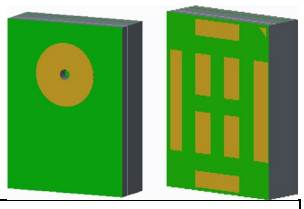
PUIaudio



Data Sheet DMM-4026-T

Specifications

Parameters	Values	Units
Operating Power Supply Voltage Range (V_S)	$1.62 \le V_S \le 3.6$	V_{DC}
Rated Power Supply Voltage (V_S)	1.8	V_{DC}
Directivity	Omnidirectional	-
Weight	<0.3	Grams
Operating Temperature	$-40 \le T_O \le 85$	°C
Storage Temperature	$-40 \le T_S \le 100$	°C
Environmental Compliances	RoHS/Halogen Free	-
MSL (Moisture Sensitivity Level)*	1	-

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

Specifications: Standard Mode (Clock = 2400kHz)

Parameters		Values	Units
Sensitivity f = 1kHz 0dBV =1V with 1Pa acoustic input		-26 ±1	dBFS
Current consumption	Minimum	650	µA
	Typical	750	
	Maximum	950	
Typical Signal-to-Noise Ratio f = 1kHz Acoustic input = 94 dBSPL A-weighted		65	dB
Frequency Range		20 ≤ f ≤ 10,000	Hz
Total Harmonic Distortion Acoustic input = 94 dBSPL f = 1kHz	Typical	0.2	%
	Maximum	0.5	
Typical Acoustic Overload Point (AOP) f = 1kHz THD = 10%		120	dB
Power Supply Rejection (PSR) 100mV$_{P-P}$ Square Wave f = 217Hz A-weighted		-88	dB

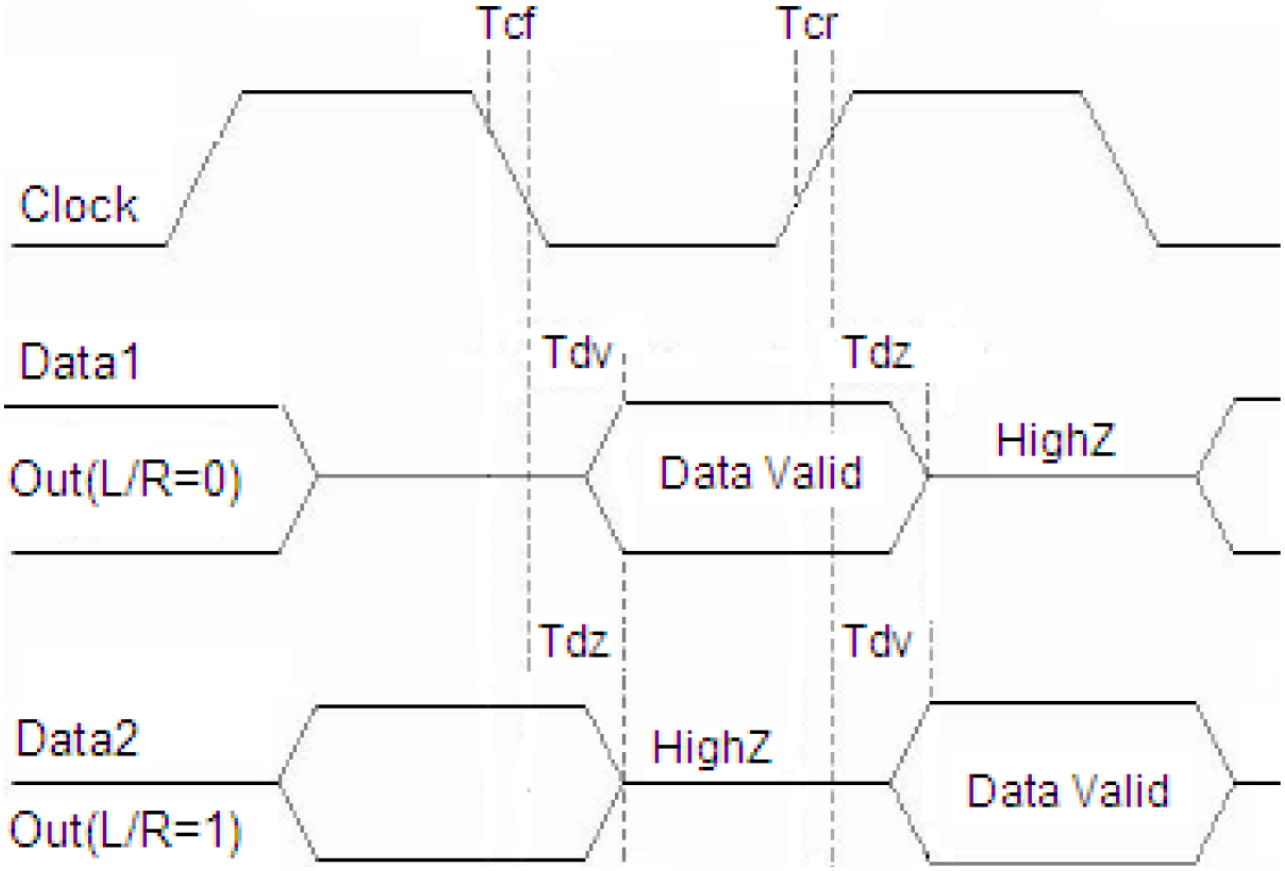
Specifications: Low Power Mode (Clock = 768kHz)

Parameters		Values	Units
Sensitivity f = 1kHz 0dBV =1V with 1Pa acoustic input		-26 ±1	dBFS
Current consumption	Minimum	300	µA
	Typical	350	
	Maximum	450	
Typical Signal-to-Noise Ratio f = 1kHz Acoustic input = 94 dBSPL A-weighted		65	dB
Frequency Range		20 ≤ f ≤ 20,000	Hz
Total Harmonic Distortion Acoustic input = 94 dBSPL f = 1kHz	Typical	0. 2	%
	Maximum	0.5	
Typical Acoustic Overload Point (AOP) f = 1kHz THD = 10%		120	dB
Power Supply Rejection (PSR) 100mV$_{P-P}$ Square Wave f = 217Hz A-weighted		-90	dB

Specifications: Digital

Parameters			Values	Units
Mode Bit-Clock Frequency Range	Sleep	Minimum	0	kHz
		Typical		
		Maximum	50	
	Low Power	Minimum	150	
		Typical	768	
		Maximum	900	
	Standard	Minimum	1000	
		Typical	2400	
		Maximum	4800	
Logic Input High		Minimum	0.65V$_{DD}$	V
		Maximum		
Logic Input Low		Minimum	-0.3	V
		Maximum	0.35V$_{DD}$	
Logic Output High		Minimum	V$_{DD}$ - 0.45	V
		Maximum		
Logic Output Low		Minimum		V
		Maximum	GND + 0.45	
Typical Load Capacitance		Minimum		pF
		Maximum	200	

Digital Interface Timing Diagram

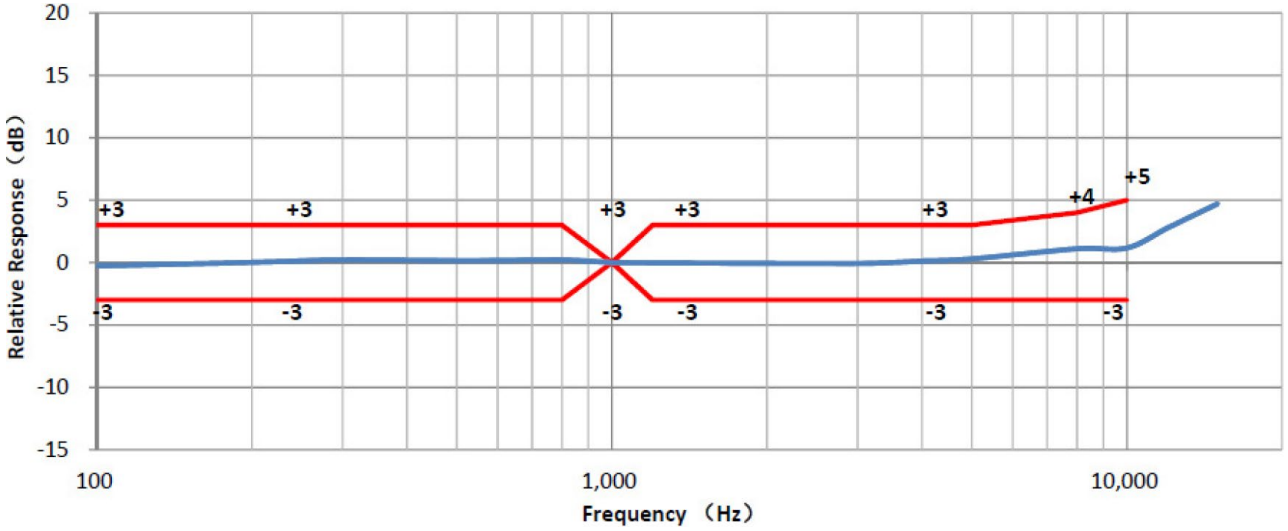


Specifications: Digital Interface

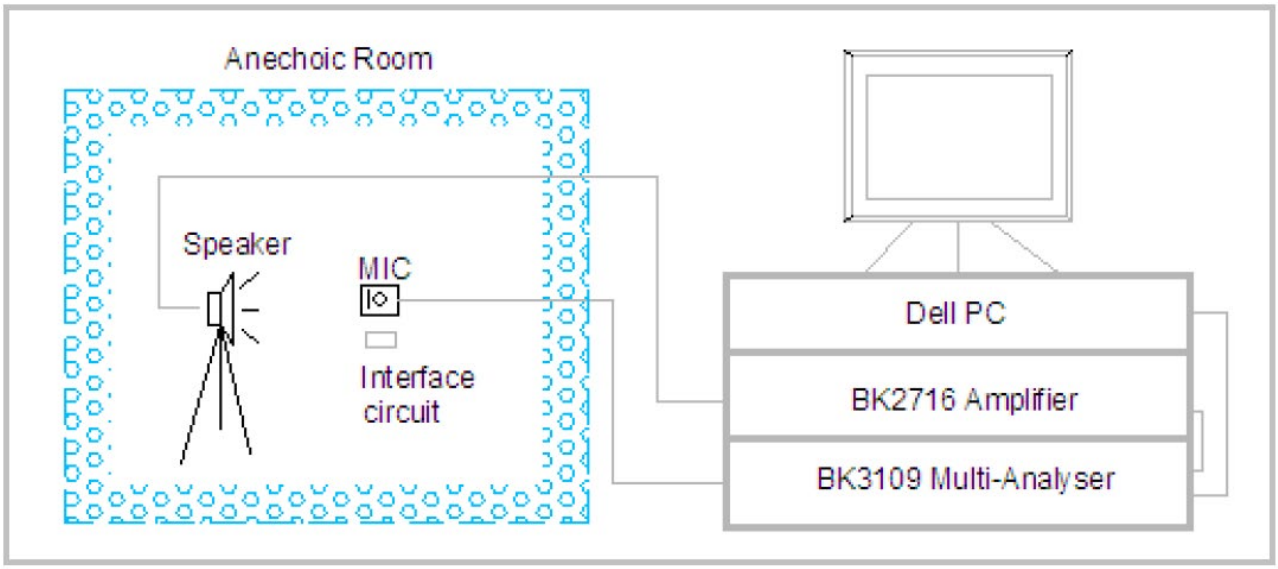
Parameters	Symbol			Values	Units
Clock Duty Cycle	CLK_{DC}	$f_{CLK} \leq 2.4MHz$	Minimum	40	%
			Maximum	60	
		$f_{CLK} > 2.4MHz$	Minimum	50	
			Maximum		
Clock Rise-Time $10\% \leq V_{CLOCK} \leq 90\%$	t_{CR}		Minimum		ns
			Maximum	10	
Clock Fall-Time $90\% \leq V_{CLOCK} \leq 10\%$	t_{CF}		Minimum		ns
			Maximum	10	
Data Delay to Line Driven	t_{DV}		Minimum	18	ns
			Maximum	50	
Delay Time to High-Z	t_{DZ}		Minimum	5	ns
			Maximum	16	

Note 1: For $f_{CLK} \leq 2.4MHz$, the suggested duty cycle range is 45% to 55%, whereas if $f_{CLK} > 2.4MHz$, the duty cycle should be 50%

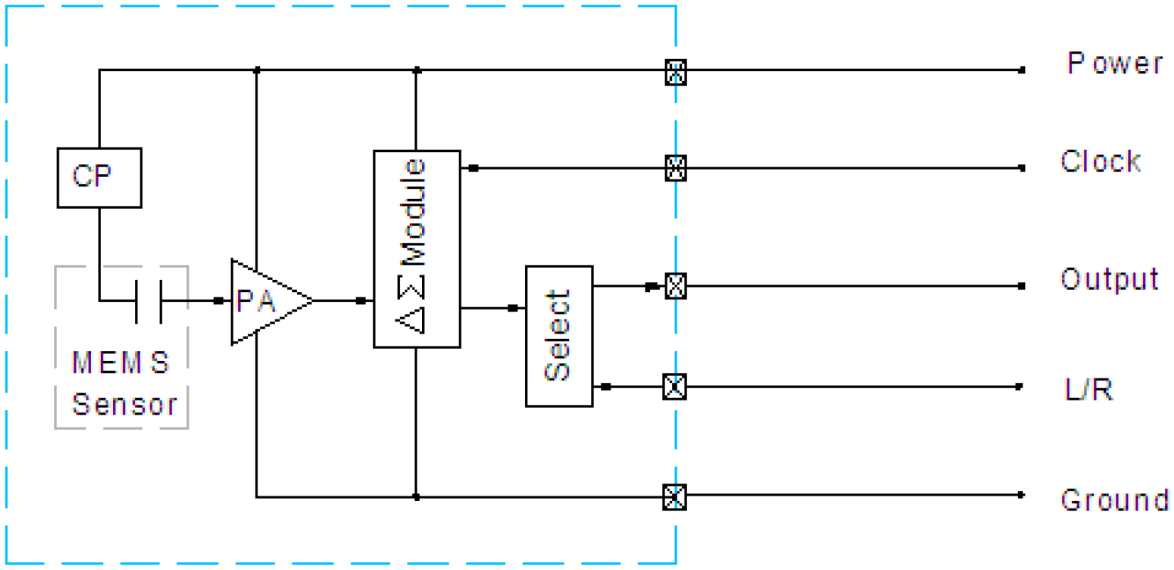
Typical Frequency Response



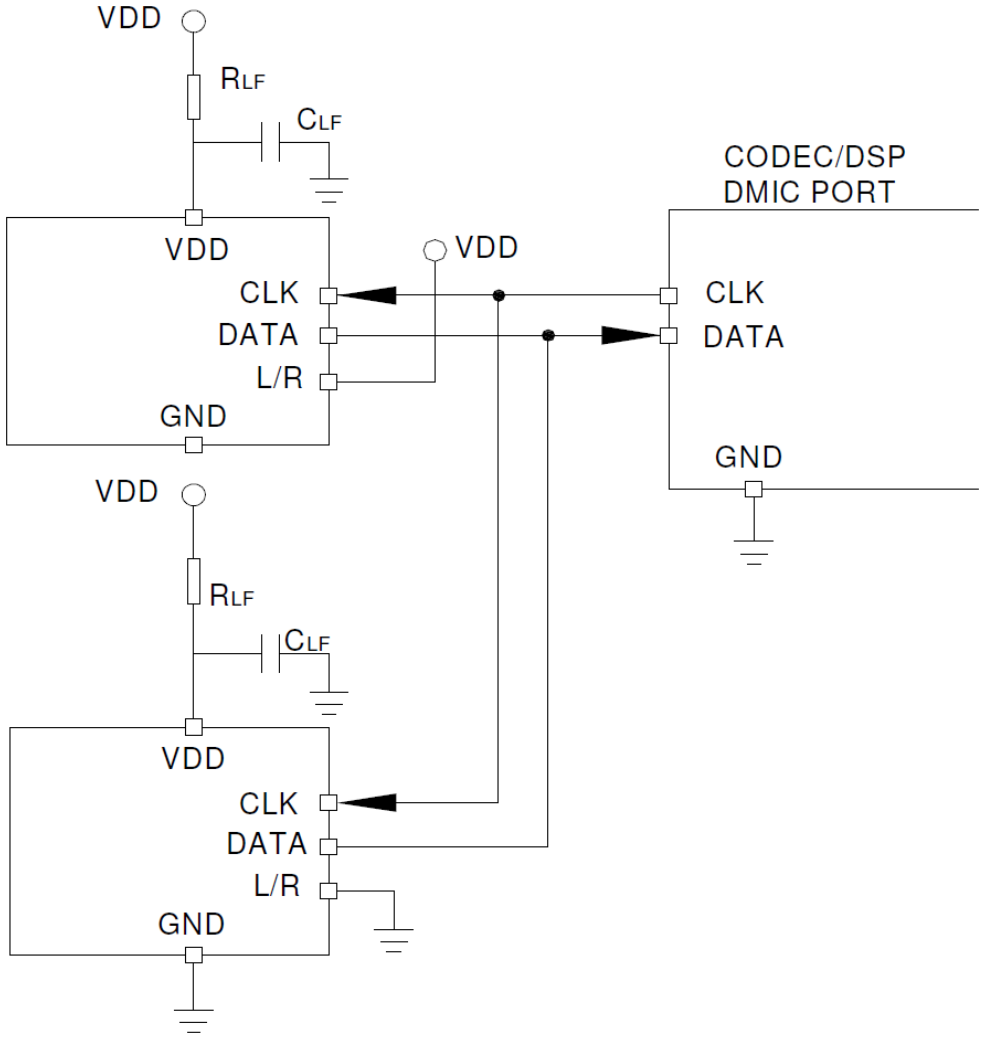
Measurement Method



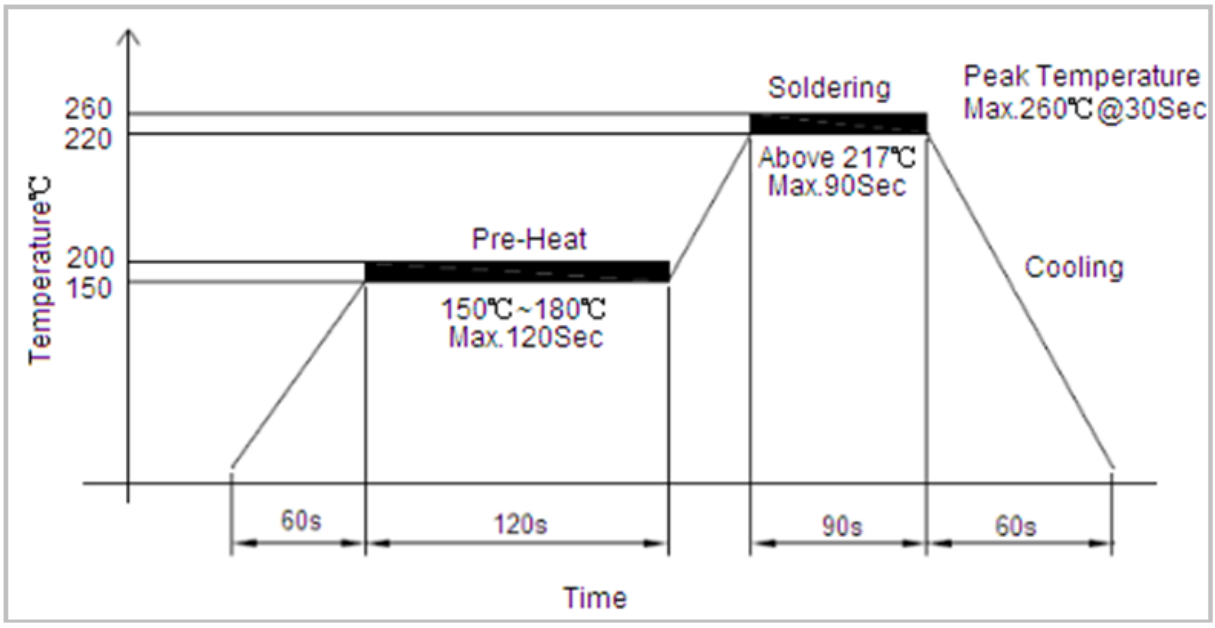
Connection Diagram



Recommended Drive Circuit



Recommended Reflow Soldering Procedure



Important Notes to minimize device damage:

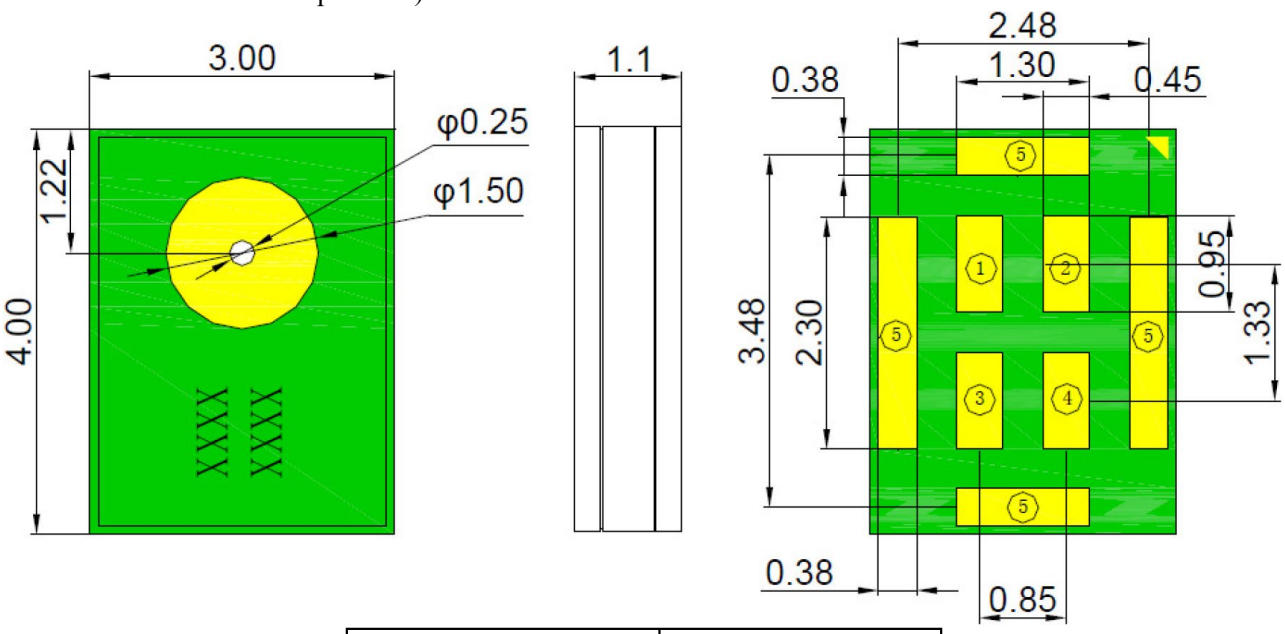
1. Do not boards wash or clean after the reflow process.
2. Do not apply over 0.3Mpa of air pressure into the port hole.
3. Do not expose to ultrasonic processing or cleaning.
4. Do not pull a vacuum over port hole of the microphone.

Reliability Testing

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°C for 1 hour. Expose to +85°C with 85% relative humidity for 1000 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 +125°C with 5 minutes transition time. The 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 20~2000 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.
Operation Life	Subject samples to +125°C for 168 hours under full maximum rated voltage.

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

Dimensions and Pin Configuration and Function (All dimensions in mm; ±0.15mm tolerance unless otherwise specified.)

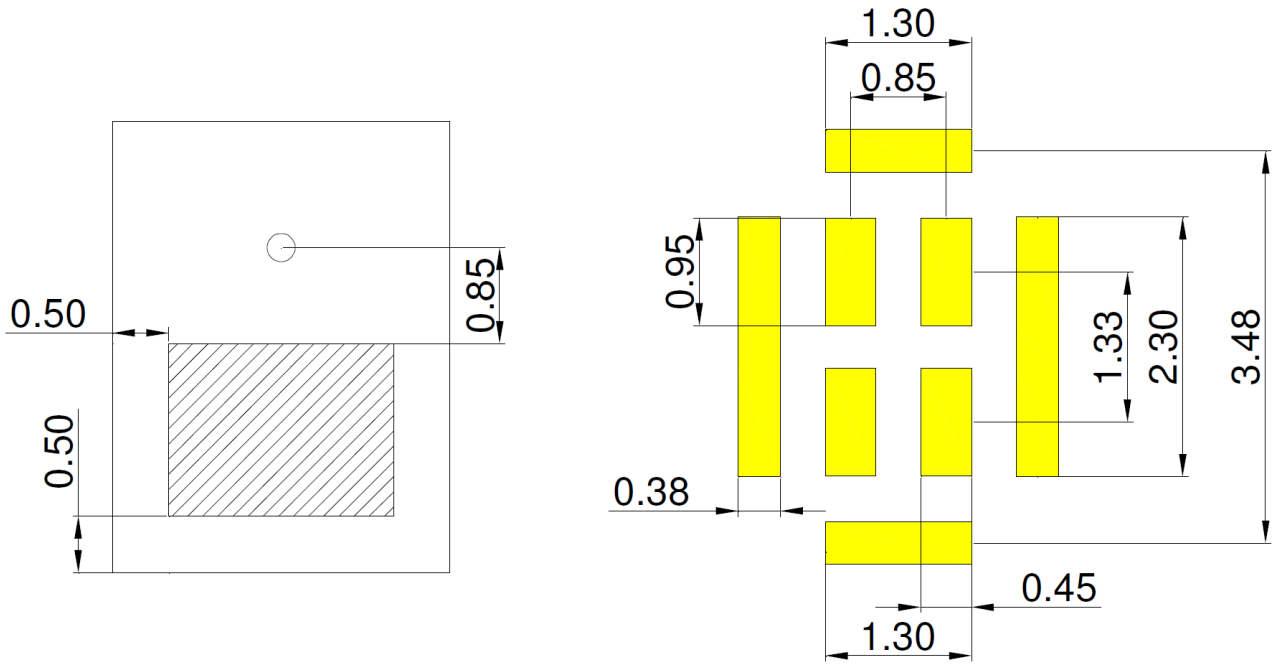


Laser Mark	Description
XXXXX XXXXX	Date Code

Item	Dimension	Tolerance(+/-)	Units
Length(L)	4.00	0.10	mm
Width(W)	3.00	0.10	mm
Height(H)	1.10	0.10	mm
Acoustic Port(AP)	Ø0.25	0.05	mm

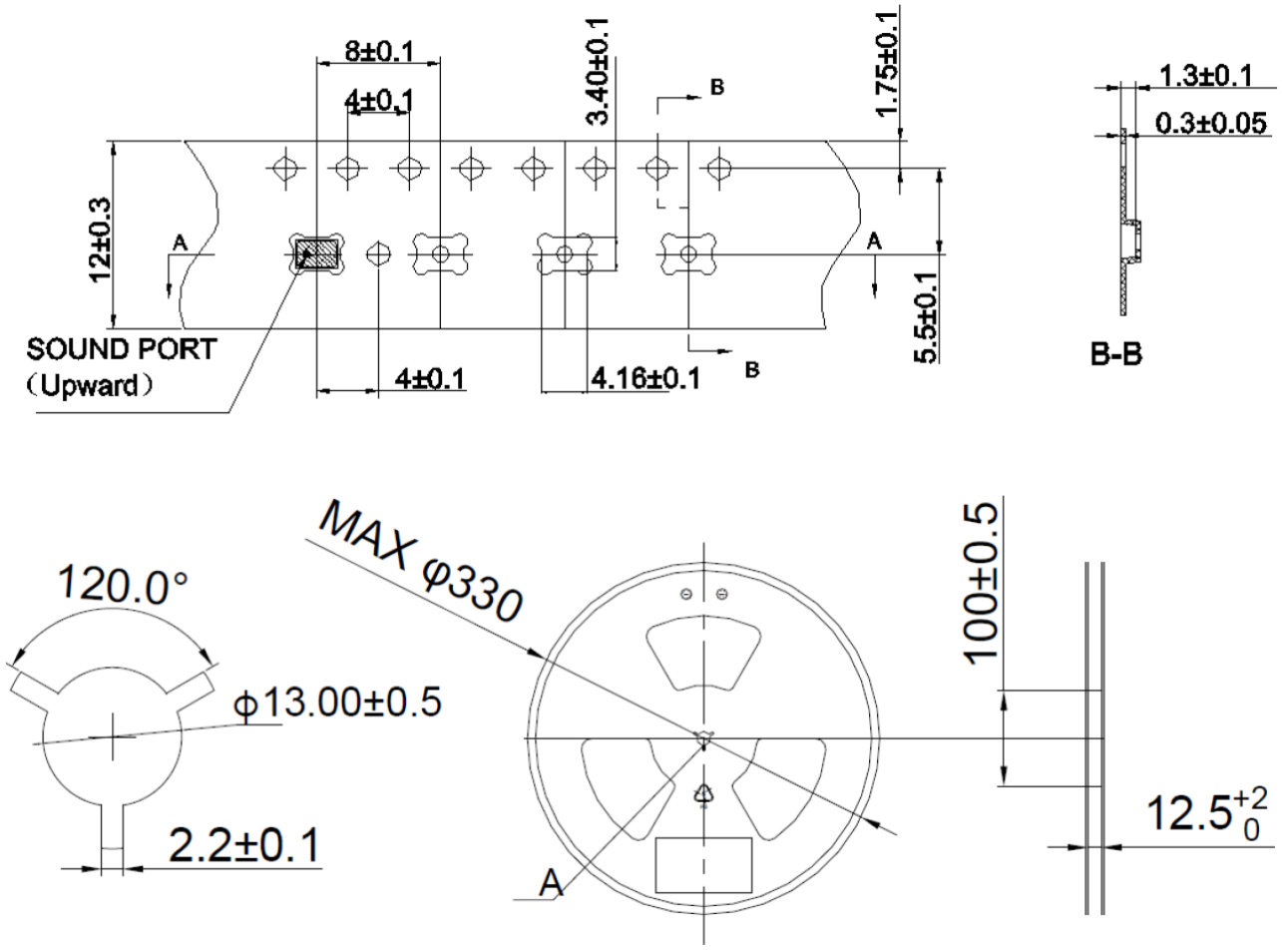
Pin #	Pin Name	Type	Description
1	L/R	L/R Channel	Channel select
2	CLK	Clock	Clock input
3	V_{DD}	Power	Power Supply
4	Output	Signal	Output Signal
5	GND	Ground	Ground

Suggested Pickup Tool Location and Land Pattern*

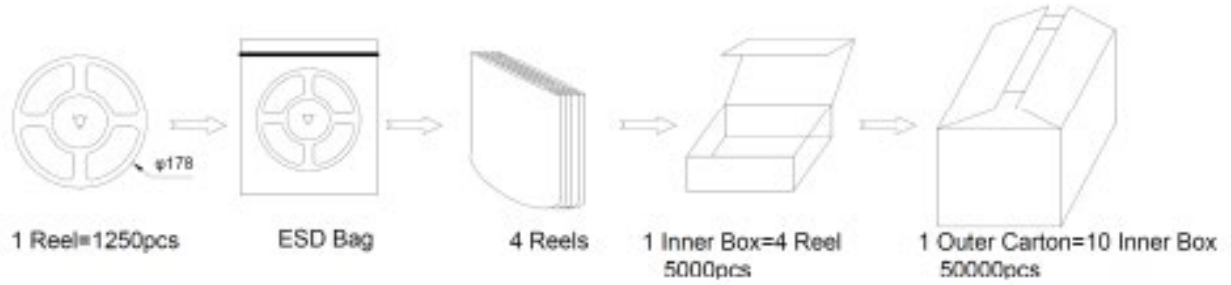


*This land pattern is advisory only and its use or adaptation is entirely voluntary. PUI Audio disclaims all liability of any kind associated with the use, application, or adaptation of this land pattern.

Tape & Reel Specifications (All dimensions in millimeter (mm).)



Packaging



1 Reel = 1250pcs
10 Inner Carton = 4 Reels = 5000pcs
1 Outer Carton = 10 Inner Cartons = 50000pcs

Specifications Revisions

Revision	Description	Date	Approve
A	Released from engineering	06/30/2025	JL

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.