

**MODEL:** CMM-4030DT-261075-TR | **DESCRIPTION:** MEMS MICROPHONE

**FEATURES**

- high sensitivity
- top port
- PDM output


**ELECTRICAL**

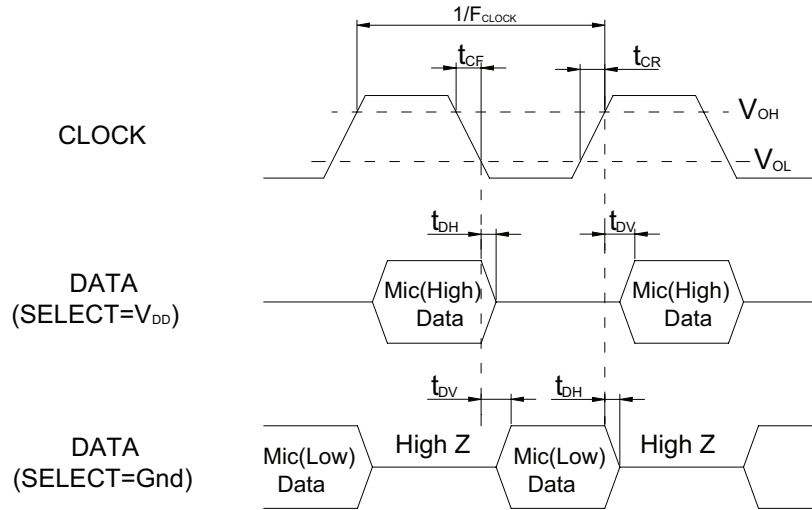
parameter	conditions/description	min	typ	max	units
directivity	omnidirectional				
sensitivity [S]	at 94 dB SPL, 1 kHz	-27	-26	-25	dB FS
supply voltage [V <sub>DD</sub> ]		1.6		3.6	V
current consumption [I <sub>DD</sub> ]				0.75	mA
signal to noise ratio [S/N]	at 94 dB SPL, 1 kHz [A-weighted]		65		dB
total harmonic distortion [THD]	at 94 dB SPL, 1 kHz		0.2		%
acoustic overload point [AOP]	at 10% THD, 1 kHz		120		dB SPL
power supply rejection [PSR]	100 mVp-p square wave @ 217 Hz [A-weighted]		-90		dB FS

**DIGITAL INTERFACE**

parameter	conditions/description	min	typ	max	units
clock frequency		1.024	2.4	3.25	MHz
sleep current [I <sub>SLEEP</sub> ]	F <sub>CLOCK</sub> < 1 kHz		3	4	μA
fall-asleep time	F <sub>CLOCK</sub> < 1 kHz			50	μs
wake-up time	F <sub>CLOCK</sub> = 2.4 MHz			52	ms
data format	1-Bit PDM				
short circuit output current [I <sub>SC</sub> ]	grounded data pin		1	10	mA
output load [C <sub>LOAD</sub> ]				100	pF
logic input high [V <sub>IH</sub> ]	I <sub>OUT</sub> = 1 mA	0.75XV <sub>DD</sub>			V
logic input low [V <sub>IL</sub> ]	I <sub>OUT</sub> = 1 mA			0.25XV <sub>DD</sub>	V
logic output high [V <sub>OH</sub> ]	I <sub>OUT</sub> = 1 mA	0.90XV <sub>DD</sub>			V
logic output low [V <sub>OL</sub> ]	I <sub>OUT</sub> = 1 mA			0.10XV <sub>DD</sub>	V
clock duty cycle		40		60	%
clock rise time [t <sub>CR</sub> ]				10	ns
clock fall time [t <sub>CF</sub> ]				10	ns
delay time for valid data [t <sub>OV</sub> ]		18		40	ns
delay time for high z [t <sub>OH</sub> ]		0		15	ns

Notes: 1. All specifications measured at 23±2°C, humidity at 55±20%, V<sub>DD</sub> = 2.0 V, F<sub>CLOCK</sub> = 2.4 MHz, unless otherwise noted.

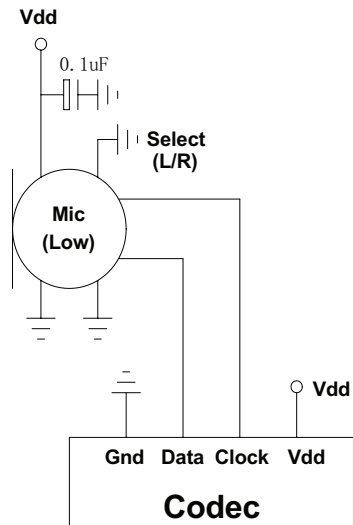
## TIMING CHARACTERISTICS



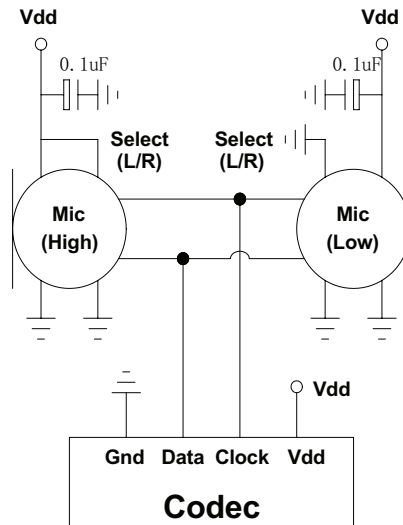
Microphone	Select [L/R]	Asserts DATA On	Latch DATA On
Mic(High)	V <sub>DD</sub>	rising clock edge	falling clock edge
Mic(Low)	GND	falling clock edge	rising clock edge

## RECOMMENDED INTERFACE CIRCUIT

### Single Microphone



### Dual Microphone



## ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating temperature		-40		100	°C
storage temperature	in packaging	-40		100	°C
RoHS	yes				

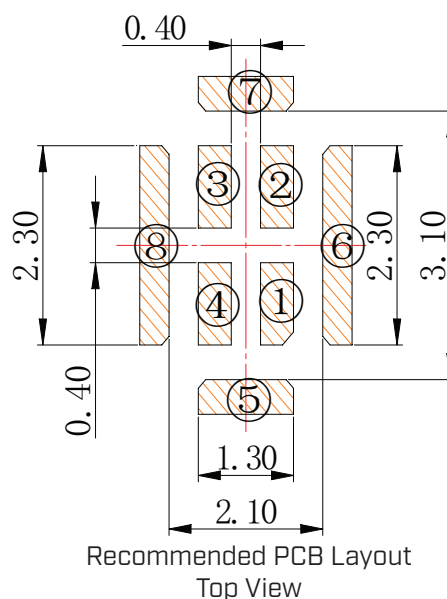
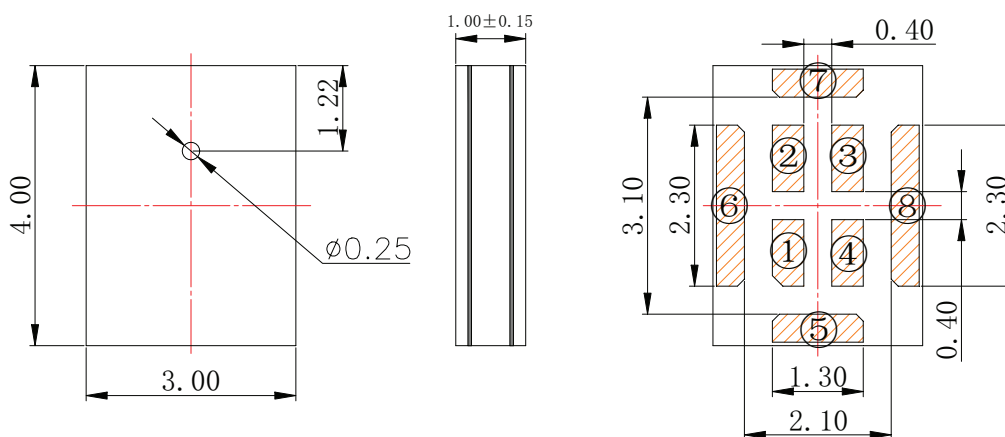
## MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	4.00 x 3.00 x 1.00				mm
acoustic port	top				mm
terminals	surface mount				
weight			0.029		g

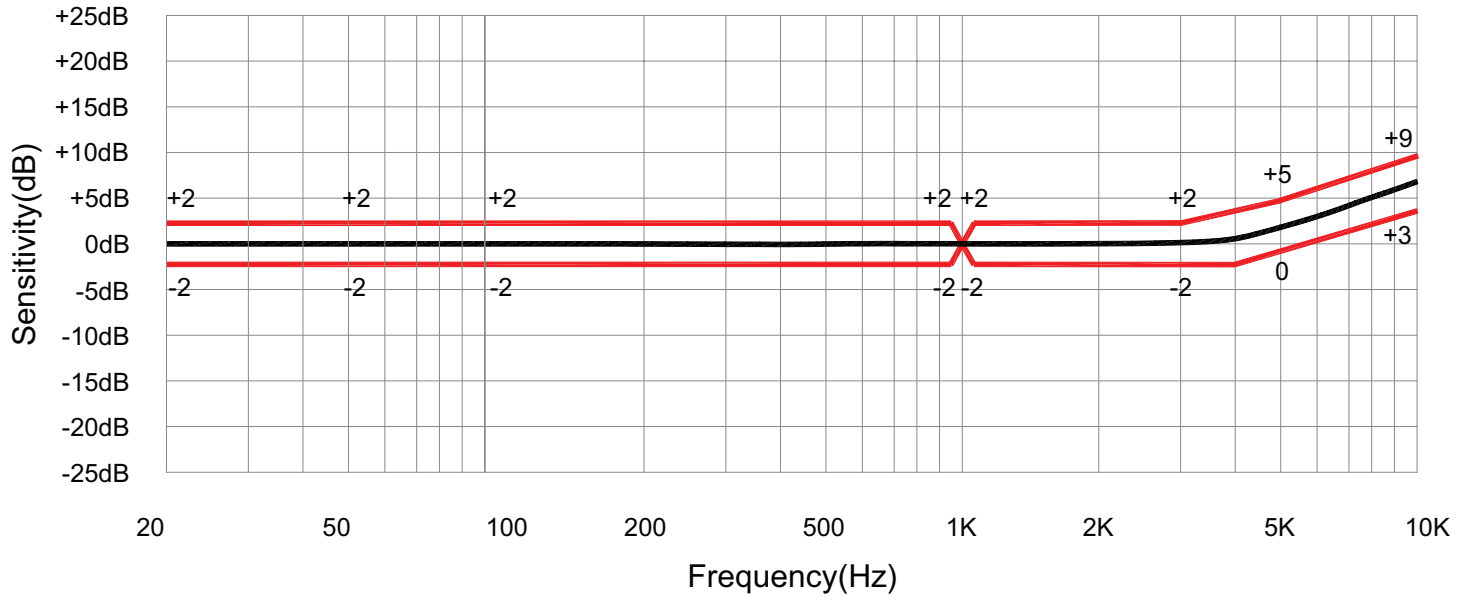
## MECHANICAL DRAWING

units: mm  
tolerance: ±0.10 mm

TERMINAL CONNECTIONS	
TERM.	FUNCTION
1	VDD
2	L/R
3	CLOCK
4	DATA
5	GND
6	GND
7	GND
8	GND



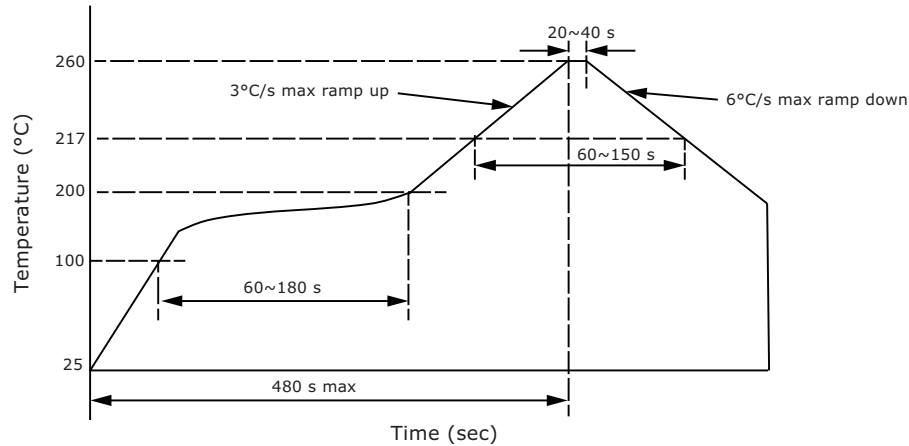
## FREQUENCY RESPONSE CURVE



## SOLDERABILITY

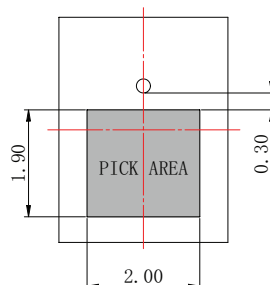
parameter	conditions/description	min	typ	max	units
reflow soldering <sup>2</sup>	see reflow profile			260	°C

Note: 2. Not recommended to exceed 3 reflow cycles.



## HANDLING RECOMMENDATIONS

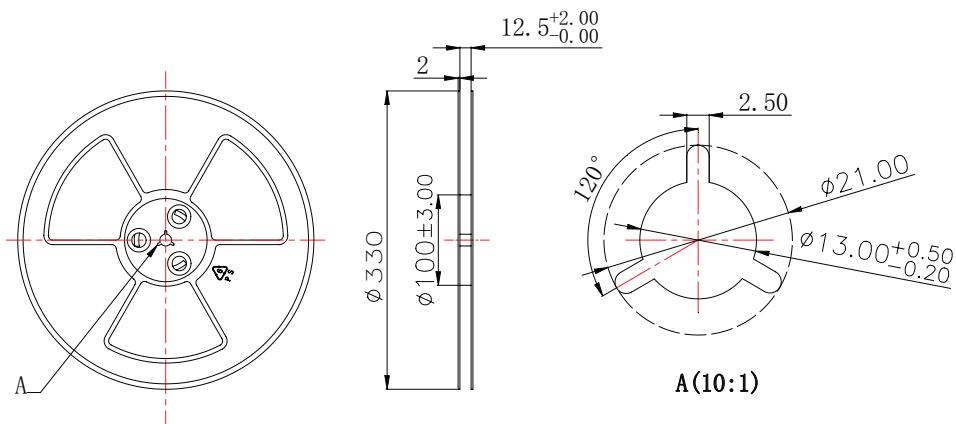
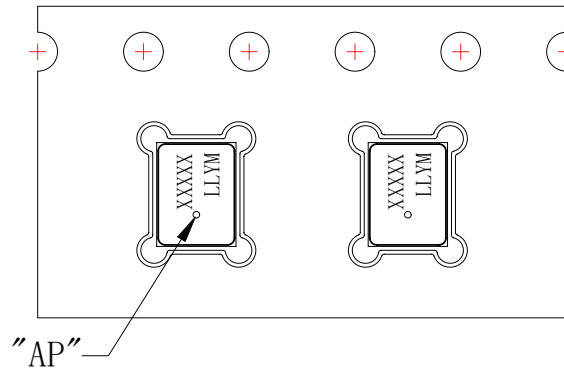
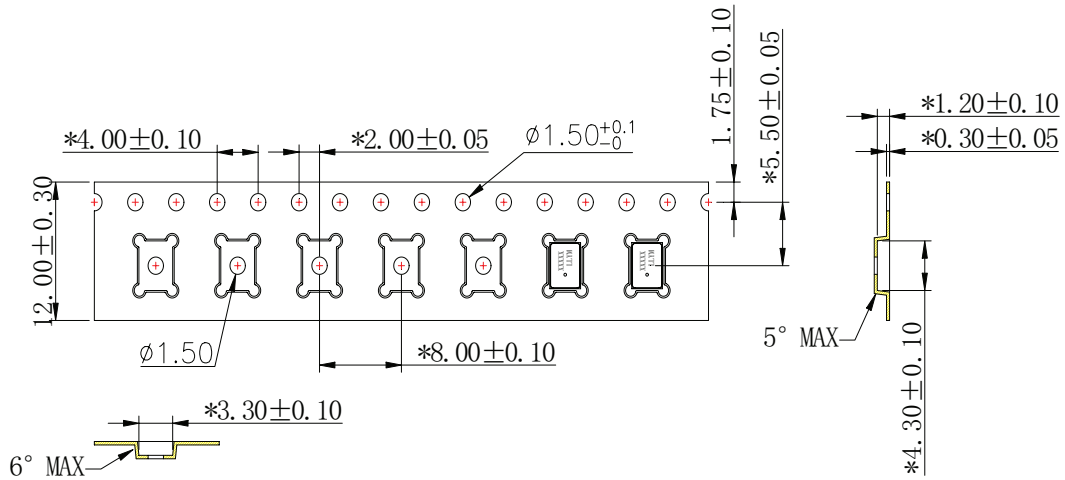
1. Not recommended to blow air heavily over acoustic port as debris could impact mic function.
2. Not suitable for wash process after reflow.
3. Not recommended to brush board with or without solvents after reflow process.
4. Not recommended to directly expose to ultrasonic processing or cleaning.
5. Not recommended to insert any object in port of device at any time.
6. Not recommended to apply over 30 psi of air pressure into the port hole.
7. Not recommended to pull a vacuum over port hole.
8. Not recommended to apply a vacuum when repackaging into sealed bag a rate faster than 0.5 atm/sec.
9. Not recommended to clean table or carried plate with air guarding system that could induce particle floating inside mic.



Recommended Vacuum Nozzle Pickup  
Top View

## PACKAGING

parameter	conditions/description	min	typ	max	units
MSL	Class 1				
reel size	Ø330 mm				
reel QTY	5,700 pcs per reel				
carton size	330 x 380 x 270 mm				
carton QTY	136,800 pcs				



## REVISION HISTORY

rev.	description	date
1.0	initial release	08/09/2023

The revision history provided is for informational purposes only and is believed to be accurate.



CUI Devices offers a one (1) year limited warranty. Complete warranty information is listed on our website.

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