



PUIaudio



Data Sheet

DMM-3526-5-B

The PUI Audio DMM-3526-5-B digital PDM output MEMS omni-directional microphone features a nominal -26dBV sensitivity, 65dB(A) signal-to-noise ratio, and a bottom port.

Features:

- 2.65mm x 3.50mm package
- 1.0mm height
- -26dBV sensitivity
- 65dB (typical) signal-to-noise ratio
- Omni-directional polar response

Specifications $V_{SUPP} = 1.8V_{DC}$, $f_{IN} = 1kHz$, Acoustic Input = 94dB SPL (1Pa), 0 dBV = 1V @ 1Pa, unless otherwise stated.

Parameters		Values	Units
Typical Sensitivity		-26 ±1	dBFS
Typical Signal-to-Noise Ratio 20Hz ≤ f ≤ 20kHz acoustic bandwidth A-weighted	$f_{CLK} = 2.4MHz$	65	dB(A)
	$f_{CLK} = 768kHz$	62	
Typical Frequency Range		20 ≤ f ≤ 20,000	Hz
Maximum Total Harmonic Distortion A-weighted 768kHz ≤ f_{CLK} ≤ 2.4MHz		0.15	%
Typical Acoustic Overload Point (AOP) THD = 10% 768kHz ≤ f_{CLK} ≤ 2.4MHz		122	dB
Operating Voltage Range		1.62 ≤ V_S ≤ 3.6	V_{DC}
Maximum Power Supply Current	$f_{CLK} = 2.4MHz$	780	μA
	$f_{CLK} = 768kHz$	380	
	$f_{CLK} \leq 15kHz$	10	
Maximum Output Impedance		400	Ω
Directivity		Omnidirectional	-
Environmental Compliances		RoHS/Halogen Free	-
Typical Power Supply Rejection (PSR) 100mVpp Square Wave $f_{NOISE} = 217Hz$ Bandwidth = 8kHz ≤ f_{BW} ≤ 20kHz A-weighted 768kHz ≤ f_{CLK} ≤ 2.4MHz		-90	dBFS

Specifications (continued) $V_{SUPP} = 1.8V_{DC}$, $f_{IN} = 1kHz$, Acoustic Input = 94dB SPL (1Pa), 0 dBV = 1V @ 1Pa, unless otherwise stated.

Parameters			Values	Units
Logic-High Input Level	Minimum		(0.65)V _{DD}	V
	Maximum		V _{DD} + 0.3	
Logic-Low Input Level	Minimum		-0.3	
	Maximum		(0.35)V _{DD}	
Logic-High Output Level I _{OUT} = 2mA	Minimum		(0.7)V _{DD}	
	Maximum			
Logic-Low Output Level I _{OUT} = 2mA	Minimum			
	Maximum		0.3(V _{DD})	
Bit Clock Frequency	Standard Mode	Minimum	1.19	MHz
		Maximum	3.60	
	Low-Power Mode	Minimum	0.350	
		Maximum	0.830	
	Sleep Mode	Maximum	0.015	
Bit-Clock Duty-Cycle	768kHz ≤ f _{CLK} ≤ 2.4MHz	Minimum	45	%
		Maximum	55	
Maximum Bit-Clock Rise and Fall Time (t _{CR} and t _{CF})			13	ns
Typical Delay Time for Valid Data (t _{DV})			73	
Delay Time for High-Z Logic Output (t _{HZ})		Minimum	5	
		Maximum	16	
Delay Time for Driven Data (t _{DD})			19	
Maximum Start-Up Time			20	ms
Maximum Reset Time			20	
Maximum Mode Change Time			20	
Short-Circuit Logic Output Current		Minimum	1	mA
		Maximum	20	
Maximum Logic Output Capacitance Load			200	pF
Maximum Time to Activate Wake-Up f _{CLK} ≥ 351kHz			10	ms
Maximum Time to Activate Sleep State f _{CLK} ≤ 1.0kHz			10	
Maximum Mode Change Time			10	
Weight			<0.3	gm
Operating Temperature			-40 ≤ T ₀ ≤ 85	°C
Storage Temperature			-40 ≤ T _S ≤ 125	°C
MSL (Moisture Sensitivity Level)*			1	-

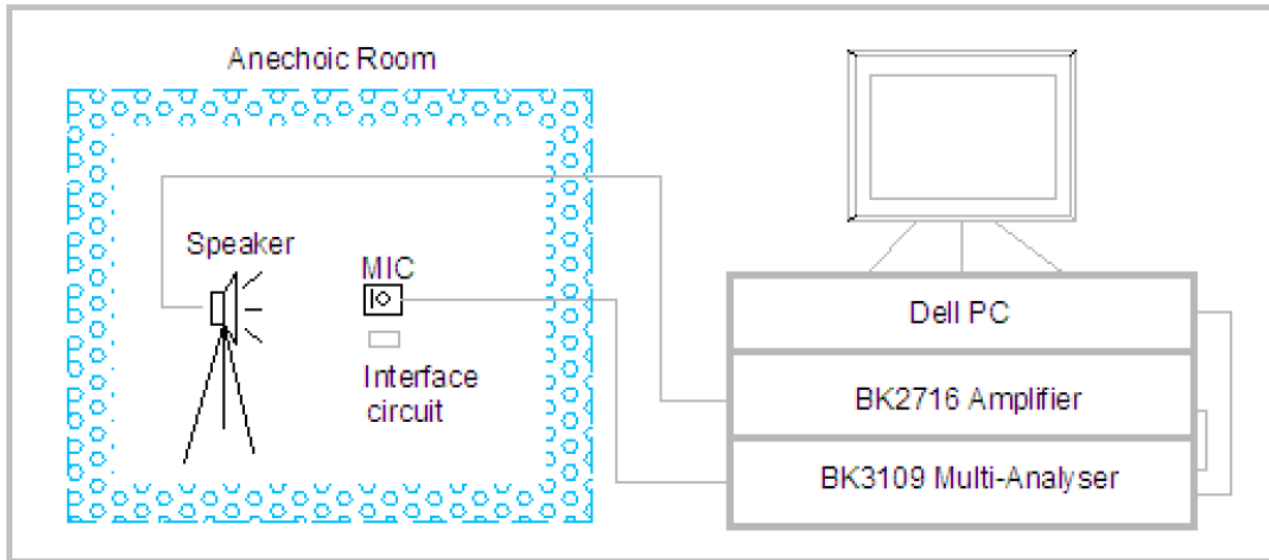
*MSL level dependent on product remaining in sealed packaging until use

Absolute Maximum Ratings

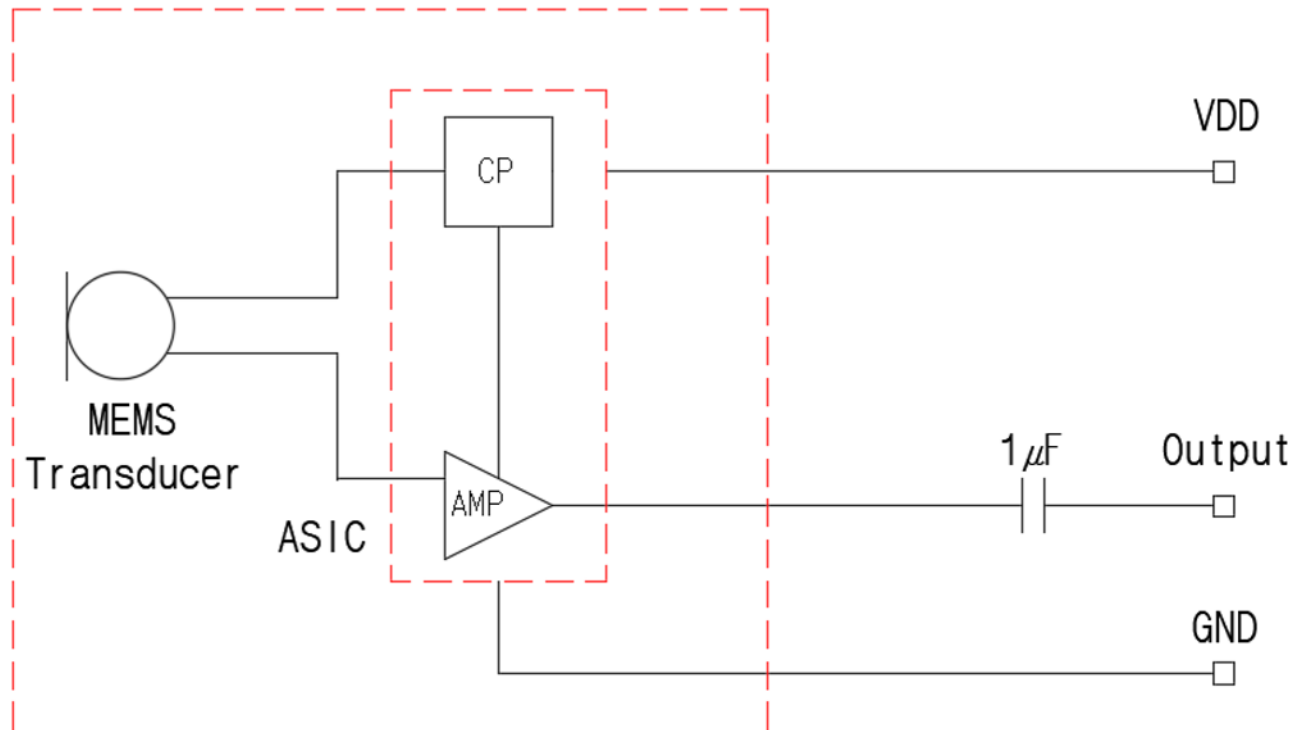
Parameters	Values	Units
Maximum Voltage on VDD with respect to Ground	4.0	V_{DC}

Measurement Method

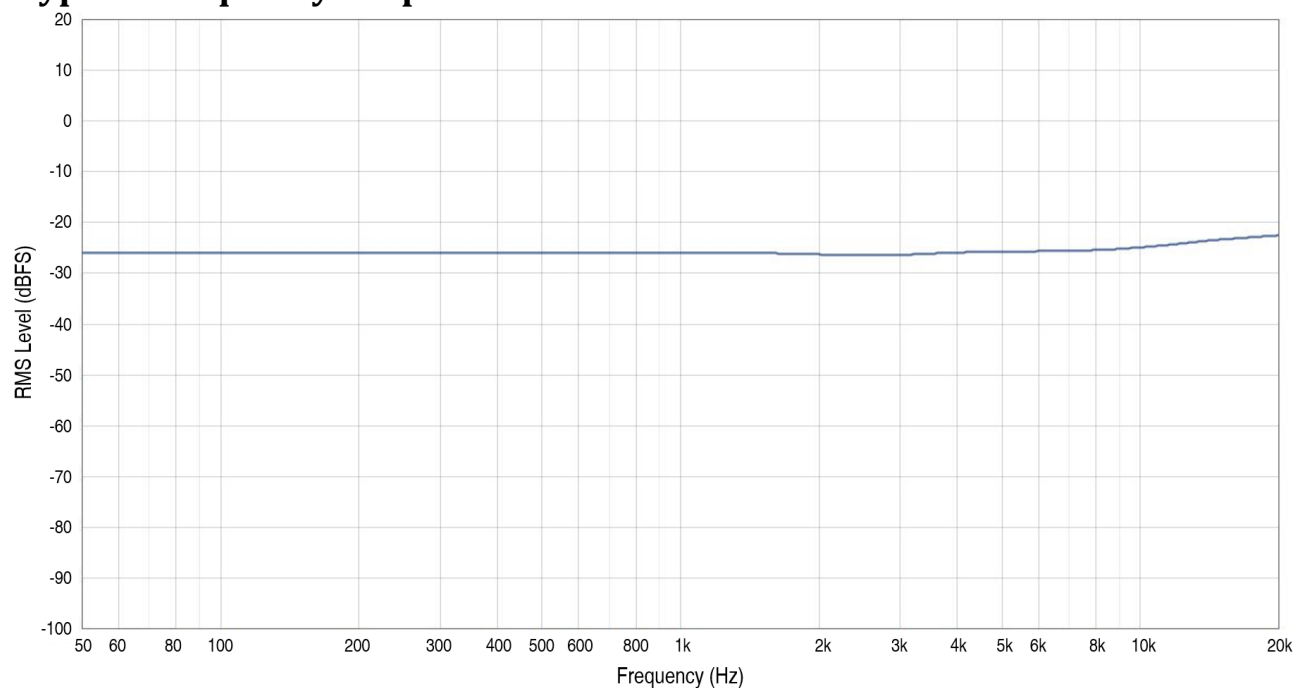
Acoustic input applied to the microphone has a 94dB SPL amplitude.



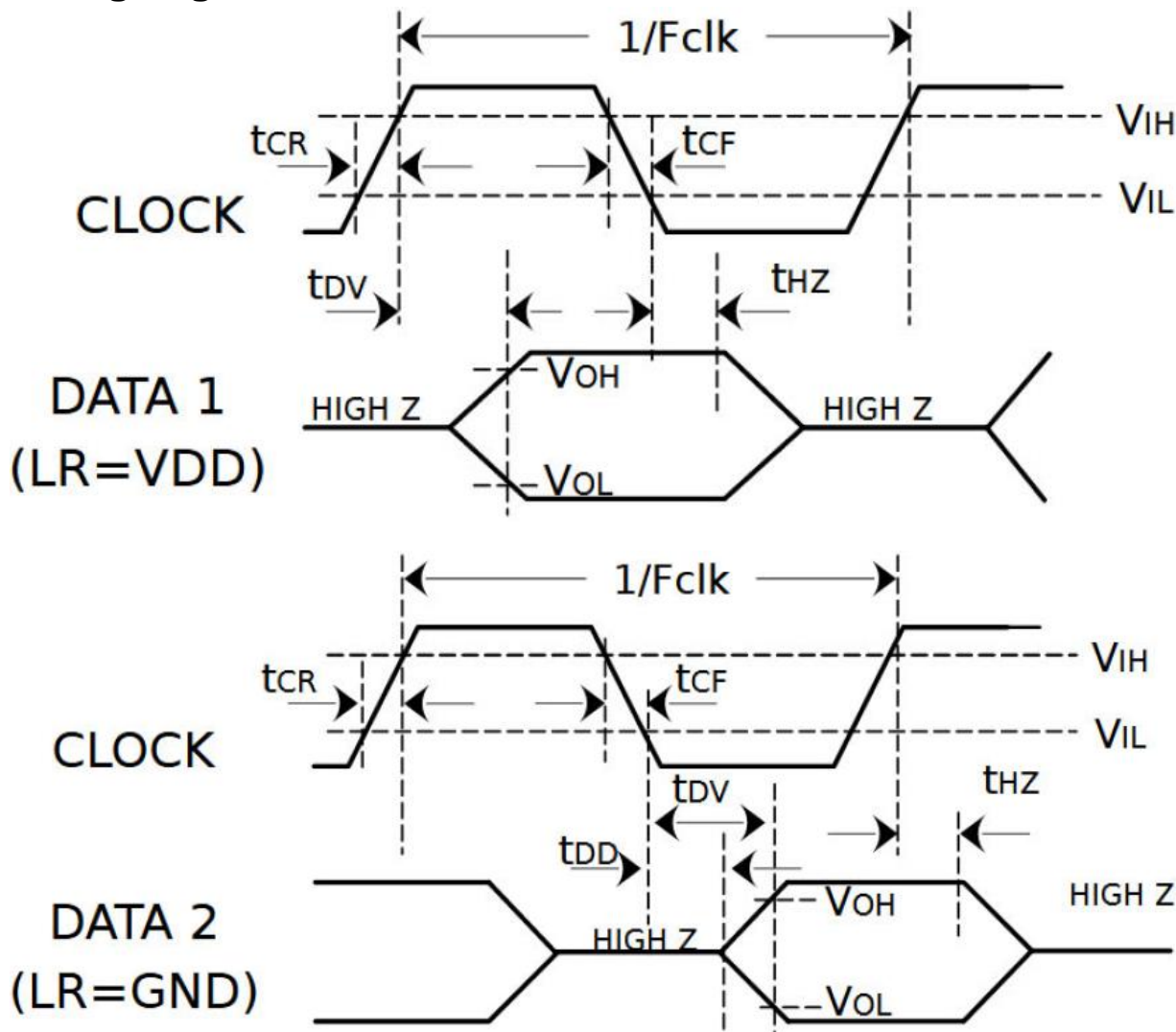
Recommended Drive Circuit



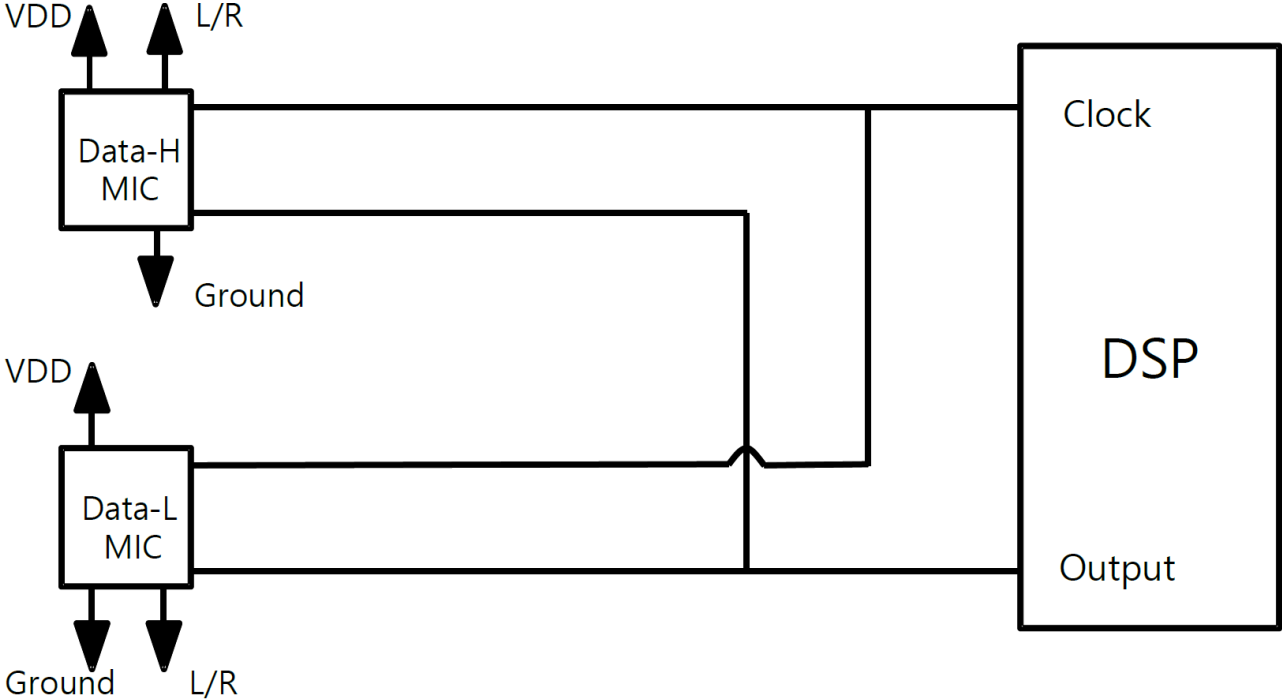
Typical Frequency Response



Timing Diagram



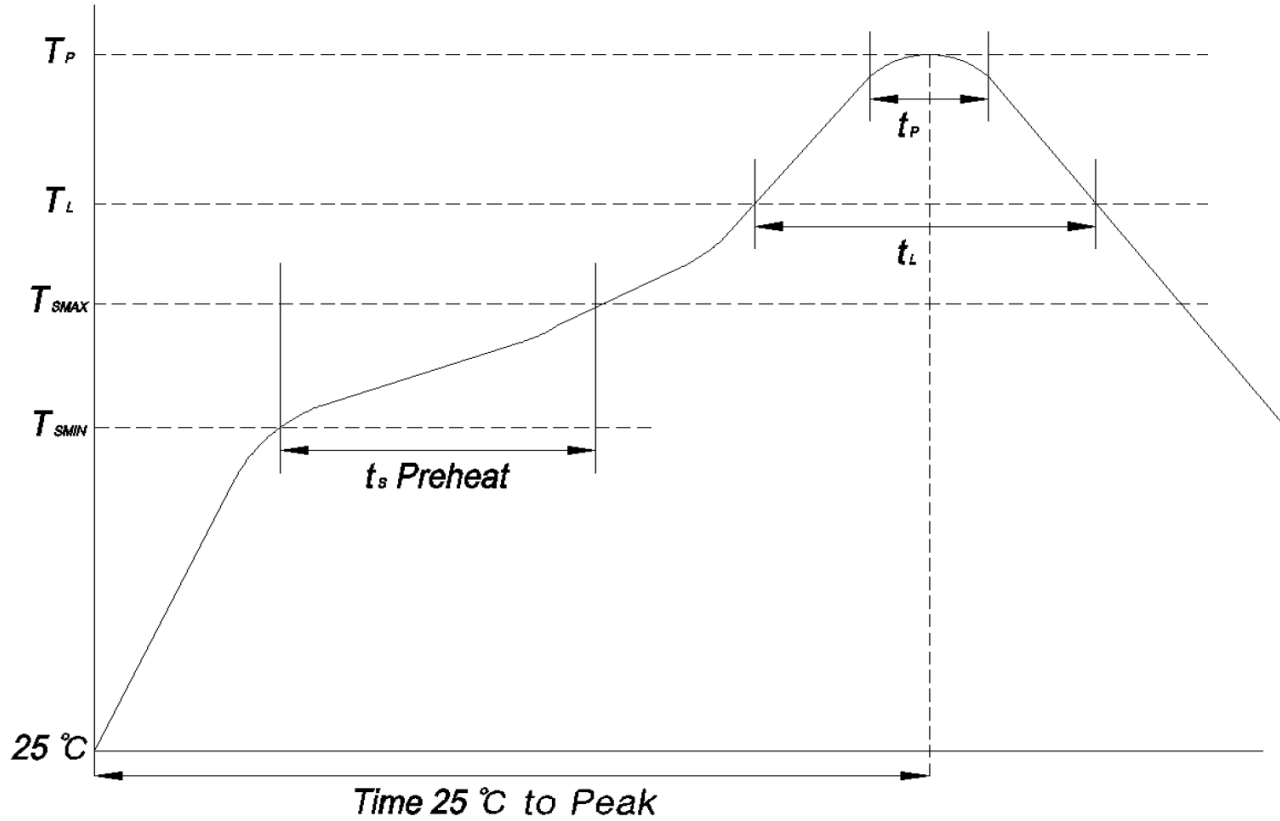
Typical Two-Channel Connection Diagram



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

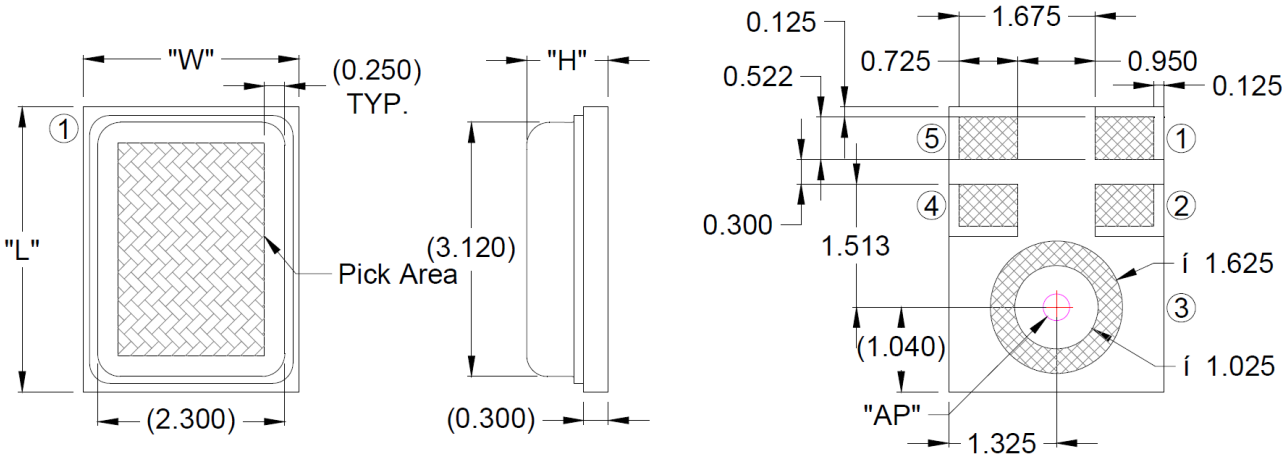
Type of Test	Test Specifications
Simulated Reflow (Without Solder)	Samples for qualification testing require 3 passes 260 ± 5 °C reflow solder profiles. 2 hours of setting time is required between each reflow profile test.
Static Humidity	Precondition at +25°C for 1 hour. Expose to +85°C with 85% relative 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°C, 30 minutes at +85°C 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 ($3000 \pm 15\%$ 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})	$150\text{ }^{\circ}\text{C}$
	Temperature max. (T_{SMAX})	$200\text{ }^{\circ}\text{C}$
	Time (t_s)	60-120 Seconds
Liquidus	Temperature (T_L)	$217\text{ }^{\circ}\text{C}$
	Time (t_L)	60-150 Seconds
Peak	Temperature (T_P)	$260\text{ }^{\circ}\text{C}$
	Time within $5\text{ }^{\circ}\text{C}$ of actual peak temperature (t_P)	30 Seconds Max.
Ramp up	Average ramp up rate T_{SMAX} to T_P	$3\text{ }^{\circ}\text{C} / \text{Second Max.}$
Ramp down	Average ramp down rate T_P to T_{SMAX}	$6\text{ }^{\circ}\text{C} / \text{Second Max.}$
Time $25\text{ }^{\circ}\text{C}$ to Peak temperature		8 Minutes Max.

Dimensions (±0.15mm tolerance)

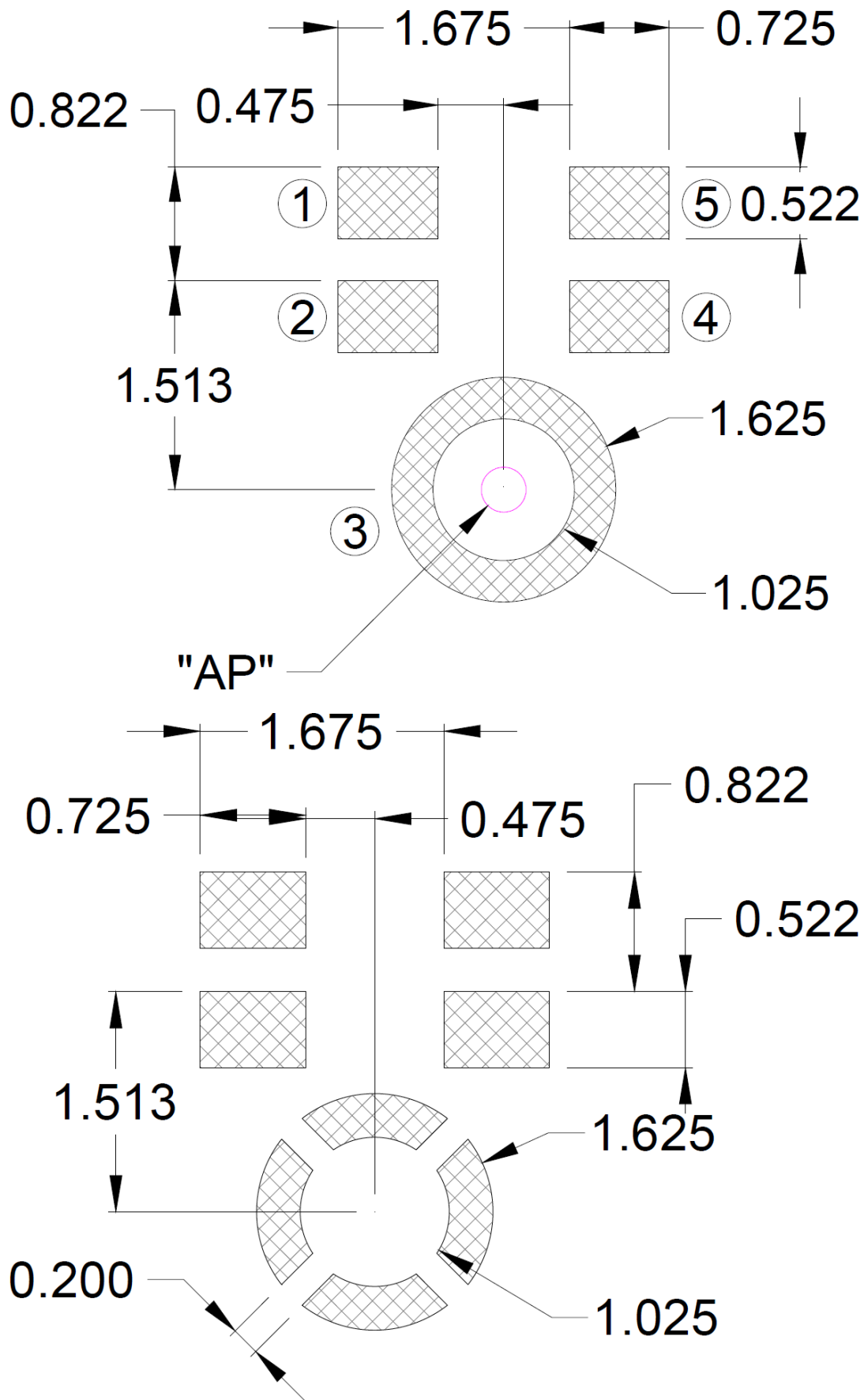


Item	Dimension	Tolerance
Length(L)	3.50	±0.10mm
Width(W)	2.65	±0.10mm
Height(H)	1.00	±0.10mm
Acoustic Port(AP)	Ø0.325	±0.05mm

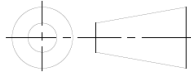
Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
OUTPUT	L/R	GROUND	CLOCK	VDD

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

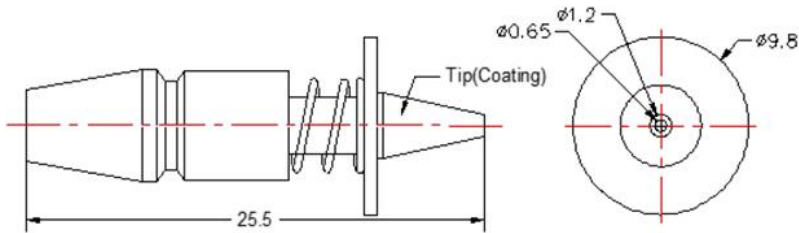
PCB Land and Stencil Pattern (This land pattern is advisory only and its use or adaptation is entirely voluntary. PUI Audio disclaims all liability of any kind associated with the use, application, or adaptation of this land pattern.)



Pick and Place Tool Recommendations

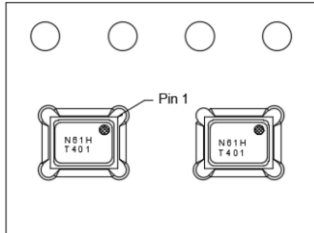
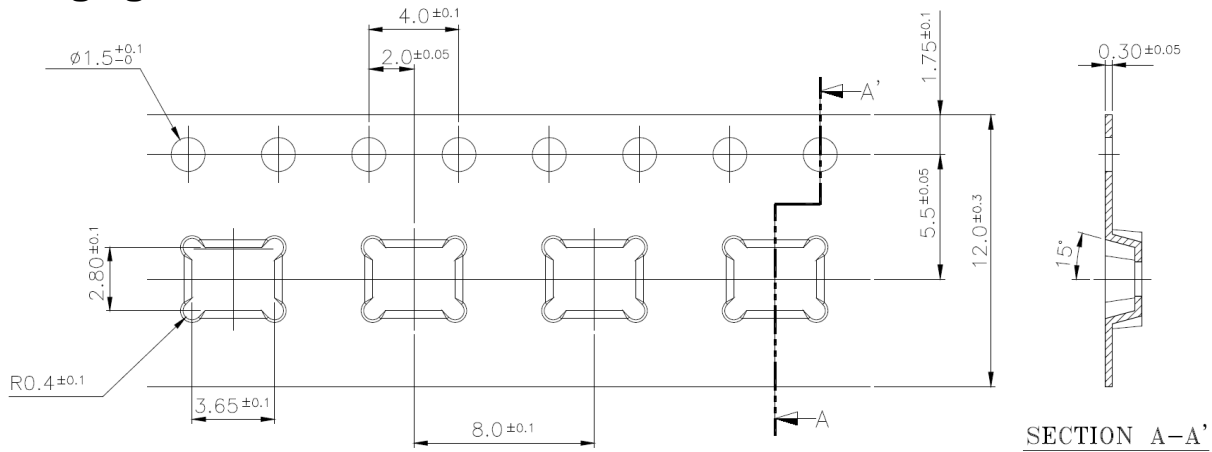


Note : Pick Area only extends to 0.25mm of any edge or hole unless otherwise specified.

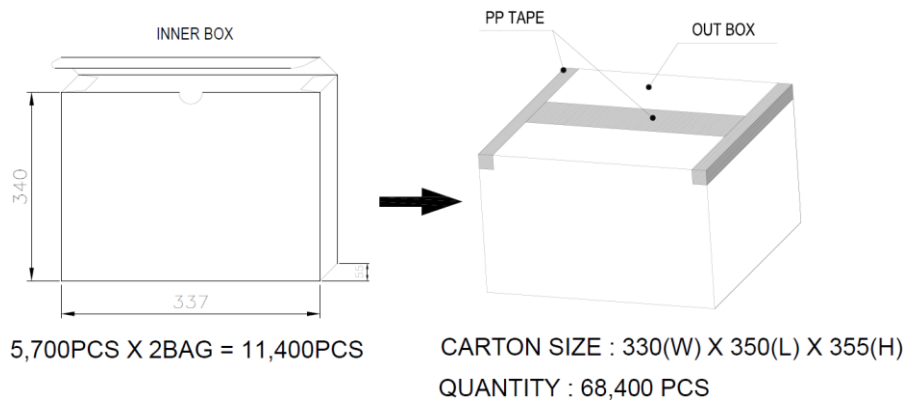


Recommended Nozzle Model : CN065
 Interier Diameter : Φ 0.65mm
 Externer Diameter : Φ 1.2mm

Packaging



Reel Diameter	Quantity Per Reel
13"	5,700



Specifications Revisions

Revision	Description	Date	Approval
A	Datasheet released from Engineering	04/23/2025	KH

Note:

- Unless otherwise specified:
 - All dimensions are in millimeters.
 - Default tolerances are ± 0.5 mm and angles are $\pm 3^\circ$.
- Specifications subject to change or withdrawal without notice.