MODEL: CMM-4030DT-261280-TR | DESCRIPTION: MEMS MICROPHONE

FEATURES

- high sensitivity
- top port
- PDM output



RoHS

ELECTRICAL

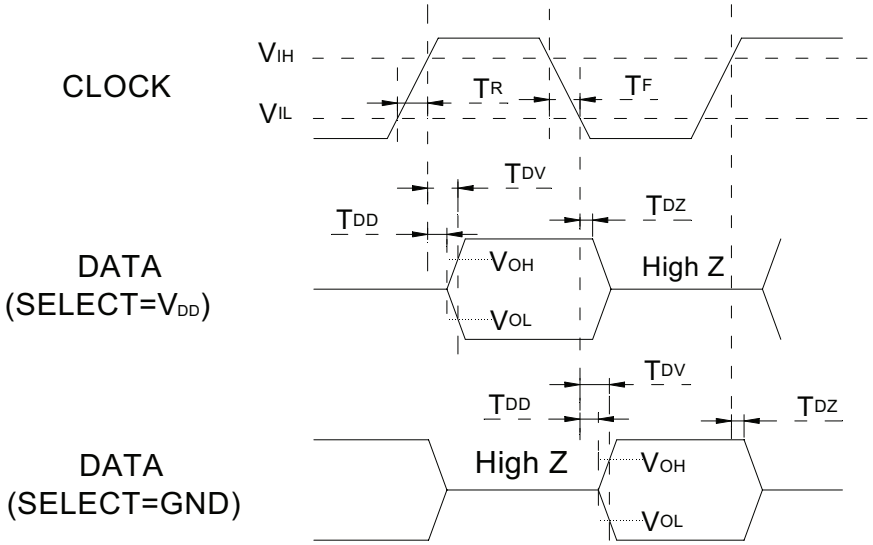
parameter	conditions/description	min	typ	max	units
directivity	omnidirectional				
sensitivity (S)	at 94 dB SPL, 1 kHz	-27	-26	-25	dB FS
supply voltage (V_{DD})		1.65		3.6	V
current consumption (I_{DD})	standard mode (F_{CLOCK} = 2.4 MHz) low-power mode (F_{CLOCK} = 768 kHz)		680 280		µA µA
signal to noise ratio (S/N)	at 94 dB SPL, 1 kHz (A-weighted)		58		dBA
total harmonic distortion (THD)	at 94 dB SPL, 1 kHz		0.1		%
acoustic overload point (AOP)	at 10% THD, 1 kHz		120		dBSPL
power supply rejection (PSR)	100 mVp-p square wave @ 217 Hz (A-weighted)		-80		dB FS
polarity	input higher voltage		increasing density of 1's		

DIGITAL INTERFACE

parameter	conditions/description	min	typ	max	units
clock frequency	sleep mode low-power mode standard mode	0 150 1.3		10 900 4.8	kHz kHz MHz
sleep current (I_{SLEEP})	F_{CLOCK} < 10 kHz		3		µA
dc output	full scale = ±100		4		%FS
fall-asleep time	F_{CLOCK} < 10 kHz			20	µs
wake-up time	F_{CLOCK} > 150 kHz			20	ms
startup time	time to start up in any mode after V_{DD} and CLOCK applied			20	ms
mode switch time	time to switch between modes, V_{DD} remains on			20	ms
data format	1/2 cycle PDM				
short circuit output current (I_{SC})	connect DATA to ground	1		20	mA
output load (C_{LOAD})				100	pF
logic input high (V_{IH})		0.65XV_{DD}		V_{DD}+0.3	V
logic input low (V_{IL})		-0.30		0.35XV_{DD}	V
logic output high (V_{OH})		V_{DD}-0.45			V
logic output low (V_{OL})				0.45	V
clock duty cycle		40		60	%
clock rise time (T_R)				15	ns
clock fall time (T_F)				15	ns
data into hi z time (t_{DZ})		5		20	ns
delay time for data driven (t_{DD})		25		50	ns
data valid time (t_{DV})		40		100	ns

Notes: 1. All specifications measured at 23±2°C, humidity at 55±20%, VDD = 2.0 V, FCLOCK = 2.4 MHz, unless otherwise noted.

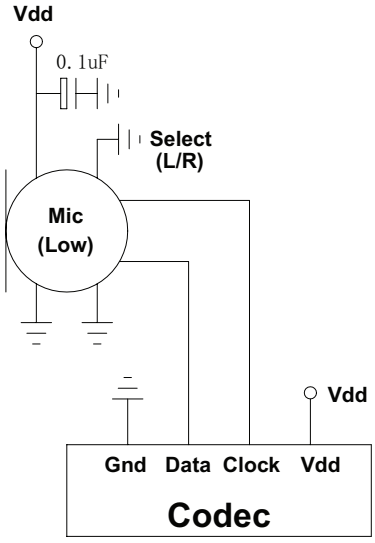
TIMING CHARACTERISTICS



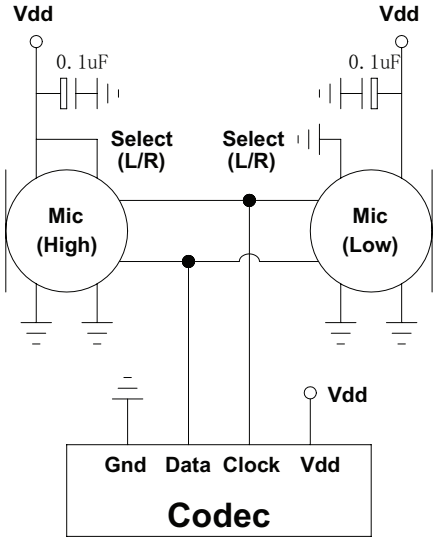
Microphone	Select (L/R)	Asserts DATA On	Latch DATA On
Mic(High)	VDD	rising clock edge	falling clock edge
Mic(Low)	GND	falling clock edge	rising clock edge

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				

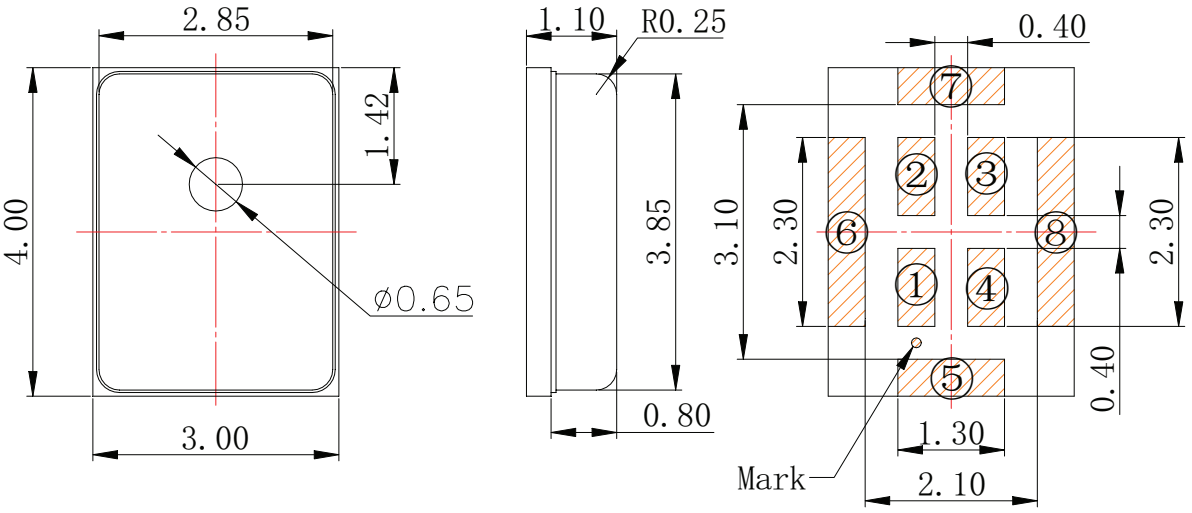
MECHANICAL

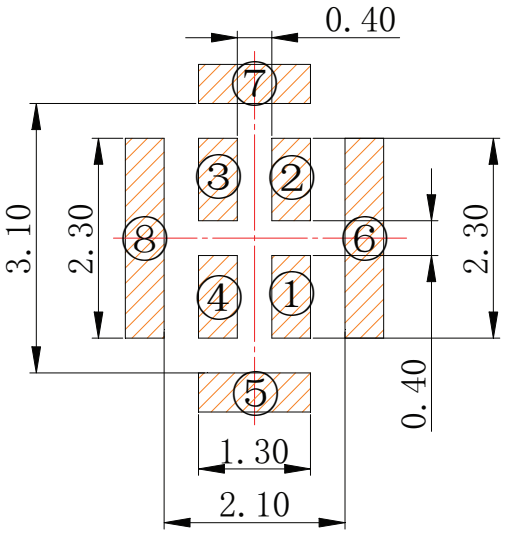
parameter	conditions/description	min	typ	max	units
dimensions	4.00 X 3.00 X 1.10				mm
acoustic port	top				mm
terminals	surface mount				
weight			0.034		g

MECHANICAL DRAWING

units: mm
tolerance: ±0.10 mm

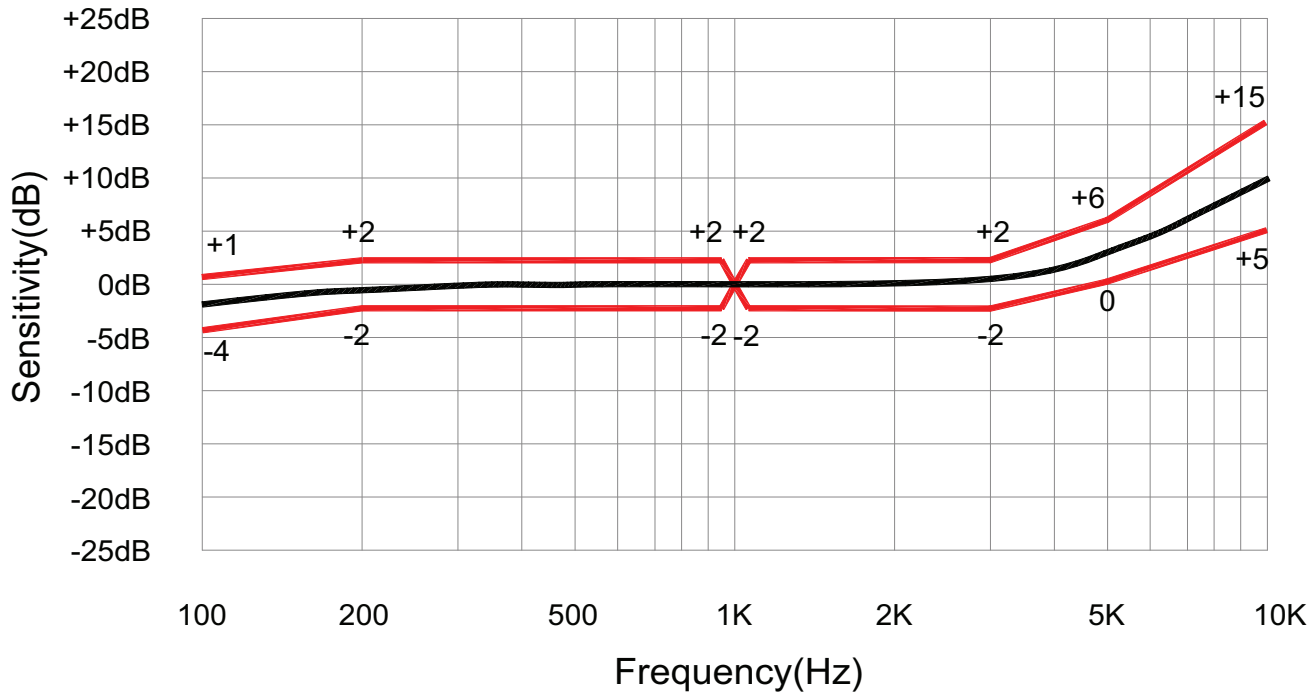
TERMINAL CONNECTIONS	
TERM.	FUNCTION
1	VDD
2	L/R
3	CLOCK
4	DATA
5	GND
6	GND
7	GND
8	GND



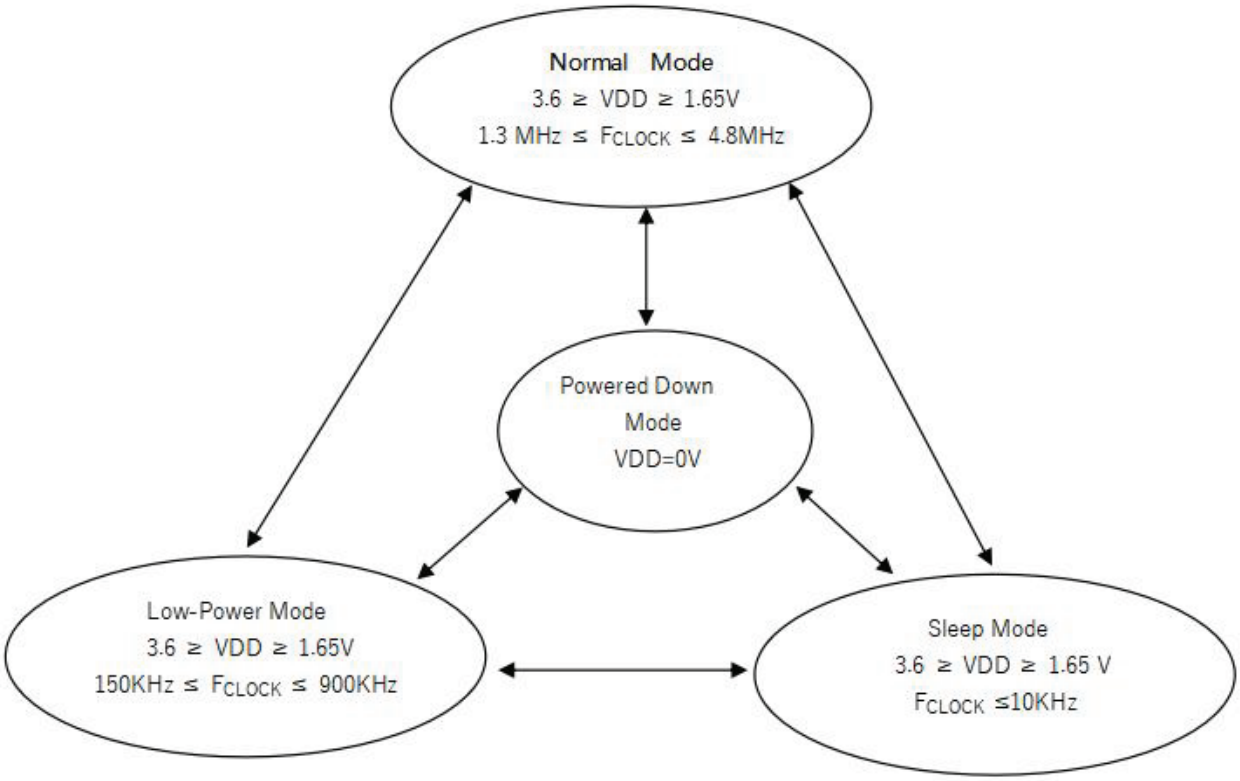


Recommended PCB Layout
Top View

FREQUENCY RESPONSE CURVE



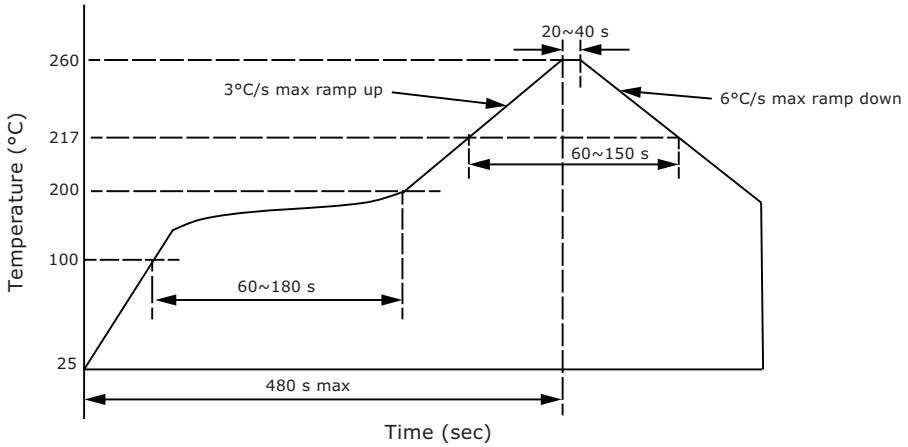
MICROPHONE STATE DIAGRAM



SOLDERABILITY

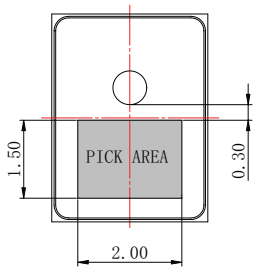
parameter	conditions/description	min	typ	max	units
reflow soldering[2]	see reflow profile			260	°C

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



HANDLING RECOMMENDATIONS

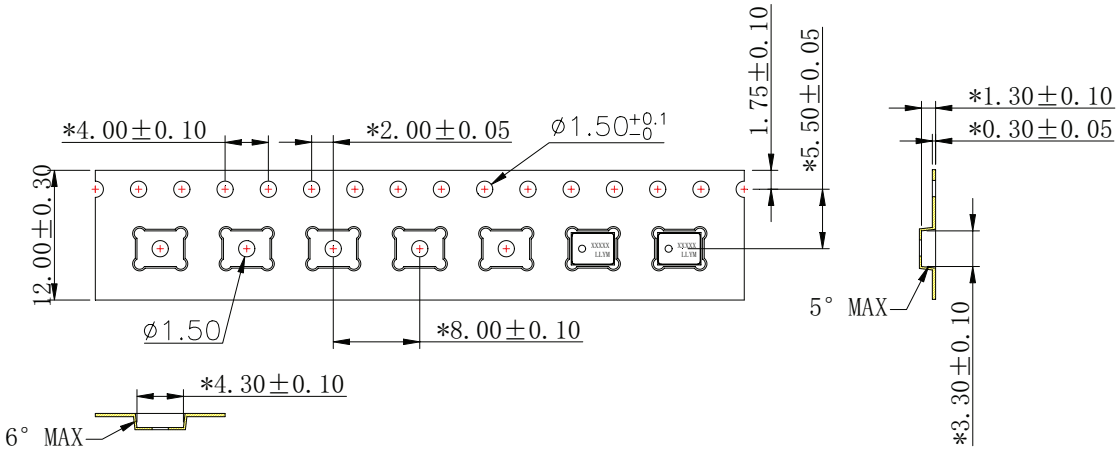
1. Not recommended to blow air heavily over acoustic port as debris could impact mic function.
2. Not suitable for wash process after reflow.
3. Not recommended to brush board with or without solvents after reflow process.
4. Not recommended to directly expose to ultrasonic processing or cleaning.
5. 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.

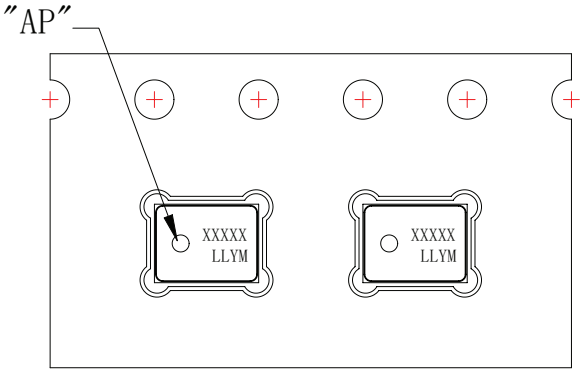


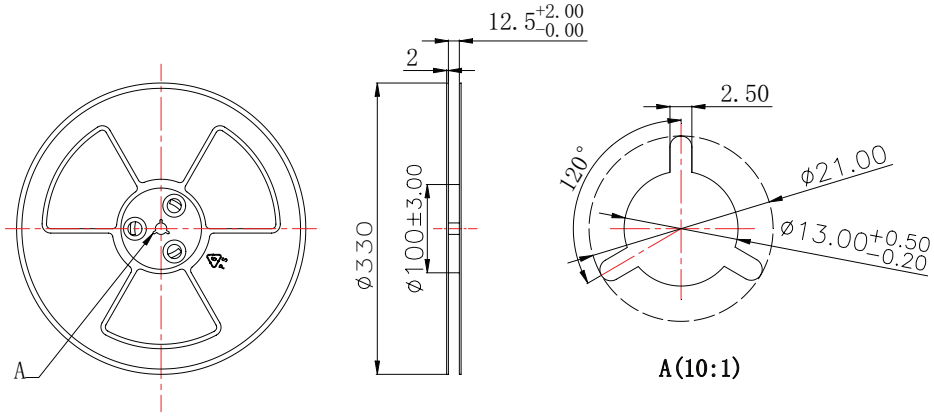
Recommended Vacuum Nozzle Pickup
Top View

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.

CUI Devices reserves the right to make changes to the product at any time without notice. Information provided by CUI Devices is believed to be accurate and reliable. However, no responsibility is assumed by CUI Devices for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

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