PUIaudio

Data Sheet	DMM-2726-B

The PUI Audio DMM-2726-B digital PDM output MEMS omni-directional microphone features a nominal -26dBFS sensitivity, 64dB(A) signal-to-noise ratio, and a bottom port.

Features:

- 1.85mm x 2.75mm package
- 0.9mm height
- -26dBFS sensitivity
- 64dB (typical) signal-to-noise ratio
- Omni-directional polar response

Specifications

V_{SUPP} = 1.8V_{DC}, f_{IN} = 1kHz, Acoustic Input = 94dBSPL (1Pa), 0 dBV = 1V @ 1Pa, bandwidth (BW) = 20Hz ≤ f ≤ 20kHz, A-weighted, 768kHz ≤ f_{CLK} ≤ 2.4MHz unless otherwise stated.

Parameters		Values	Units
Typical Sensitivity		-26 ±1	dBFS
Typical Signal-to-Noise Ratio	f_{CLK} = 2.4MHz	64	dB
	f_{CLK} = 768kHz	61	dB
Typical Frequency Range		20 ≤ f ≤ 20,000	Hz
Total Harmonic Distortion	Maximum	0.5	%
	Typical	0.15	
Typical Acoustic Overload Point (AOP) THD = 10%		121	dBSPL
Operating Voltage Range		1.6 ≤ V_S ≤ 3.6	V_{DC}
Typical Power Supply Current	f_{CLK} = 2.4MHz	780	µA
	f_{CLK} = 768kHz	380	
	f_{CLK} ≤15KHz	10	
Directivity		Omnidirectional	-
Environmental Compliances		RoHS/Halogen Free	-
Typical Power Supply Rejection (PSR) f_{NOISE} = 217Hz Square Wave 100mV_{PP} Bandwidth = 8kHz ≤ fBW ≤ 20kHz A-weighted 768kHz ≤ fCLK ≤ 2.4MHz		-90	dBFS

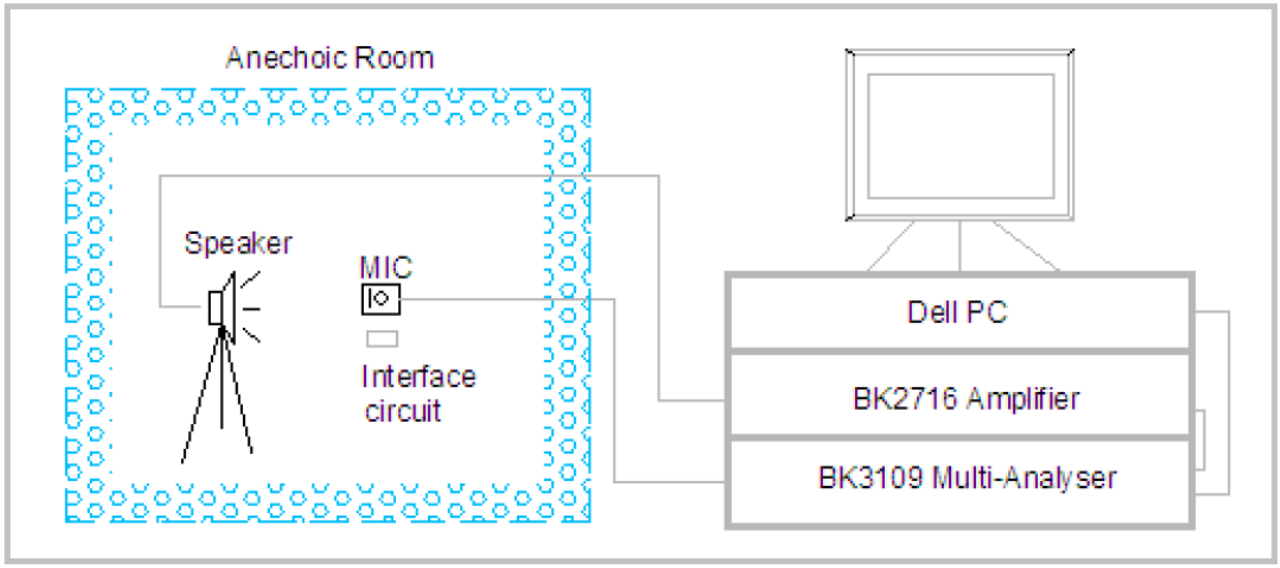
Specifications (continued) V_{SUPP} = 1.8V_{DC}, f_{IN} = 1kHz, Acoustic Input = 94dBSPL (1Pa), 0 dBV = 1V @ 1Pa, bandwidth (BW) = 20Hz ≤ f ≤ 20kHz, A-weighted, unless otherwise stated.

Absolute Maximum Ratings

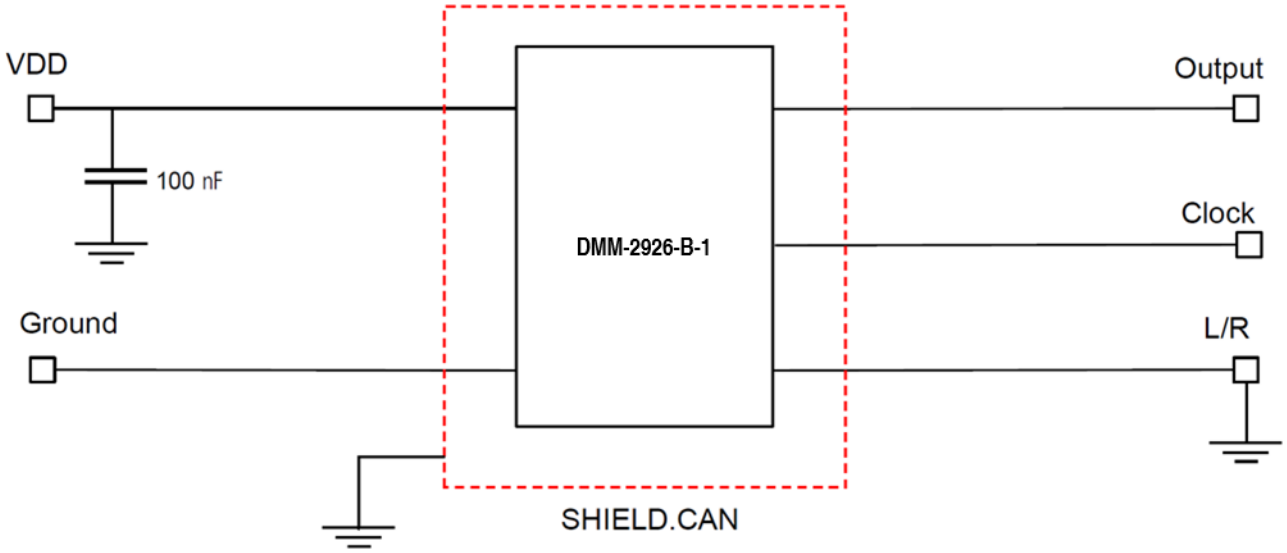
Parameters	Values	Units
Maximum Voltage on V_{DD} with respect to Ground	-0.3 ≤ V_{DD} ≤ 5.0	V_{DC}

Clock Frequency	Standard operational mode	Minimum	1.19	MHz
		Maximum	3.6	
	Low power operational mode	Minimum	350	kHz
		Maximum	830	
	Sleep mode	Minimum		
		Maximum	15	
Logic-High Input Level (V_{IH})		Minimum	(0.65)V_{DD}	V
		Maximum	V_{DD} + 0.3	
Logic-Low Input Level (V_{IL})		Minimum	(-0.30)V_{DD}	
		Maximum	(0.35)V_{DD}	
Logic-High Output Level (V_{OH})		Minimum	(0.70)V_{DD}	
I_{OUT} = 0.5mA		Maximum		
Logic-Low Output Level (V_{OL})		Minimum		
I_{OUT} = 0.5mA		Maximum	(0.30)V_{DD}	
Bit-Clock Duty-Cycle (D_{CLK})			55	%
Maximum Bit-Clock Rise and Fall Time			13	ns
Delay Time for Valid Data		Minimum	0.5	
T2, T4 in Timing Diagram		Maximum	25	
Delay Time for High-Z Logic Output		Minimum	19	
T1, T3 in Timing Diagram		Maximum	73	
Maximum Logic Output Capacitance Load			200	pF
Maximum Time to Activate Wake-Up (T_{WAKE}) f_{CLK} ≥ 351kHz			20	ms
Maximum Time to Activate Sleep State (T_{SLEEP}) f_{CLK} = 0Hz				
Weight			<0.3	gm
Operating Temperature			-40 ≤ T_O ≤ 105	°C
Storage Temperature			-40 ≤ T_S ≤ 125	°C
MSL (Moisture Sensitivity Level) Class*			1	-

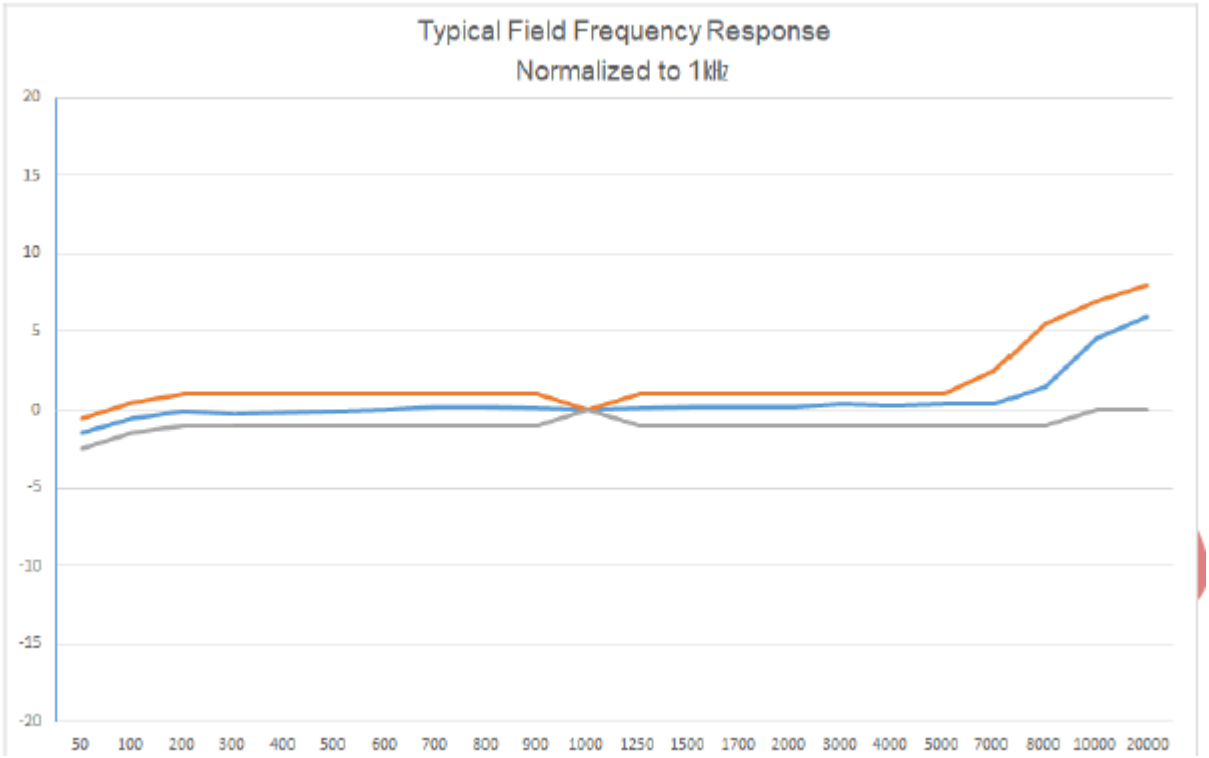
Measurement Method Acoustic input applied to the microphone has a 94dBSPL amplitude.



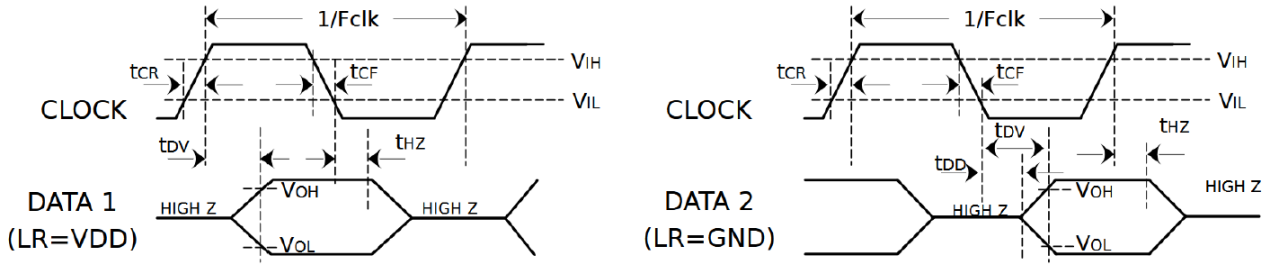
Recommended Drive Circuit



Typical Frequency Response (Normalized to 1kHz response magnitude.)



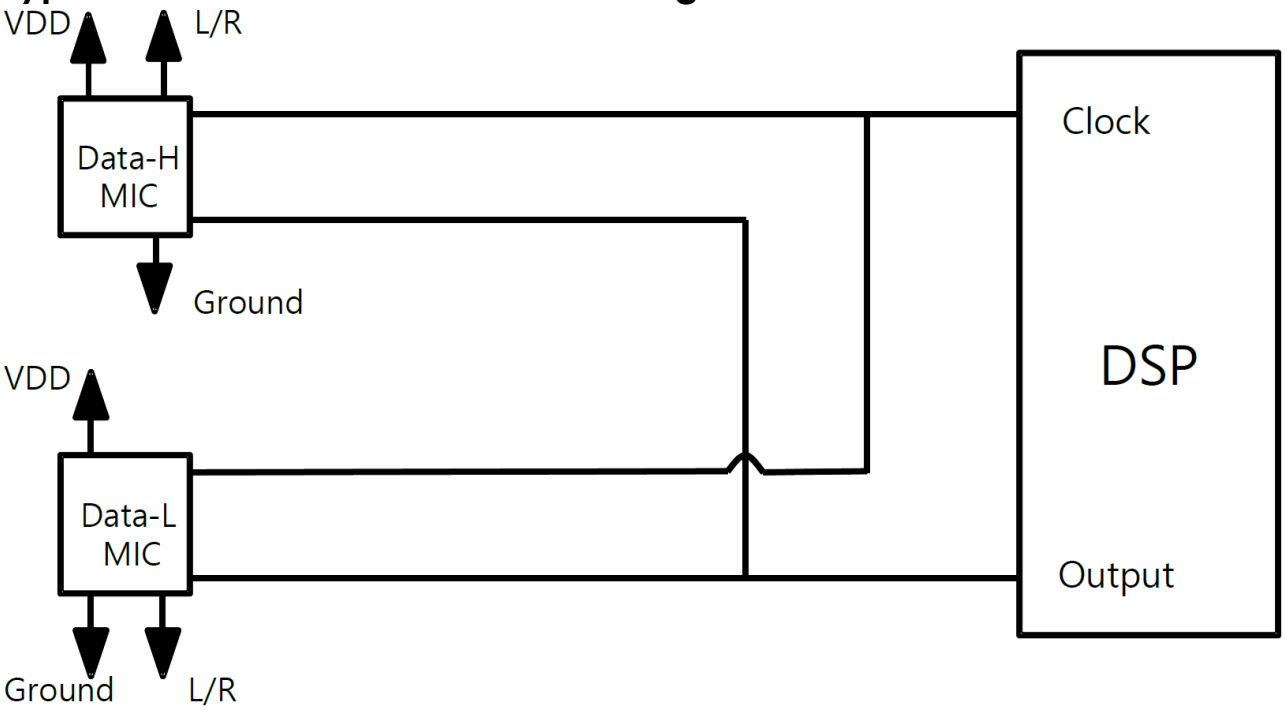
Timing Diagram



t_{DD} : 19ns t_{Hz} : 5~16ns t_{DV} : 73ns t_{CR} /t_{CF}: max13ns

5ns ≤ t1, t3 ≤ 55ns
0.5ns ≤ t2, t4 ≤ 25ns

Typical Two-Channel Connection Diagram

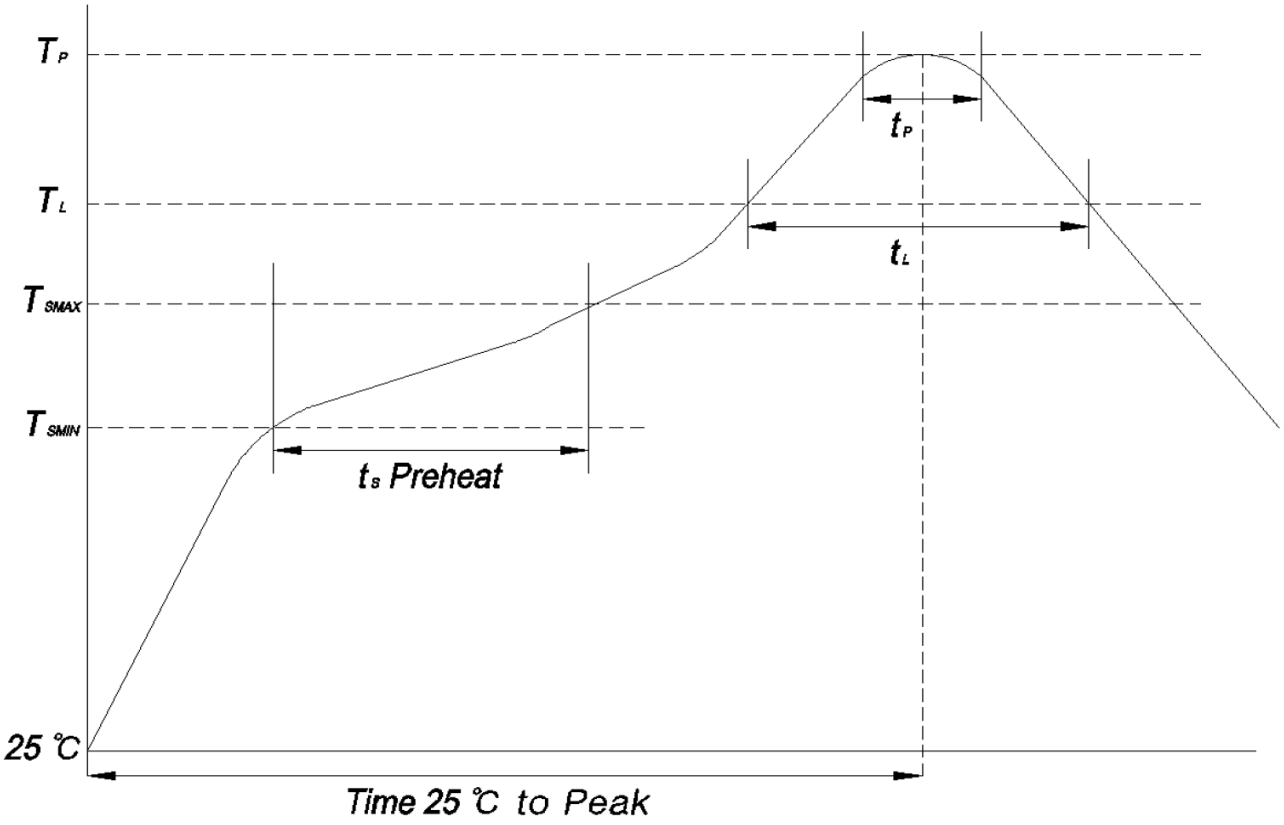


Reliability Testing

Microphone frequency response and sensitivity shall not deviate more than ±3 dB.

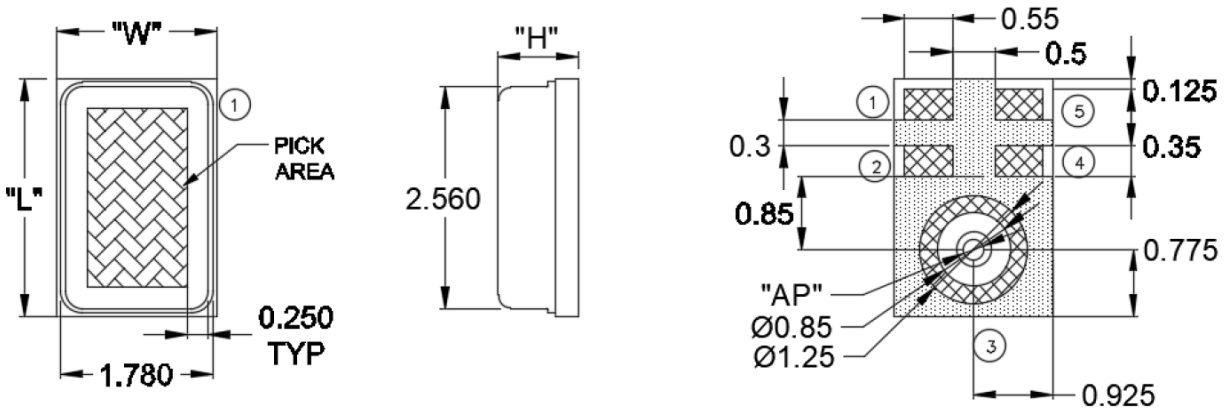
Type of Test	Test Specifications
Simulated Reflow (Without Solder)	Samples for qualification testing require 3 passes 260±5 ℃ reflow solder profiles. 2 hours of setting time is required between each reflow profile test.
Static Humidity	Precondition at +25℃ for 1 hour. Expose to +85℃ with 85% relative humidity for 120 hours. Finally, dry at room ambient for 3±1 hour before taking final measurement.
Temperature Shock	Each cycle shall consist of 30 minutes at -40℃, 30 minutes at +85℃ with 5 minutes transition time. Test duration is for 30 cycles, starting from cold to hot temperature.
ESD Sensitivity	Perform ESD sensitivity threshold measurements for each contact according to MIL-STD-883G, Method 3015.7 for Human Body Model. Identify the ESD threshold levels indicating passage of 8000V Human Body Model.
Vibration Test	Vibrate randomly along three perpendicular directions for 30 minutes in each direction, 4 cycles from 10Hz to 55 Hz with a peak acceleration of 20 Gs.
Shock Test	Subject samples to half-sine shock pulses (3000±15% Gs for 0.3ms) in each direction, for a total of 18 shocks.
Drop Test	Drop samples from 1.5m height onto a steel surface, total 18 times and inspected for mechanical damage.

Recommended Reflow Soldering Procedure



Profile Feature		Lead(Pb) Free Solder
Preheat	Temperature min.(T_{SMIN})	150 ℃
	Temperature max.(T_{SMAX})	200 ℃
	Time (t_S)	60-120 Seconds
Liquidus	Temperature (T_L)	217 ℃
	Time (t_L)	60-150 Seconds
Peak	Temperature (T_P)	260 ℃
	Time within 5 ℃ of actual peak temperature (t_P)	30 Seconds Max.
Ramp up	Average ramp up rate T_{SMAX} to T_P	3 ℃ / Second Max.
Ramp down	Average ramp down rate T_P to T_{SMAX}	6 ℃ / Second Max.
Time 25 ℃ to Peak temperature		8 Minutes Max.

Dimensions (±0.15mm tolerance)

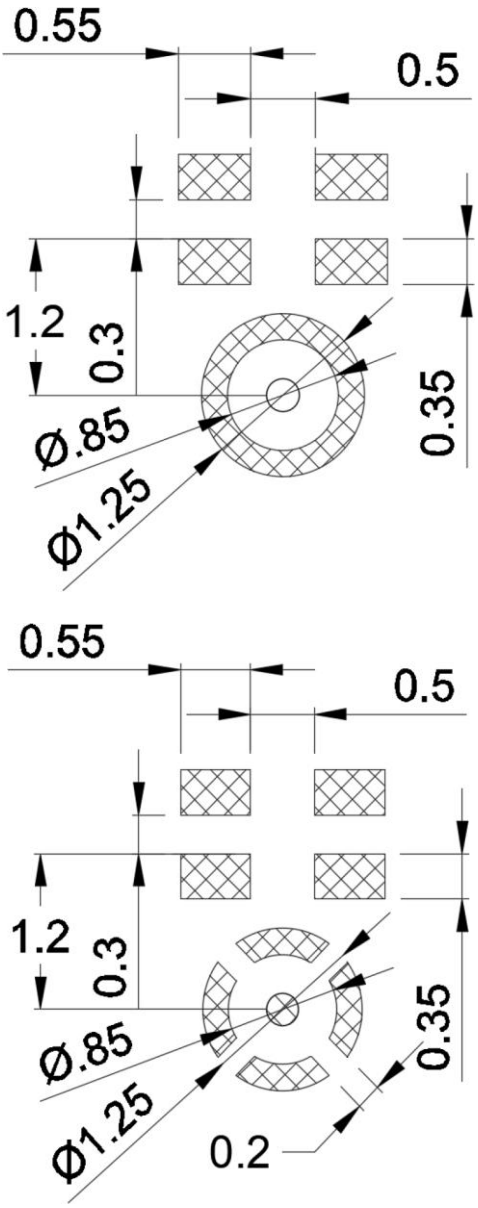


Item	Dimension	Tolerance
Length(L)	2.75	±0.10㎜
Width(W)	1.85	±0.10㎜
Height(H)	0.90	±0.10㎜
Acoustic Port(AP)	Ø0.25	±0.05㎜

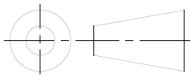
Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
VDD	Clock	Ground	L/R	Output

Note: Connect the "L/R" pin to ground when the microphone is used in a single-channel application.

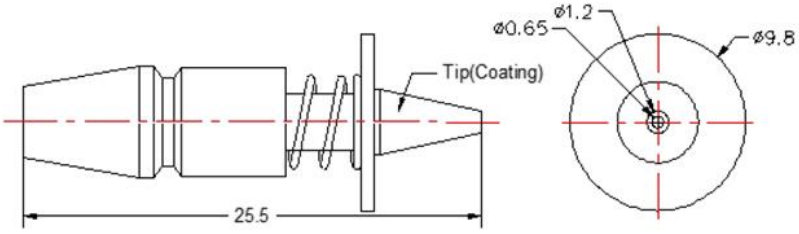
PCB Land and Stencil Pattern (This land pattern is advisory only and its use or adaptation is entirely voluntary. PUI Audio disclaims all liability of any kind associated with the use, application, or adaptation of this land pattern.)



Pick and Place Tool Recommendations

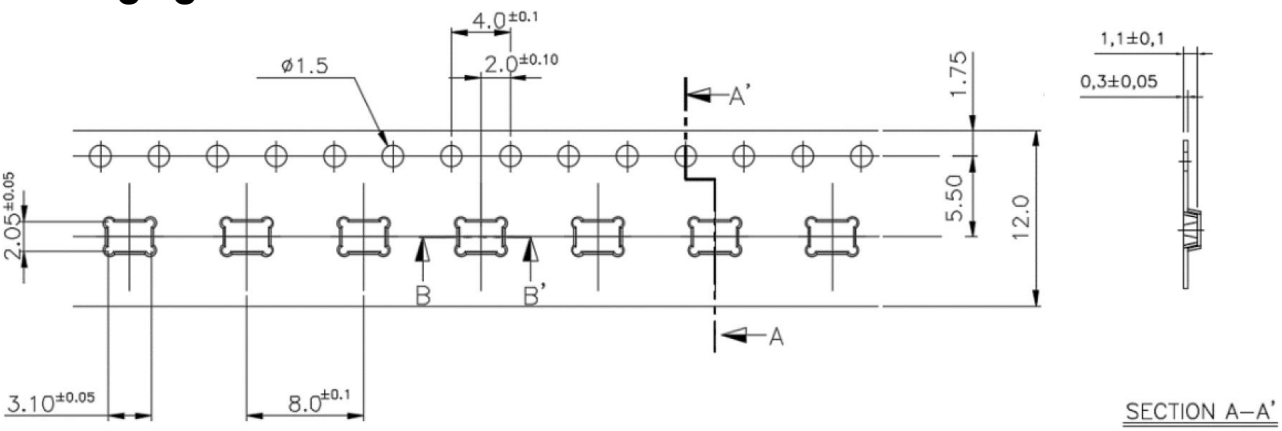


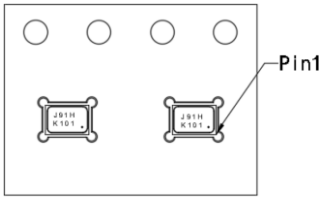
Note : Pick Area only extends to 0.25㎜ of any edge or hole unless otherwise specified.



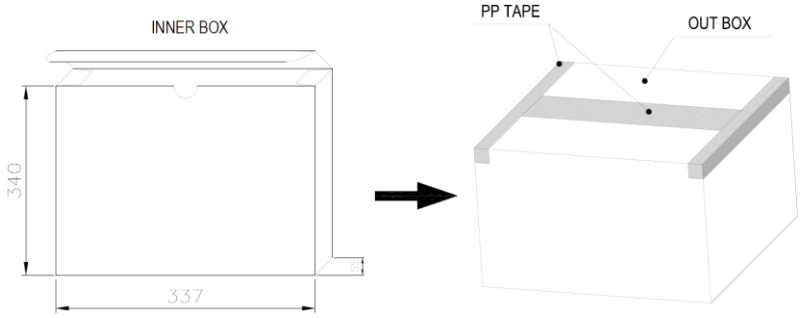
Recommended Nozzle Model : CN065
Interner Diameter : Φ 0.65mm
Externer Diameter : Φ1.2mm

Packaging





Reel Diameter	Quantity Per Reel
13”	5,900



5,900PCS X 2BAG = 11,800PCS

CARTON SIZE : 330(W) X 350(L) X 355(H)

QUANTITY : 70,800 PCS

Specifications Revisions

Revision	Description	Date	Approval
A	Datasheet released from Engineering	04/21/2025	KH

Note:

1. Unless otherwise specified:
   A. All dimensions are in millimeters.
   B. Default tolerances are ±0.5mm and angles are ±3°.
2. Specifications subject to change or withdrawal without notice.