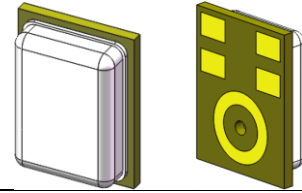




PUIaudio



Data Sheet

DMM-3535-B

The DMM-3535-B MEMS microphones are integrated with a specialized pre-amplification ASIC to provide high sensitivity and high SNR output from a capacitive audio sensor. They are packaged for surface mounting and high-temperature reflow assembly. The data format is single-bit PDM.

Key Features:

- -35dB sensitivity
- 66.5dB Signal-to-Noise
- Digital output
- Small 3.5mm x 2.65mm surface-mount package

Specifications (VDD = 1.8 V)

Parameters		Values	Units
Operating Power Supply Voltage Range (V _S)		$1.6 \leq V_S \leq 3.3$	V _{DC}
Rated Power Supply Voltage (V _S)		1.8	V _{DC}
Phase Response	Minimum	-5	Degrees
	Maximum	5	
Directivity		Omnidirectional	-
Weight		<0.3	Grams
Operating Temperature		$-40 \leq T_0 \leq 85$	°C
Storage Temperature		$-40 \leq T_S \leq 100$	°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 Frequency 2.4 MHz, VDD = 1.8 V)

Parameters		Values	Units
Sensitivity f = 1kHz 0dBV = 1V with 1Pa acoustic input		-35 ± 1	dBFS
Current consumption	Typical	900	μA
	Maximum	1150	
Signal-to-Noise Ratio f = 1kHz Acoustic input = 94 dB SPL A-weighted		66.5	dB
Frequency Range		$20 \leq f \leq 10,000$	Hz
Max. Total Harmonic Distortion Acoustic input = 94 dB SPL f = 1kHz		0.5	%

Max. Acoustic Overload Point (AOP) f = 1kHz THD = 10%	130	dB
Power Supply Rejection (PSR) 100mV _{P-P} Square Wave f = 217Hz A-weighted	-95	dB

Specifications: Low Power Mode (Clock Frequency 768 kHz, VDD = 1.8 V)

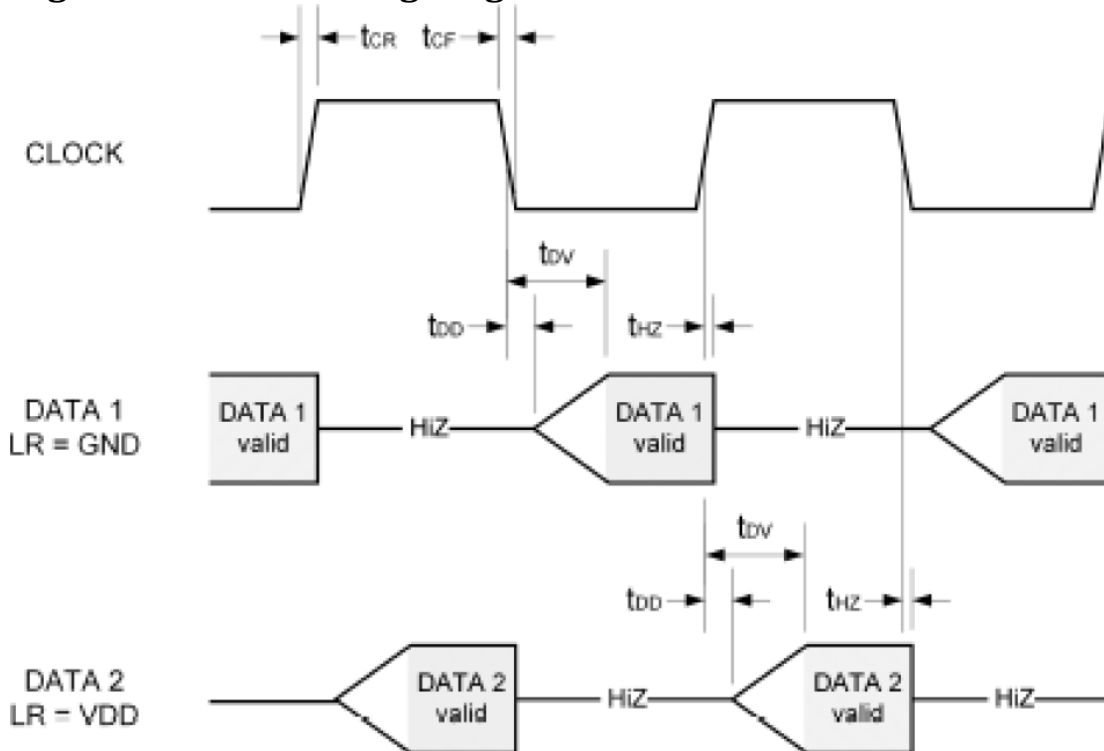
Parameters	Values	Units
Sensitivity f = 1kHz 0dBV = 1V with 1Pa acoustic input	-21 ±1	dBFS
Current consumption	Typical	310
	Maximum	410
Signal-to-Noise Ratio f = 1kHz Acoustic input = 94 dBSPL A-weighted	65	dB
Frequency Range	$20 \leq f \leq 10,000$	Hz
Max. Total Harmonic Distortion Acoustic input = 94 dBSPL f = 1kHz	0.5	%
Max Acoustic Overload Point (AOP) f = 1kHz THD = 10%	117	dB
Power Supply Rejection (PSR) 100mV _{P-P} Square Wave f = 217Hz A-weighted	-85	dB

Specifications: Digital

Parameters	Values	Units
Mode Bit-Clock Frequency Range	Sleep	Minimum
		Typical
		Maximum
	Low Power	Minimum
		Typical
		Maximum
	Standard	Minimum
		Typical
		Maximum
Logic Input High	Minimum	0.65V _{DD}
	Maximum	V _{DD} + 0.3
Logic Input Low	Minimum	-0.3
	Maximum	0.28V _{DD}
Logic Output High	Minimum	0.7V _{DD}
	Maximum	
Logic Output Low	Minimum	
	Maximum	0.3V _{DD}

Load Capacitance	Minimum		pF
	Maximum	200	
Data Valid Setup Time	Minimum		ms
	Maximum	20	
Sensitivity Setup Time Response sensitivity accuracy: $\pm 0.2\text{dBV}$	Minimum	20	ms
	Maximum		

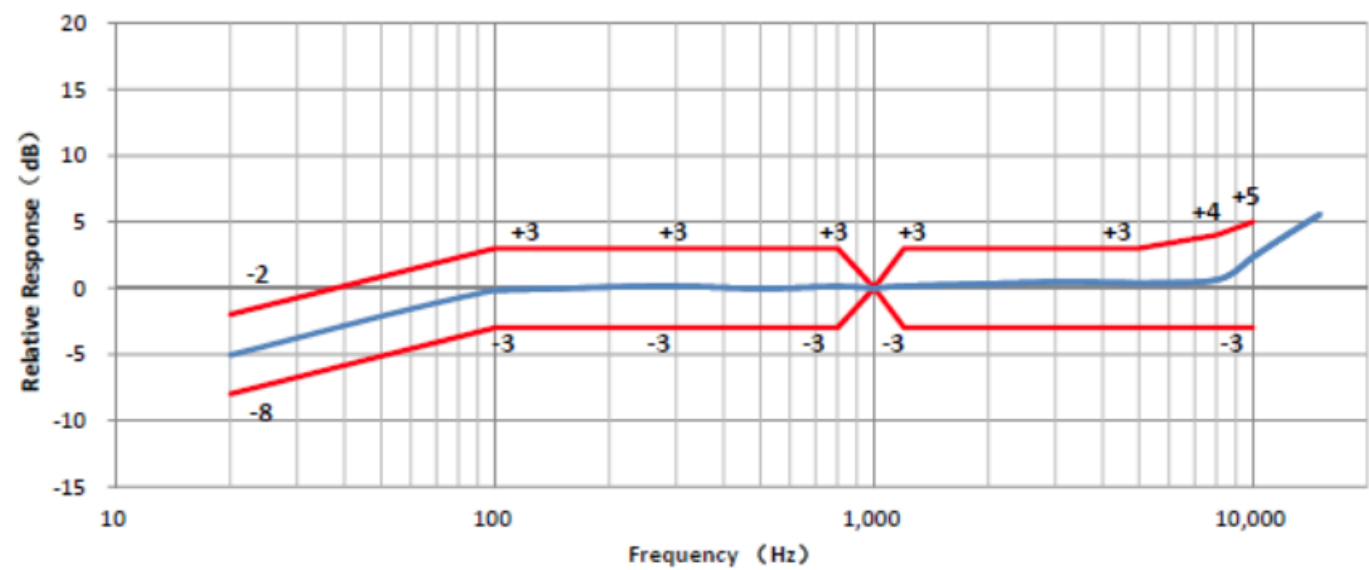
Digital Interface Timing Diagram



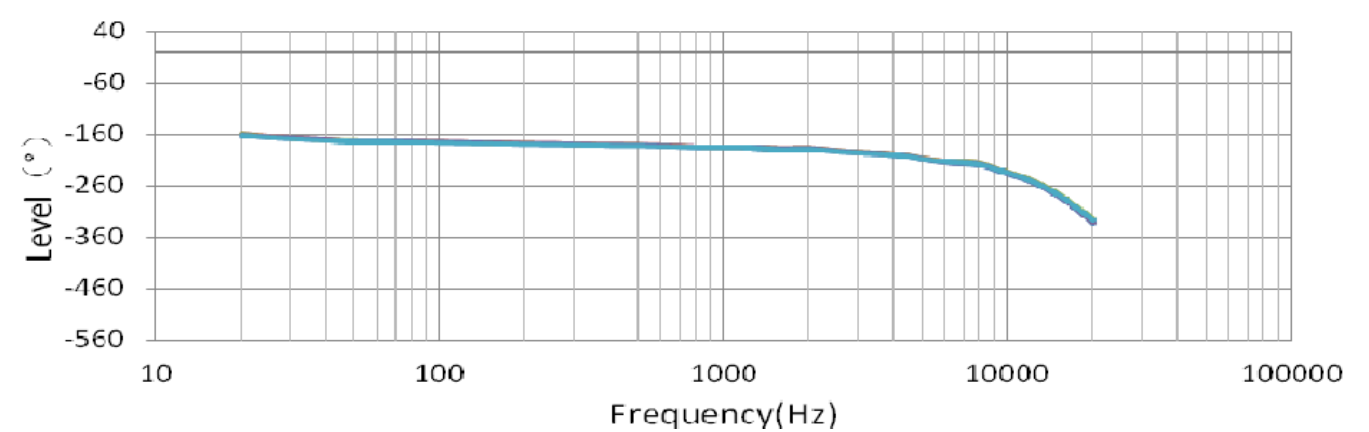
Specifications: Digital Interface

Parameters	Symbol		Values	Units
Clock Duty Cycle (Note 1)	CLK_{DC}	$f_{CLK} \leq 2.4\text{MHz}$	Minimum	45
			Maximum	55
		$f_{CLK} > 2.4\text{MHz}$	Minimum	50
			Maximum	
Clock Rise-Time $10\% \leq V_{CLOCK} \leq 90\%$	t_{CR}	Minimum		ns
		Maximum	13	
Clock Fall-Time $90\% \leq V_{CLOCK} \leq 10\%$	t_{CF}	Minimum		ns
		Maximum	13	
Data Delay to Line Driven	t_{DD}	Minimum	24	ns
		Maximum		
Delay to Valid Data Normal Mode	t_{DV_nm}	Minimum		ns
		Maximum	100	
Delay to Valid Data Low Power Mode	t_{DV_lpm}	Minimum		ns
		Maximum	185	
Delay Time to High-Z	t_{HZ}	Minimum	14	ns
		Maximum	22	

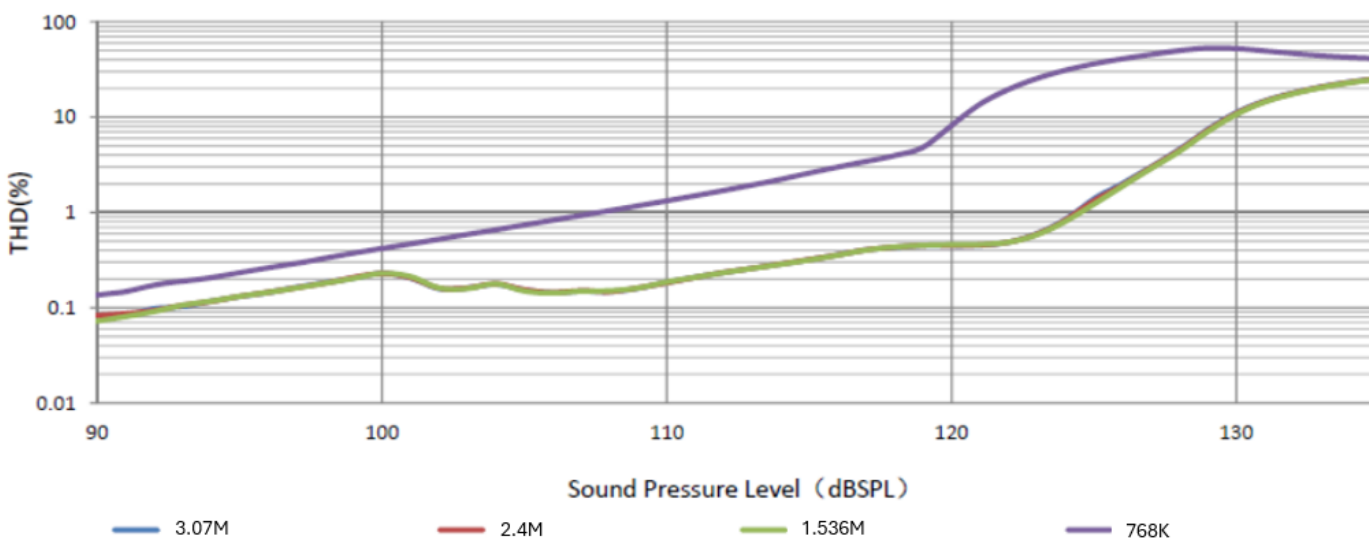
Typical Frequency Response



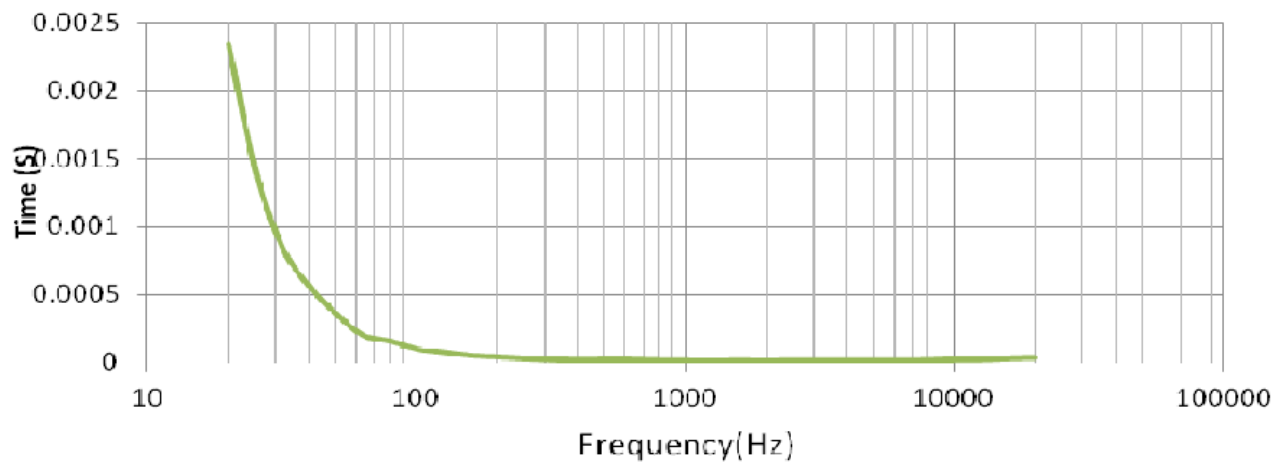
Typical Phase Response (2.4MHz)



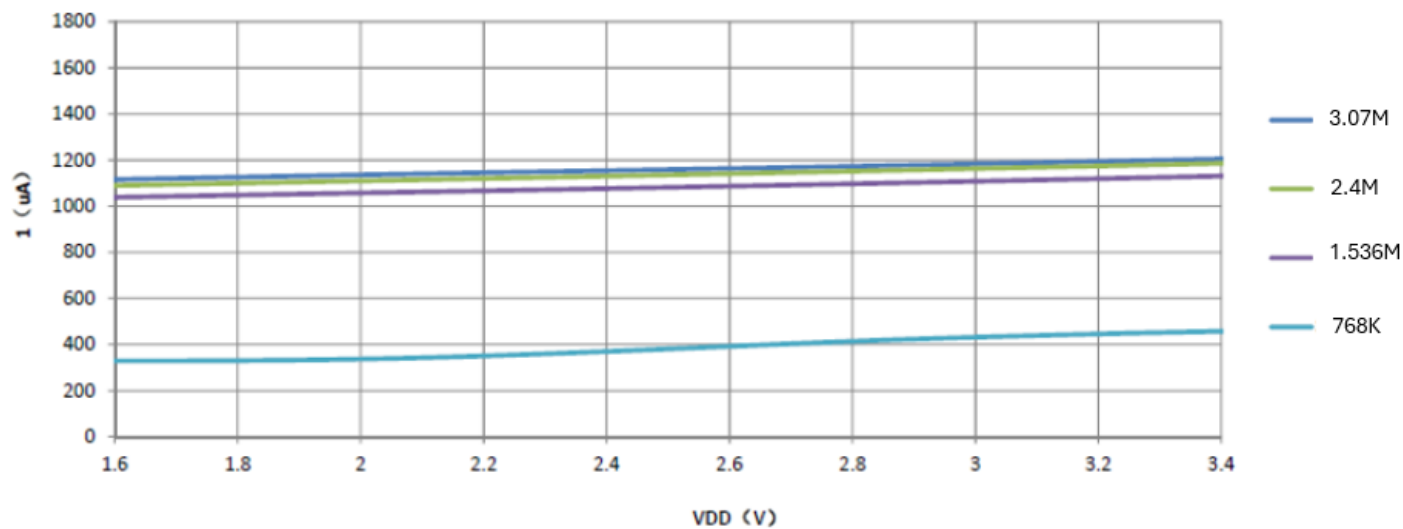
Typical THD vs. SPL



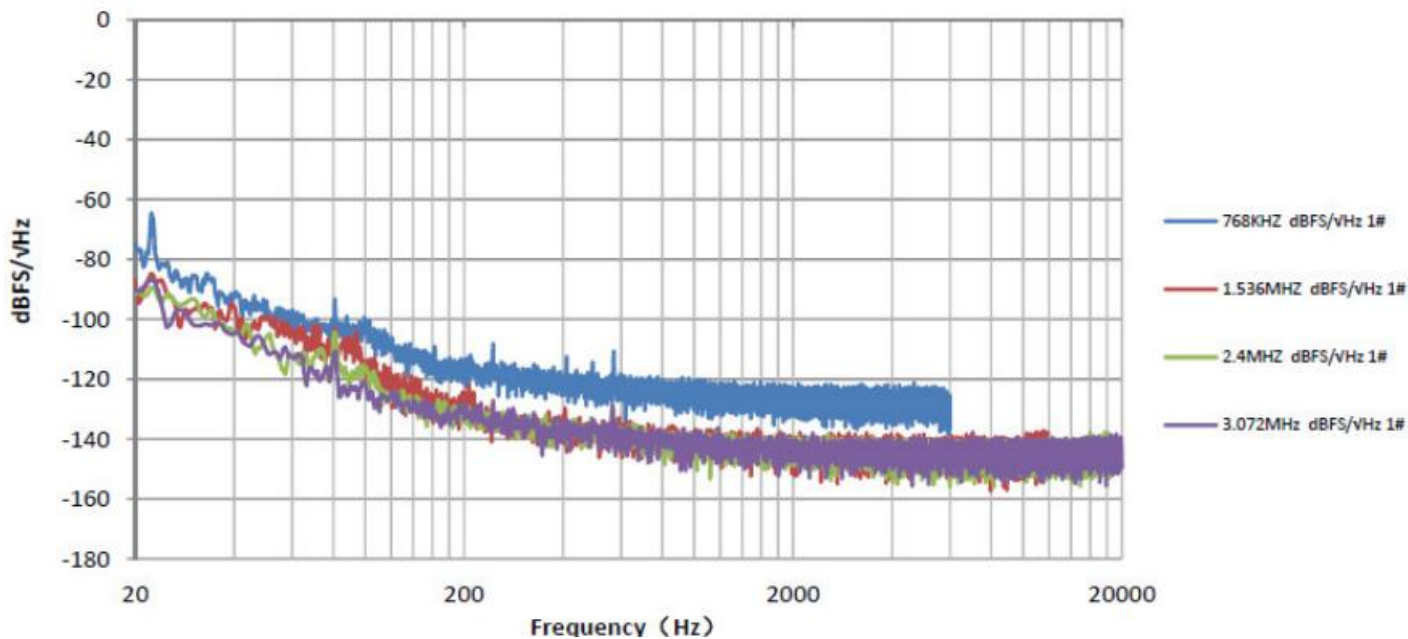
Typical Group Delay (2.4MHz)



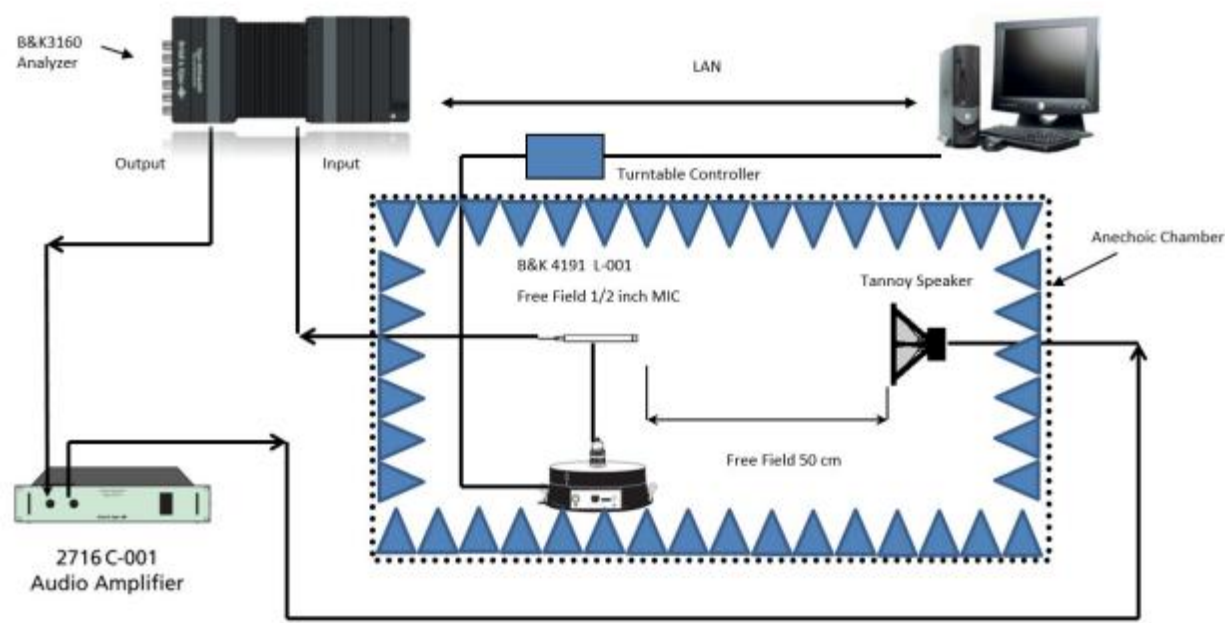
IDD vs. VDD



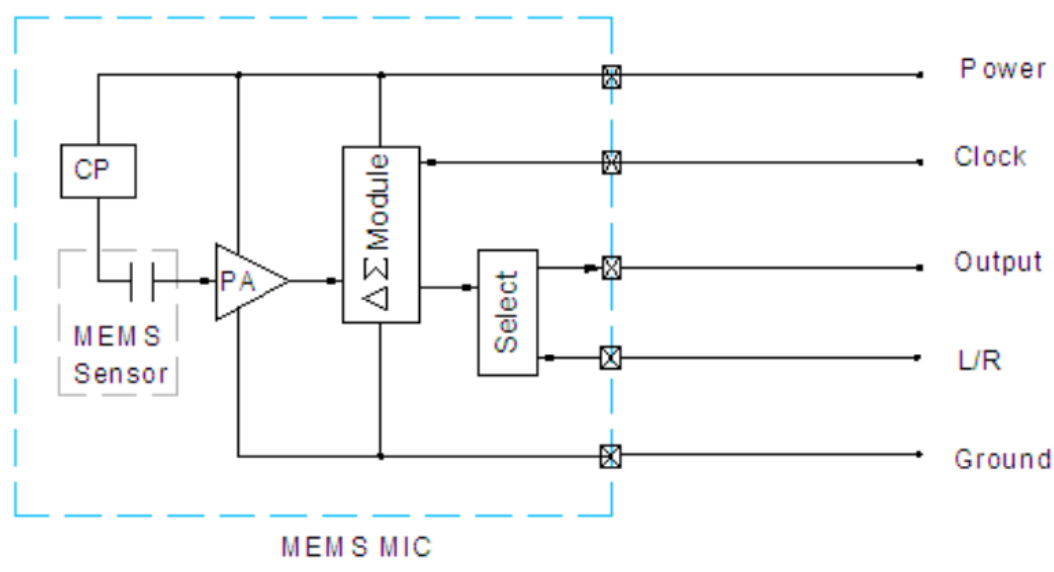
Typical Noise Floor



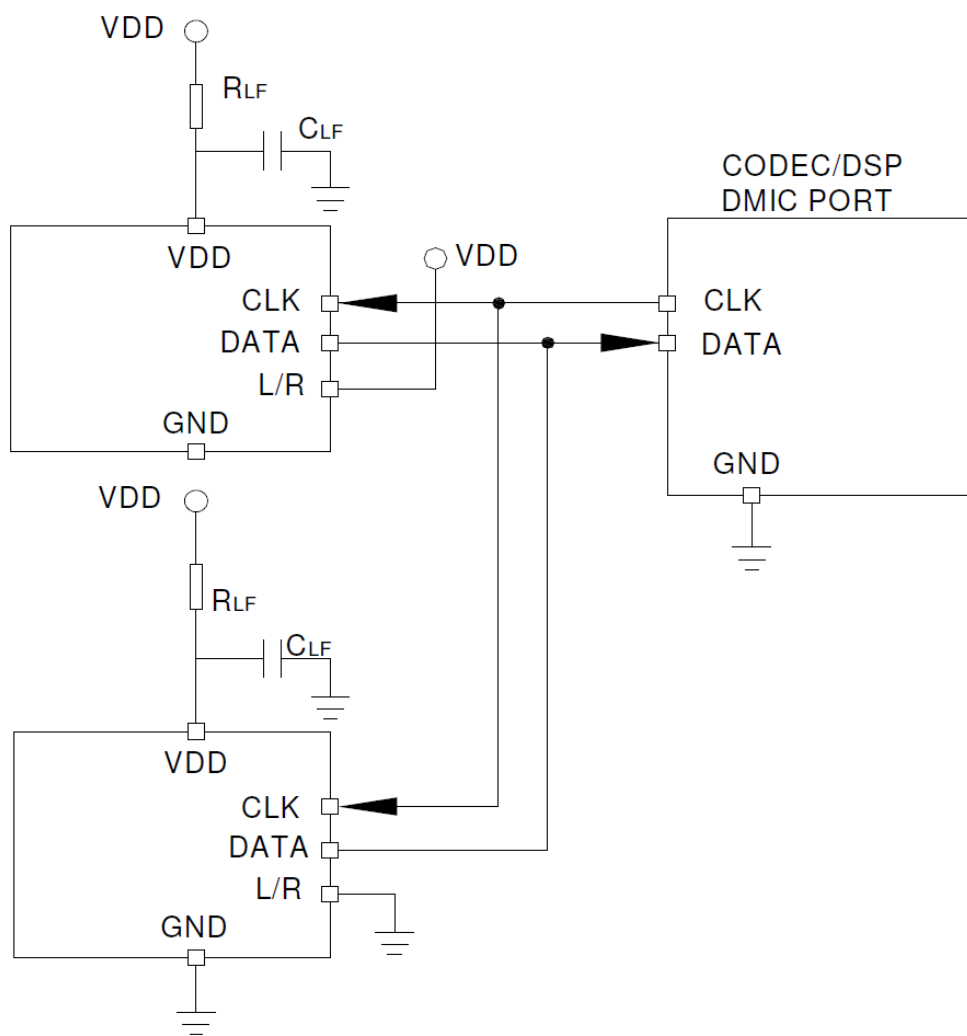
Measurement Method



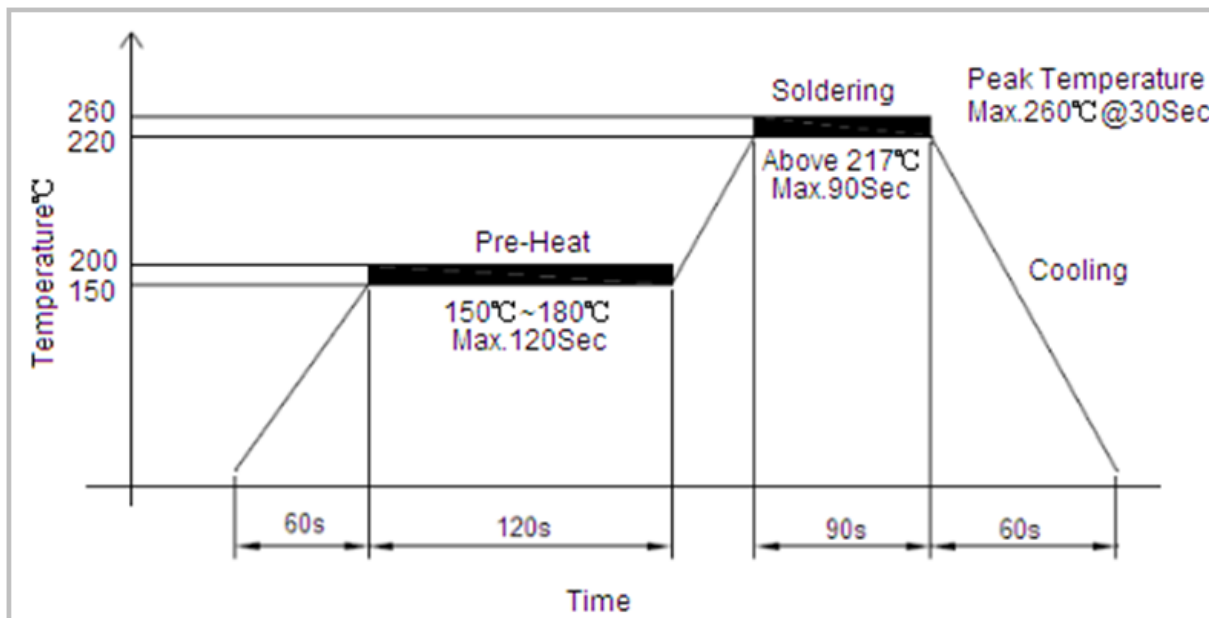
Recommended Drive Circuit



Recommended Drive Circuit (Continued)



Recommended Reflow Soldering Procedure



Important Notes to minimize device damage:

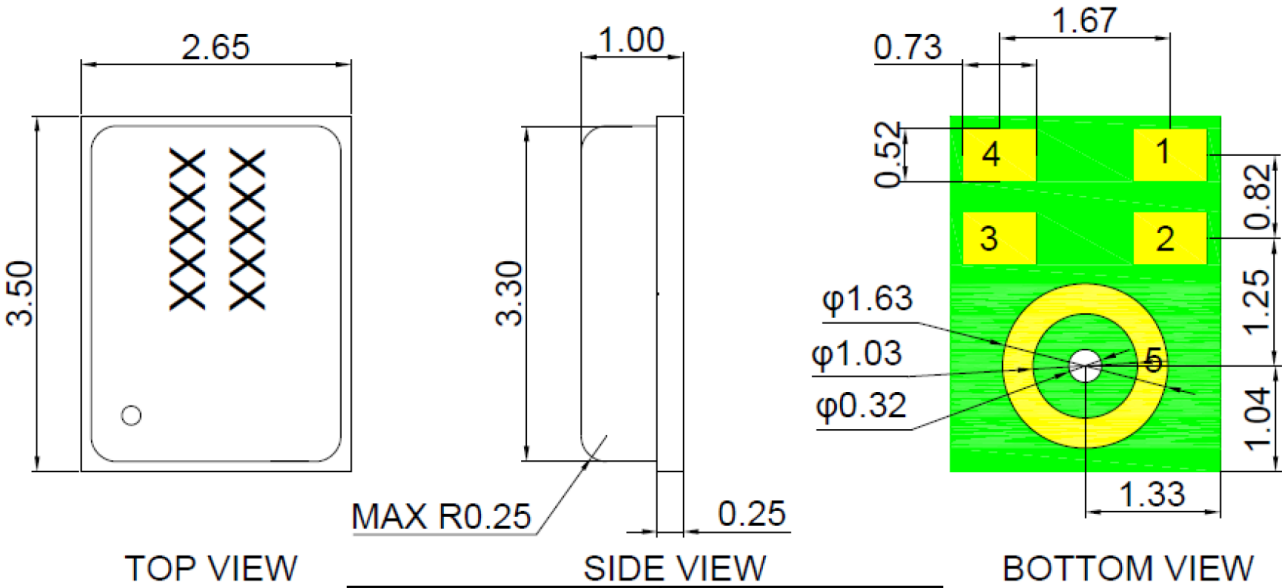
1. Do not boards wash or clean after the reflow process.
2. Do not apply over 0.3Mpa of air pressure into the port hole.
3. Do not expose to ultrasonic processing or cleaning.
4. Do not pull a vacuum over port hole of the microphone.

Reliability Testing

Type of Test	Test Specifications
High Temperature	105°C for 1000 hours, then recover for 2 hours.
Low Temperature	-40°C for 1000 hours, then recover for 2 hours.
Humidity Test	65°C, with 95%RH for 168 hours, then recover for 12 hours.
Temperature Shock	Each cycle shall consist of 15 minutes at -40°C, 15 minutes at +125°C. The test duration is for 100 cycles, starting from cold to hot temperature. Then, let it recover for 2 hours.
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 12 minutes in each direction, from 20~2000 Hz with a peak acceleration of 20 Gs. Then, let it recover for 2 hours.
Shock Test	Subject samples to half-sine shock pulses (10000 g for 0.1ms) in each direction x, y, z, 3 times each.
Drop Test	Drop samples from 1.5m height onto a slippery marble floor, in 4 corners, 4 times, and on 6 faces, 4 times; 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.)

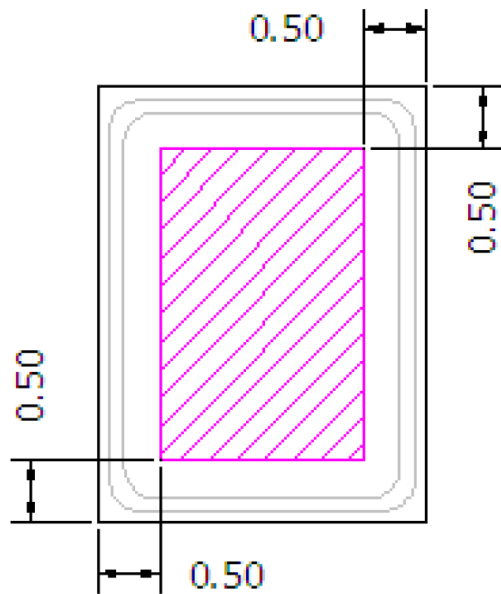


Laser Mark	Description
XXXXXX XXXXXX	Date Code

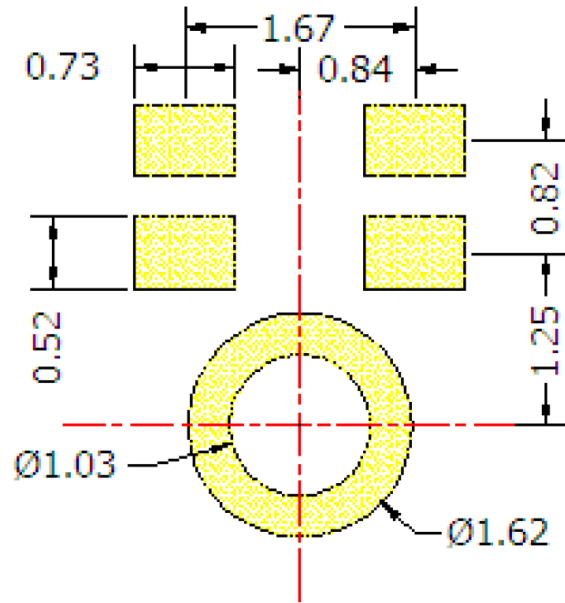
Item	Dimension	Tolerance(+/-)	Units
Length(L)	3.50	0.10	mm
Width(W)	2.65	0.10	mm
Height(H)	1.00	0.10	mm
Acoustic Port(AP)	Ø0.32	0.05	mm

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

Suggested Pickup Tool Location and Land Pattern*



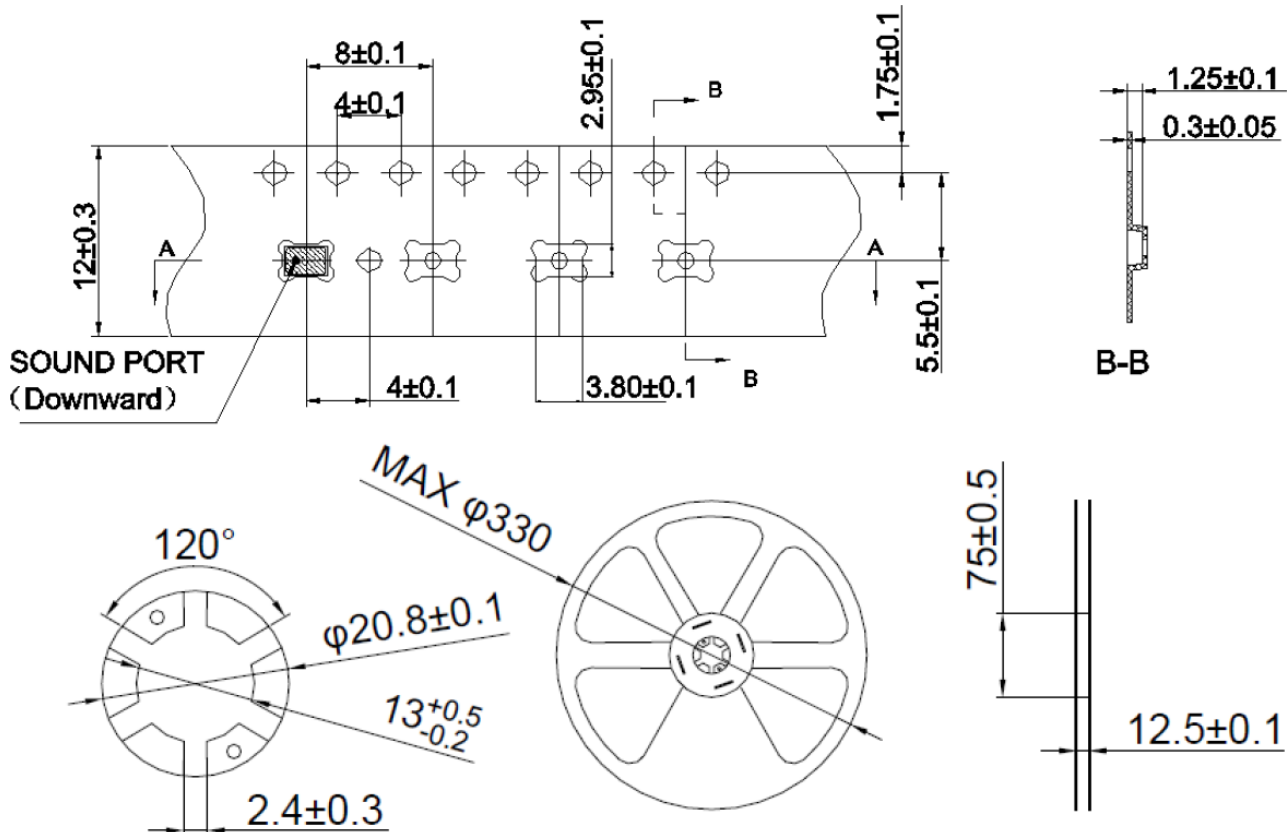
Recommended Pickup Location



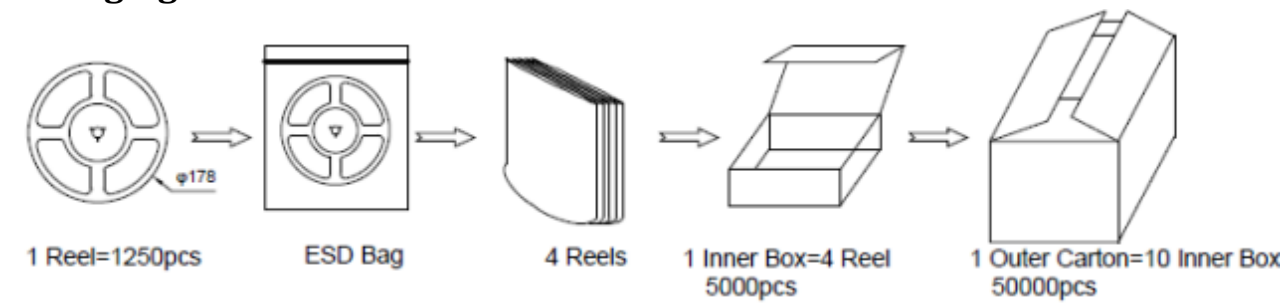
Recommended Solder Pad Layout

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

Specifications Revisions

Revision	Description	Date	Approve
A	Released from engineering	8/19/2025	JL

- Note:
- 1. Unless otherwise specified:
 - A. All dimensions are in millimeters.
 - B. Default tolerances are $\pm 0.5\text{mm}$ and angles are $\pm 3^\circ$.
 - 2. Specifications subject to change or withdrawal without notice.