

MODEL: CMM-4030DT-26164-TR | **DESCRIPTION:** MEMS MICROPHONE

FEATURES

- digital (PDM)
- top port
- reflow solder compatible
- omnidirectional


ELECTRICAL

parameter	conditions/description	min	typ	max	units
directivity	omnidirectional				
sensitivity (S)	at 94 dB SPL, 1 kHz				
	low-power mode	-26	-25	-24	dB FS
	standard mode	-27	-26	-25	dB FS
supply voltage (V _{DD})		1.6	1.8	3.6	V
current consumption (I _{DD})	low-power mode: F _{CLOCK} = 768 kHz		290		μA
	standard mode: F _{CLOCK} = 2.4 MHz		670		μA
frequency (f)		100		10,000	Hz
signal to noise ratio (S/N)	at 94 dB SPL, 1 kHz (A-weighted)				
	low-power mode		62		dBA
	standard mode		64		dBA
total harmonic distortion (THD)	at 94 dB SPL, 1 kHz, S = typ		0.1		%
acoustic overload point (ADP)	at 10% THD, 1 kHz, S = typ				
	low-power mode		120		dB SPL
	standard mode		120		dB SPL
power supply rejection ratio (PSSR)	200 mVp-p sine wave @ 1 kHz				
	low-power mode		50		dB V/FS
	standard mode		50		dB V/FS
power supply rejection (PSR)	100 mVp-p square wave @ 217 Hz (A-weighted)				
	low-power mode		-80		dB FS[A]
	standard mode		-80		dB FS[A]

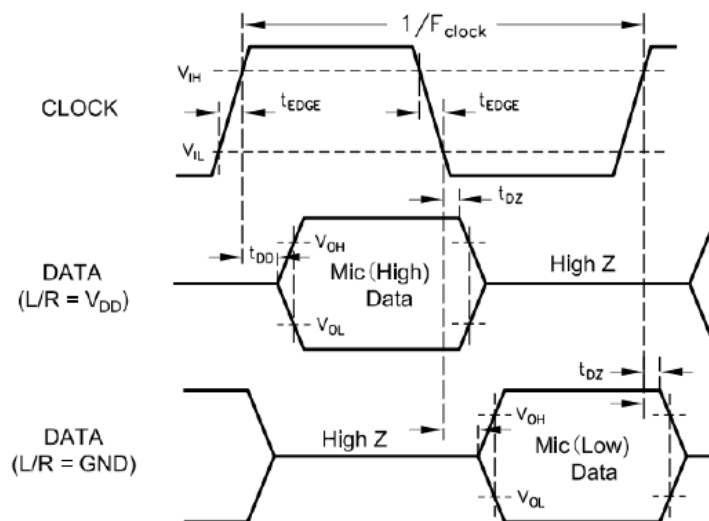
DIGITAL INTERFACE

parameter	conditions/description	min	typ	max	units
clock frequency range	sleep mode	0		50	kHz
	low-power mode	150		900	kHz
	standard mode	1.1		4.0	MHz
sleep current (I _{SLEEP})	F _{CLOCK} ≤ 50 kHz		1		μA
dc output	fullscale = ±100		4		%FS
data format	1/2 cycle PDM				
short circuit current (I _{SC})	grounded data pin	1		10	mA
output load (C _{LOAD})				200	pF
fall-asleep time	F _{CLOCK} ≤ 50 kHz			30	μs
wake-up time	F _{CLOCK} ≥ 151 kHz			200	μs
power-up time	V _{DD} ≥ V [min]		6	20	ms
mode-change time				10	ms
logic input high (V _{IH})		0.7xV _{DD}		3.6	V
logic input low (V _{IL})		-0.3		0.3xV _{DD}	V
logic output high (V _{OH})	I _{OUT} = 2 mA	V _{DD} -0.45			V
logic output low (V _{OL})	I _{OUT} = 2 mA			0.45	V
clock duty cycle		40		60	%

Notes: 1. All specifications measured at 23±2°C, humidity at 55±20%, V_{DD} = 1.8 V, F_{CLOCK} = 2.4 MHz, L/R pin grounded, no load, unless otherwise noted.

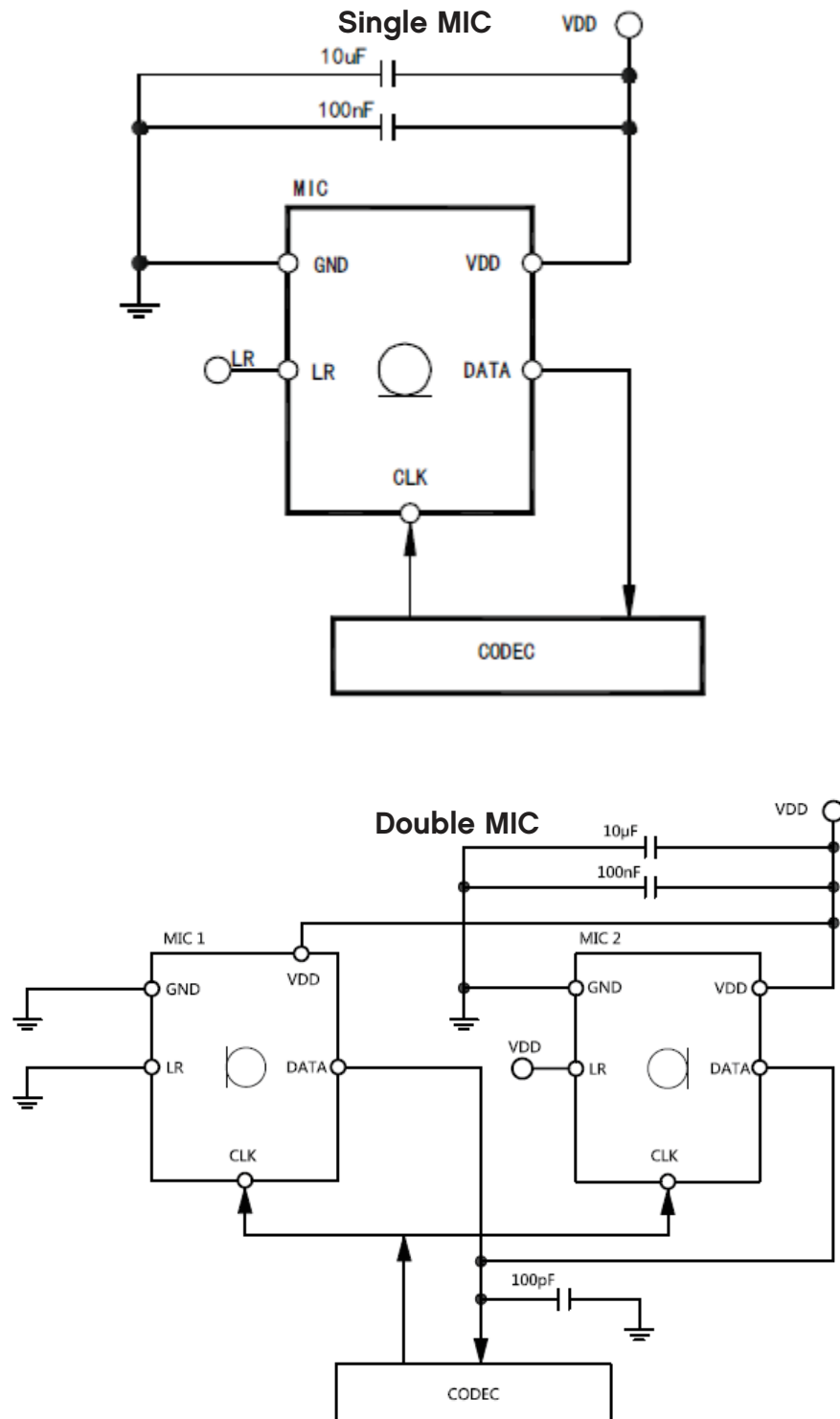
TIMING CHARACTERISTICS

parameter	conditions/description	min	typ	max	units
clock rise/fall time	t _{EDGE}			20	ns
delay time to high Z	t _{DZ}			40	ns
delay time to data line driven	t _{DD}			50	ns



Microphone	Select [L/R]	Asserts Data On	Latch Data On
Mic [High]	V _{DD}	rising clock edge	falling clock edge
Mic [Low]	GND	falling clock edge	rising clock edge

RECOMMENDED INTERFACE CIRCUIT



Notes: 2. Power supply decoupling capacitors (100 nF, 10 µF ceramic) should be placed as near as possible to V_{DD} of the device.

ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating temperature		-30		85	°C
storage temperature	in packaging	-40		100	°C
RoHS	yes				

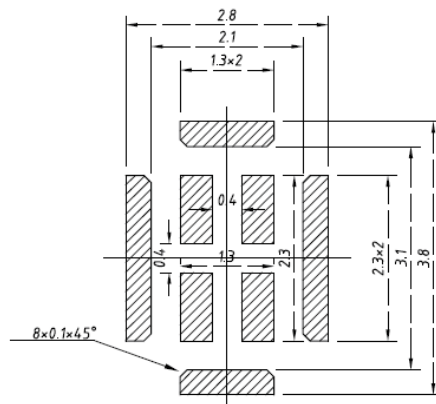
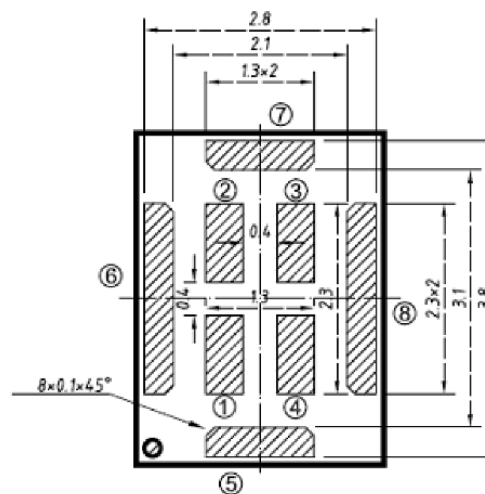
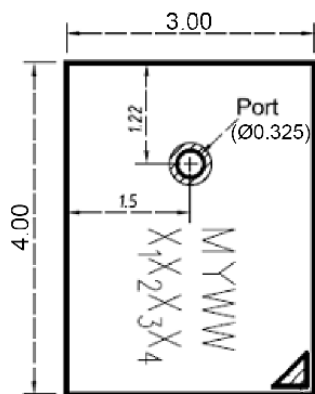
MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	4.00 x 3.00 x 1.00				mm
acoustic port	top				
terminals	surface mount				
weight			0.026		g

MECHANICAL DRAWING

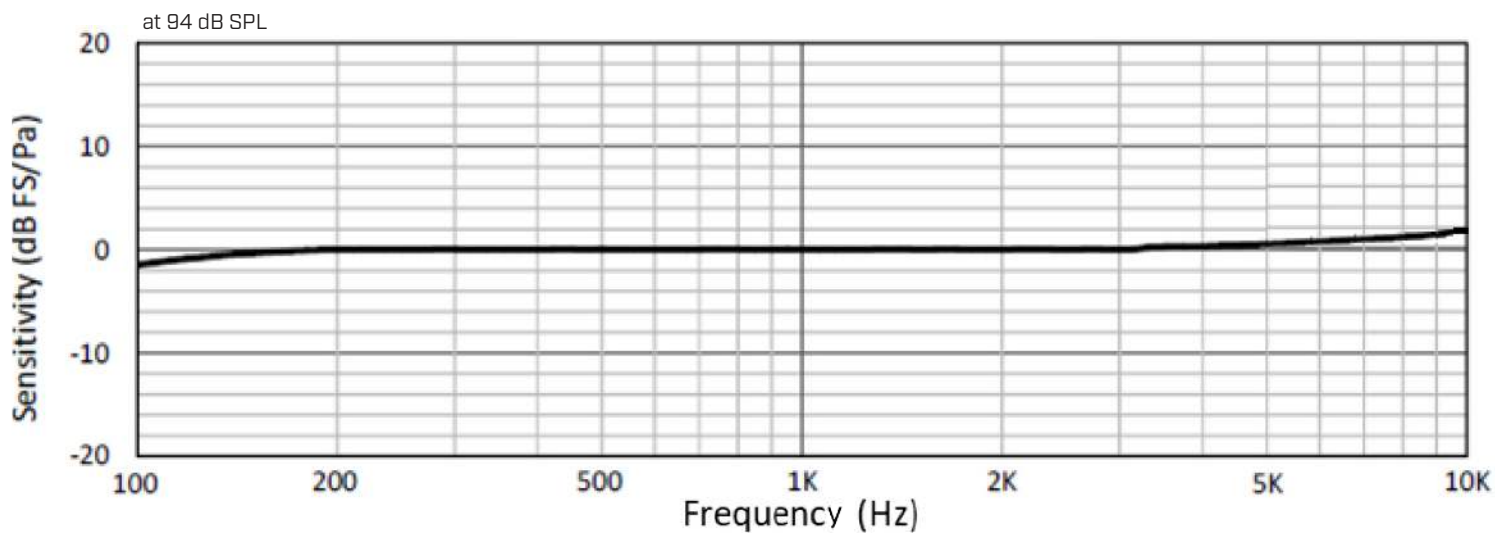
units: mm
 tolerance:
 length, width, height: ±0.10 mm
 acoustic port: ±0.05 mm
 unless otherwise specified: ±0.15 mm

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



Recommended PCB Layout
 Top View

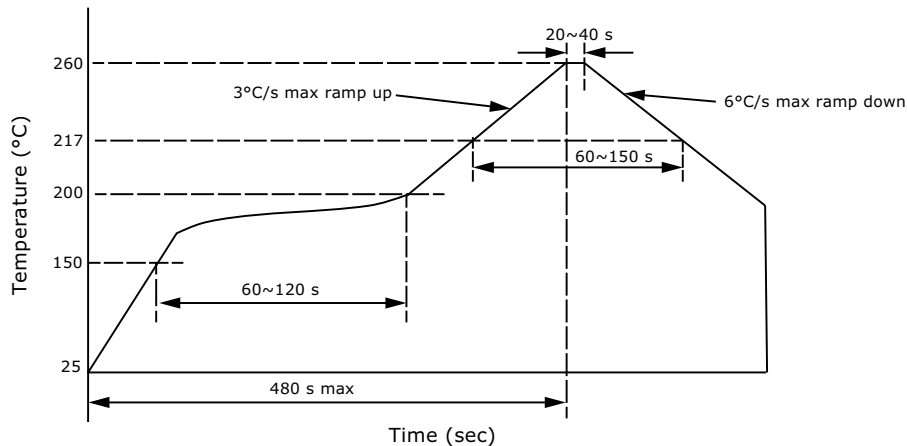
FREQUENCY RESPONSE CURVE



SOLDERABILITY

parameter	conditions/description	min	typ	max	units
reflow soldering ³	see reflow profile			260	°C

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

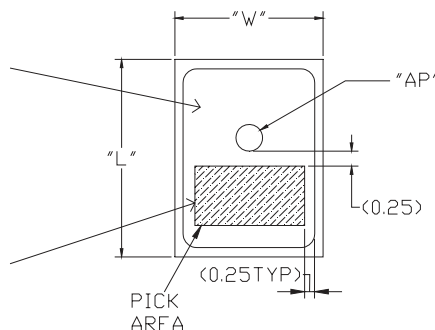


HANDLING RECOMMENDATIONS

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.

Vacuum pick-up over the port hole is prohibited

pick up nozzle should stay within acceptable pick-up area

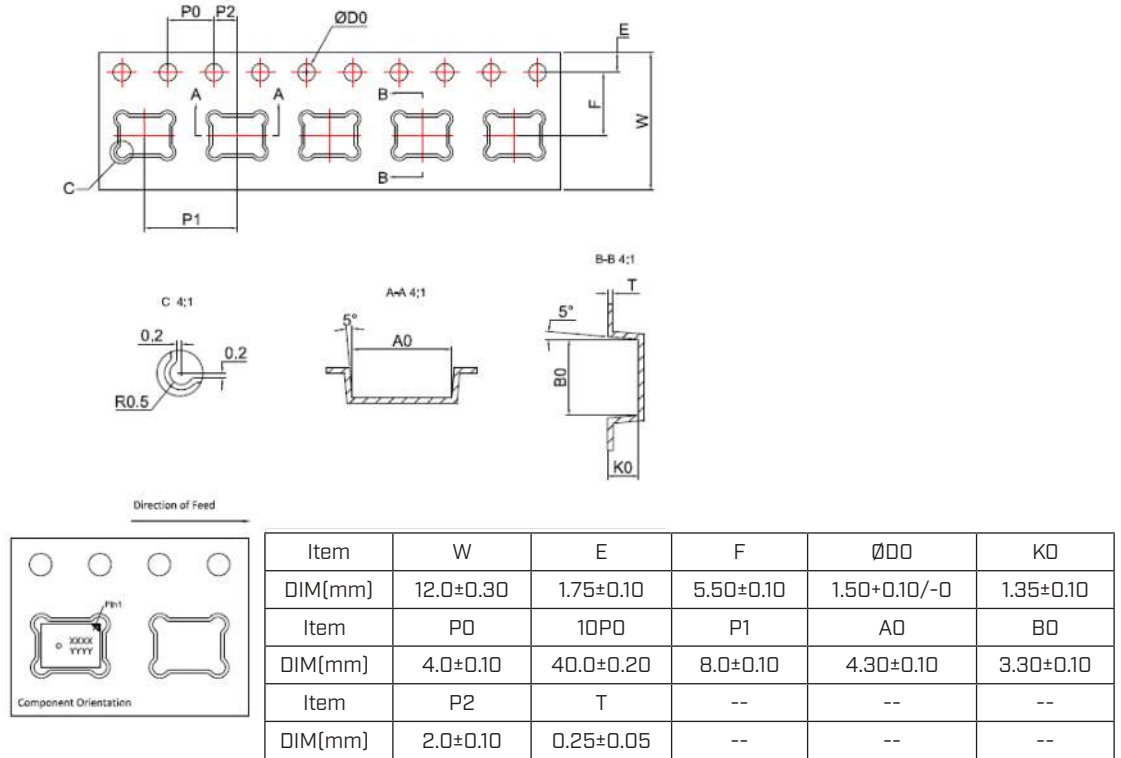


Recommended Vacuum Nozzle Pickup
Top View

PACKAGING

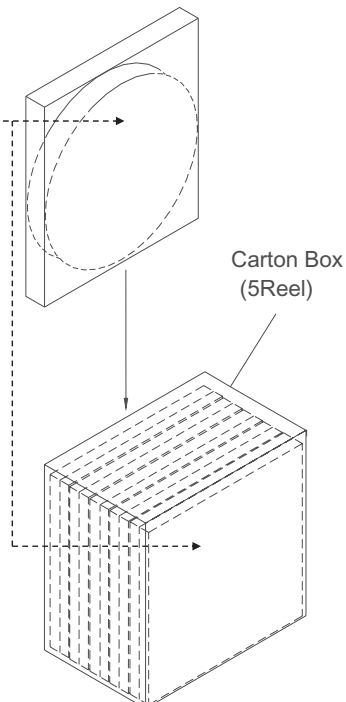
parameter	conditions/description	min	typ	max	units
MSL	Class 1				
reel size	Ø7 inches				
reel QTY ⁴	1,100 pcs per reel				
carton size	310 x 210 x 165 mm				
carton QTY	5,500 pcs				

Note: 4. The leader tape of the reel, and the beginning tape fixed into the reel center, will leave 25 blank cavities each.



Lot No.	XXXXXXXXXX
Part No.	CUI Inv#: CUI Part#:
Quantity:	XXXX Pcs
Date:	DD MM YY
	MADE IN CHINA

RoHS Compliant



REVISION HISTORY

rev.	description	date
1.0	initial release	03/09/2022
1.01	logo, datasheet style update	08/05/2022

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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