UNIT : mm			
DRAWN By : Sam Chen	CHECKED BY: Long Chen	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND MAY NOT BE REPRODUCED OR USED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION FROM UNICTRON.		
DESIGNED BY : Bryant Liao	APPROVED BY : Jeff Chang			
TITLE : A300A Air Transducer		DOCUMENT NO.	H2KA300KA1CD00	REV. B

### 2.3 Typical directivity diagram

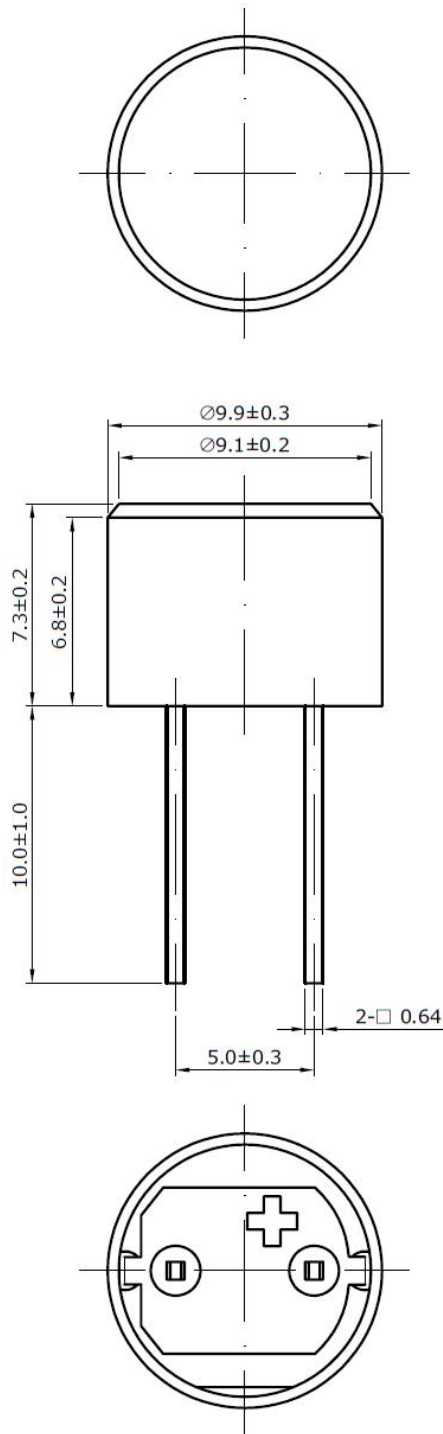



Unictron  
Technologies Corp.  
2019-11-01  
Document  
Control Center

TOLERANCES (UNLESS SPECIFIED OTHERWISE) X = ±      X.X = ±      X.XX =		 詠業科技股份有限公司 Unictron Technologies Corporation Website: www.unictron.com	
ANGLES = ±      HOLE DIA = ±			
SCALE : free	UNIT : mm	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND MAY NOT BE REPRODUCED OR USED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION FROM UNICTRON.	
DRAWN By : Sam Chen	CHECKED BY: Long Chen		
DESIGNED BY : Bryant Liao	APPROVED BY : Jeff Chang		
TITLE : A300A Air Transducer	DOCUMENT NO.	H2KA300KA1CD00	REV.
			B

### 3. Dimensions:

Unit: mm



TOLERANCES (UNLESS SPECIFIED OTHERWISE) X = ±      X.X = ±      X.XX =		 詠業科技股份有限公司 Unictron Technologies Corporation Website: www.unictron.com	
ANGLES = ±      HOLE DIA = ±			
SCALE : free	UNIT : mm	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND MAY NOT BE REPRODUCED OR USED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION FROM UNICTRON.	
DRAWN By : Sam Chen	CHECKED BY: Long Chen		
DESIGNED BY : Bryant Liao	APPROVED BY : Jeff Chang		
TITLE : A300A Air Transducer	DOCUMENT NO.	H2KA300KA1CD00	REV.
			B

#### 4. Operation and storage conditions

Operating:

Temperature: -20°C to +70°C

Maximum driving voltage: 50 V<sub>P-P</sub>

Storage:

Temperature: -30°C to +70°C

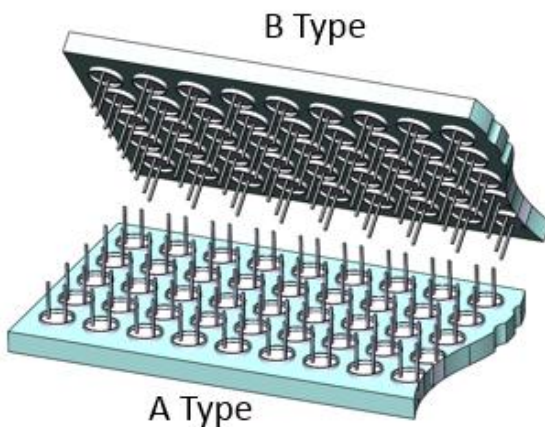
Relative Humidity: 30-80%

Storage area shall avoid sulfur-containing materials. Sulfur may cause corrosion of electrode metals

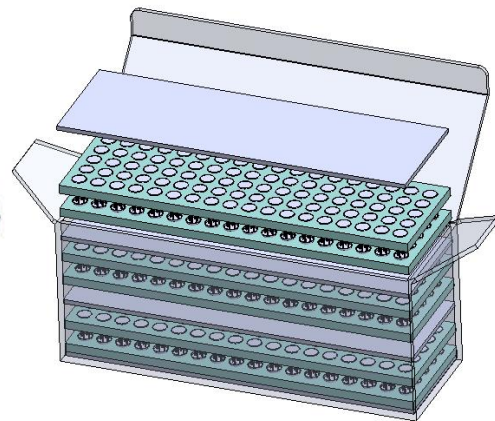
#### 5. Packing:

##### 5.1 Inner box:

Dimensions	249 x 85 x 111 mm
Quantity of transducers	540 pcs ( 90 pcs x 6 holders )
Reference for gross weight	580 g




Ninety transducers in a holder



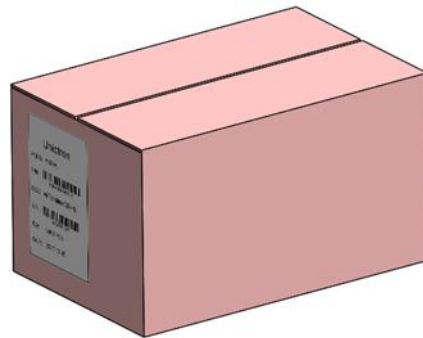
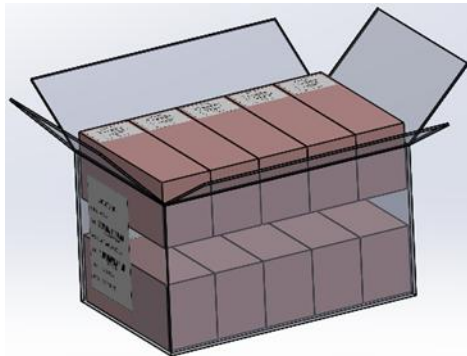
Six holders stacked in an inner box



TOLERANCES (UNLESS SPECIFIED OTHERWISE) X = ±      X.X = ±      X.XX = ± ANGLES = ±      HOLE DIA = ±		 詠業科技股份有限公司 Unictron Technologies Corporation Website: www.unictron.com		
SCALE : free	UNIT : mm			
DRAWN By : Sam Chen	CHECKED BY: Long Chen	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND MAY NOT BE REPRODUCED OR USED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION FROM UNICTRON.		
DESIGNED BY : Bryant Liao	APPROVED BY : Jeff Chang			
TITLE : A300A Air Transducer		DOCUMENT NO.	H2KA300KA1CD00	REV. B

## 5.2 Outer box:

Dimensions	445 x 260 x 238 mm
Quantity of inner box	10 boxes
Total quantity of transducers	5400 pcs
Reference for gross weight	6.5 kg



## 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 mount the transducer onto circuit boards. 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.



TOLERANCES (UNLESS SPECIFIED OTHERWISE) X = ±      X . X = ±      X . XX = ± ANGLES = ±      HOLE DIA = ±		 詠業科技股份有限公司 Unictron Technologies Corporation Website: www.unictron.com		
SCALE : free	UNIT : mm			
DRAWN By : Sam Chen	CHECKED BY: Long Chen	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND MAY NOT BE REPRODUCED OR USED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION FROM UNICTRON.		
DESIGNED BY : Bryant Liao	APPROVED BY : Jeff Chang			
TITLE : A300A Air Transducer		DOCUMENT NO.	H2KA300KA1CD00	REV. B



### 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.



TOLERANCES (UNLESS SPECIFIED OTHERWISE) $X = \pm$ $X.X = \pm$ $X.XX =$ <b>ANGLES</b> = $\pm$ <b>HOLE DIA</b> = $\pm$		 <b>詠業科技股份有限公司</b> Unictron Technologies Corporation Website: www.unictron.com						
<b>SCALE</b> : free	<b>UNIT</b> : mm							
<b>DRAWN By</b> : Sam Chen	<b>CHECKED BY</b> : Long Chen	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND MAY NOT BE REPRODUCED OR USED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION FROM UNICTRON.						
<b>DESIGNED BY</b> : Bryant Liao	<b>APPROVED BY</b> : Jeff Chang							
<b>TITLE</b> : A300A Air Transducer		<table border="1"> <tr> <td><b>DOCUMENT NO.</b></td> <td><b>H2KA300KA1CD00</b></td> <td><b>REV.</b></td> </tr> <tr> <td></td> <td></td> <td>B</td> </tr> </table>	<b>DOCUMENT NO.</b>	<b>H2KA300KA1CD00</b>	<b>REV.</b>			B
<b>DOCUMENT NO.</b>	<b>H2KA300KA1CD00</b>	<b>REV.</b>						
		B						