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

FEATURES

- low power mode
- top port
- high sensitivity

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})	low-power mode normal mode		300 700	420 900	µA µA
frequency (f)		20		10,000	Hz
signal to noise ratio (S/N)	at 94 dB SPL, 1 kHz (A-weighted) low-power mode normal mode		 64 65		 dBA dBA
total harmonic distortion (THD)	at 94 dB SPL, 1 kHz		0.15	0.5	%
acoustic overload point (AOP)	at 10% THD, 1 kHz		120		dBSPL
power supply rejection (PSR)	100 mVp-p square wave @ 217 Hz (A-weighted) low-power mode normal mode		 -88 -85		 dB FS dB FS

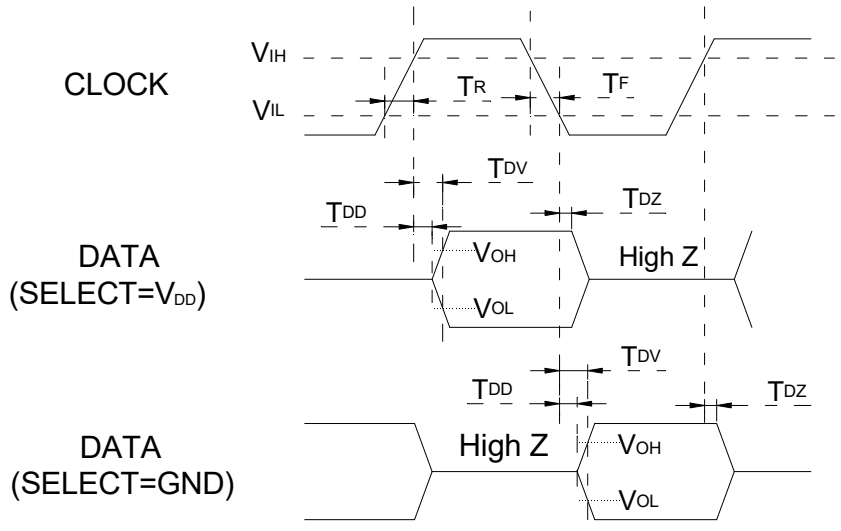
DIGITAL INTERFACE

parameter	conditions/description	min	typ	max	units
clock frequency	sleep mode low-power mode normal 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		1		%FS
data format	1/2 cycle PDM				
short circuit output current (I_{SC})	grounded data pin	1		20	mA
output load (C_{LOAD})				100	pF
fall-asleep time	F_{CLOCK} < 10 kHz			20	µs
wake-up time	F_{CLOCK} > 150 kHz			20	ms
startup time (T_{start})	time to start up in any mode after VDD and CLOCK are applied			20	ms
mode switch time	time to switch between modes, VDD remains on			20	ms
clock duty cycle		40		60	%
logic input high (V_{IH})	I_{OUT} = 1 mA	0.65XV_{DD}		V_{DD}+0.3	V
logic input low (V_{IL})	I_{OUT} = 1 mA	-0.3		0.35XV_{DD}	V
logic output high (V_{OH})	I_{OUT} = 1 mA	V_{DD}-0.45			V
logic output low (V_{OL})	I_{OUT} = 1 mA			0.45	V

Notes: 1. All specifications measured at 23±2°C, humidity at 55±20%, V_{DD} = 2.0 V, F_{CLOCK} = 2.4 MHz (normal mode), F_{CLOCK} = 768 kHz (low-power mode), L/R pin grounded, no load, unless otherwise noted.

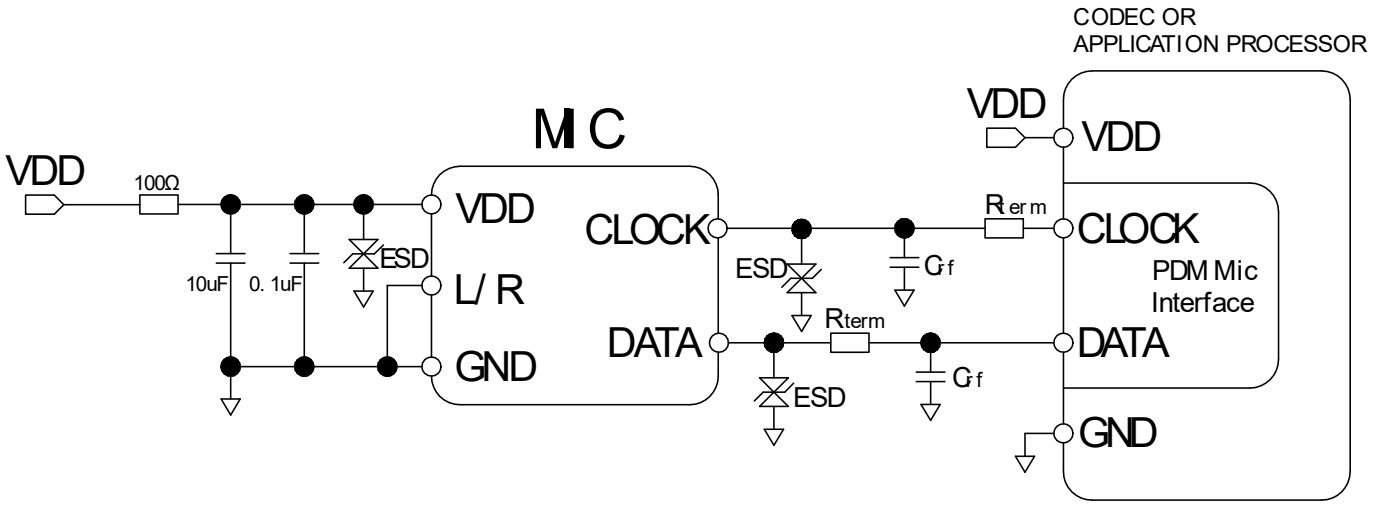
TIMING CHARACTERISTICS

parameter	conditions/description	min	typ	max	units
clock rise/fall time	T_R/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

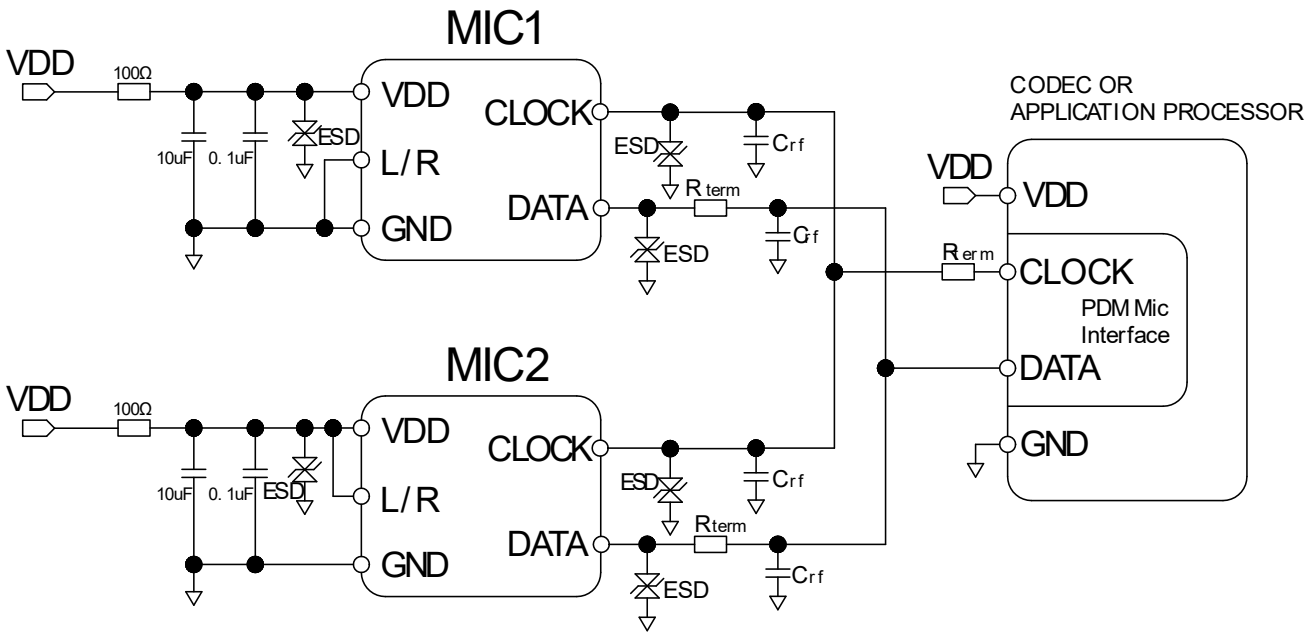


Microphone	Select (L/R)	Asserts DATA On	Latch DATA On
Mic(High)	VDD	rising clock edge	falling clock edge
Mic(Low)	GND	falling clock edge	rising clock edge

RECOMMENDED INTERFACE CIRCUIT



Single MIC



Double MIC

Notes: 2. Power supply decoupling capacitors (0.1 µF, 10 µF, 100 ohm resistor, and the ESD diode) should be placed as near as possible to V_{DD} of the device.
3. Crf and Rterm are all used for debugging. Actually their values or NC are based on the debugging result.

ENVIRONMENTAL

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

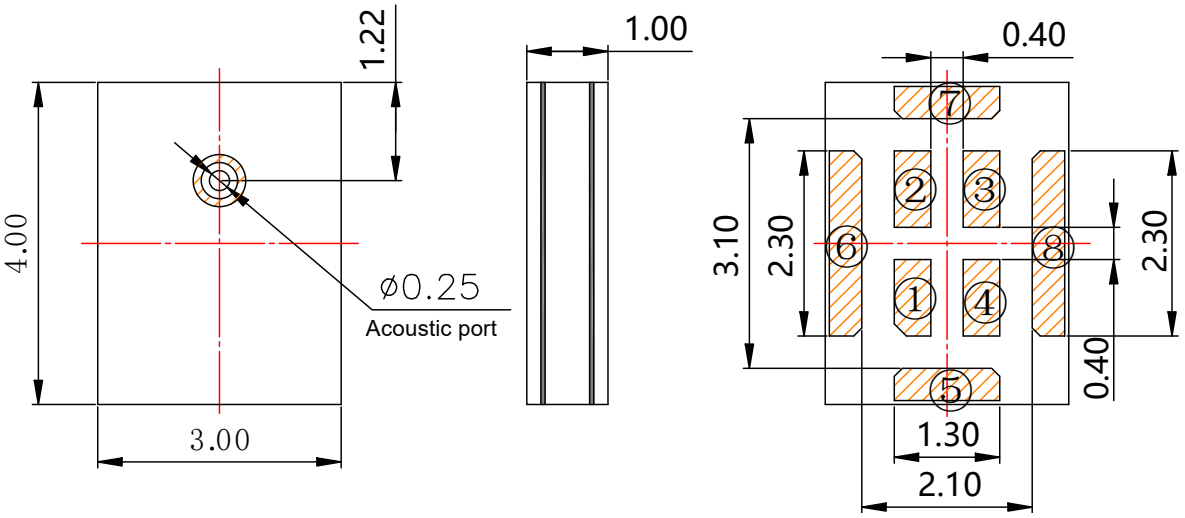
MECHANICAL

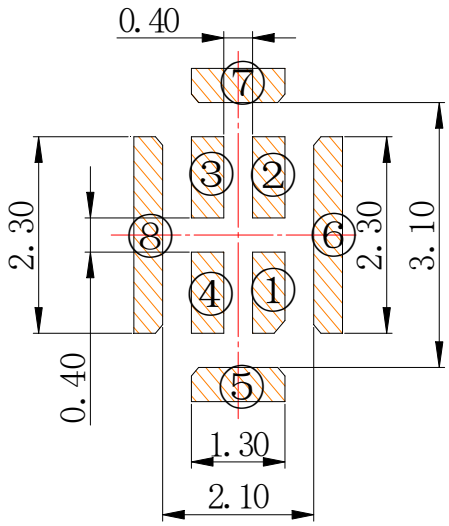
parameter	conditions/description	min	typ	max	units
dimensions	4.00 x 3.00 x 1.00				mm
acoustic port	top				mm
terminals	surface mount				
weight			0.029		g

MECHANICAL DRAWING

units: mm
tolerance: ±0.10 mm

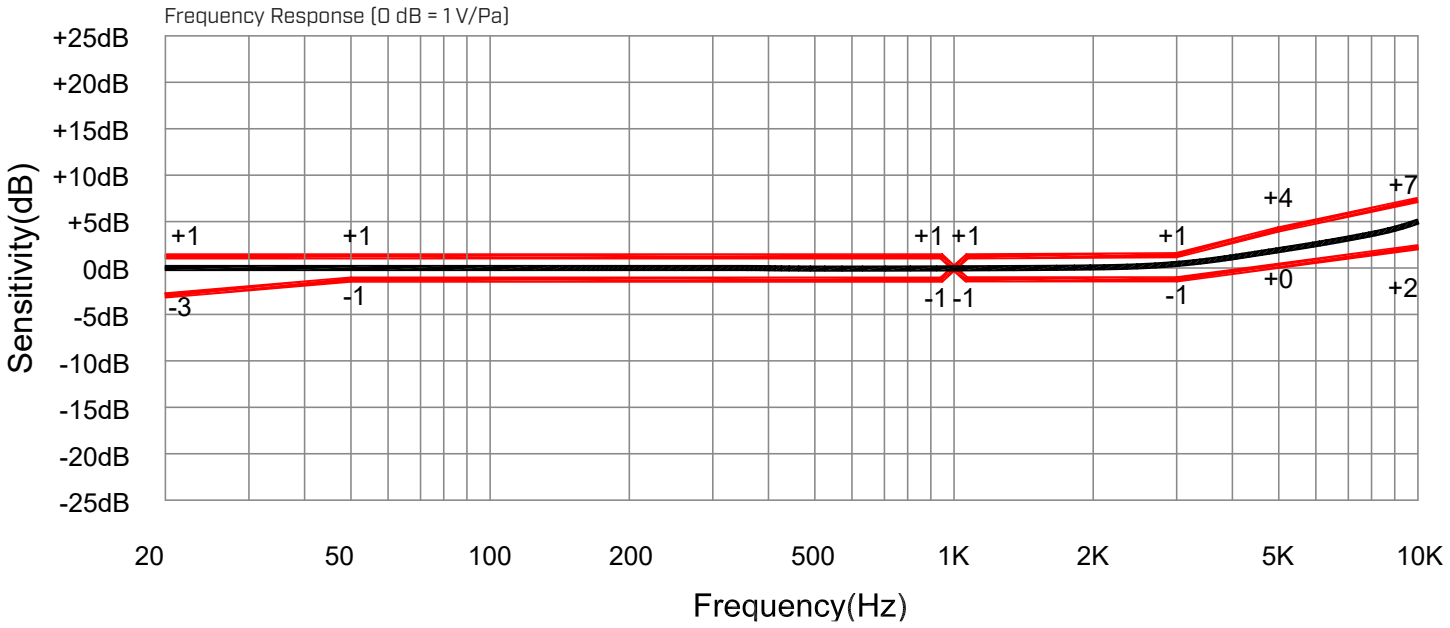
TERMINAL CONNECTIONS	
TERM.	FUNCTION
1	VDD
2	L/R
3	CLOCK
4	DATA
5	GND
6	GND
7	GND
8	GND



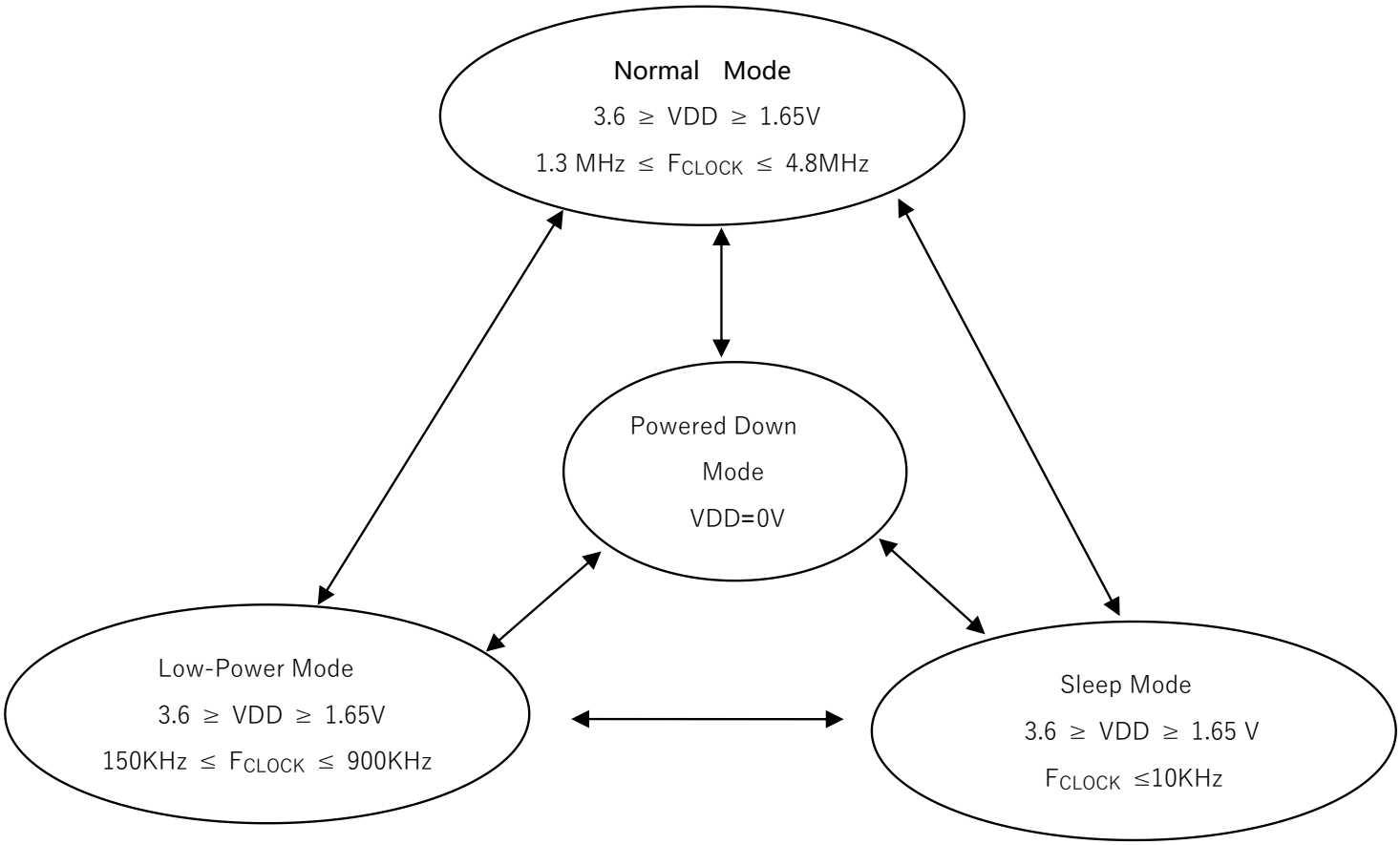


Recommended PCB Layout
Top View

FREQUENCY RESPONSE CURVE



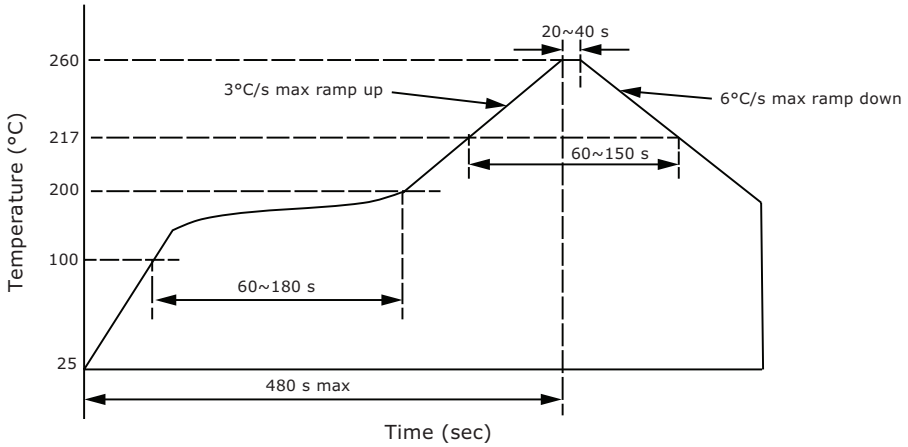
MICROPHONE STATE



SOLDERABILITY

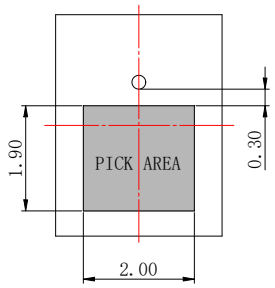
parameter	conditions/description	min	typ	max	units
reflow soldering[4]	see reflow profile			260	°C

Note: 4. Not recommended to exceed 3 reflow cycles.



HANDLING RECOMMENDATIONS

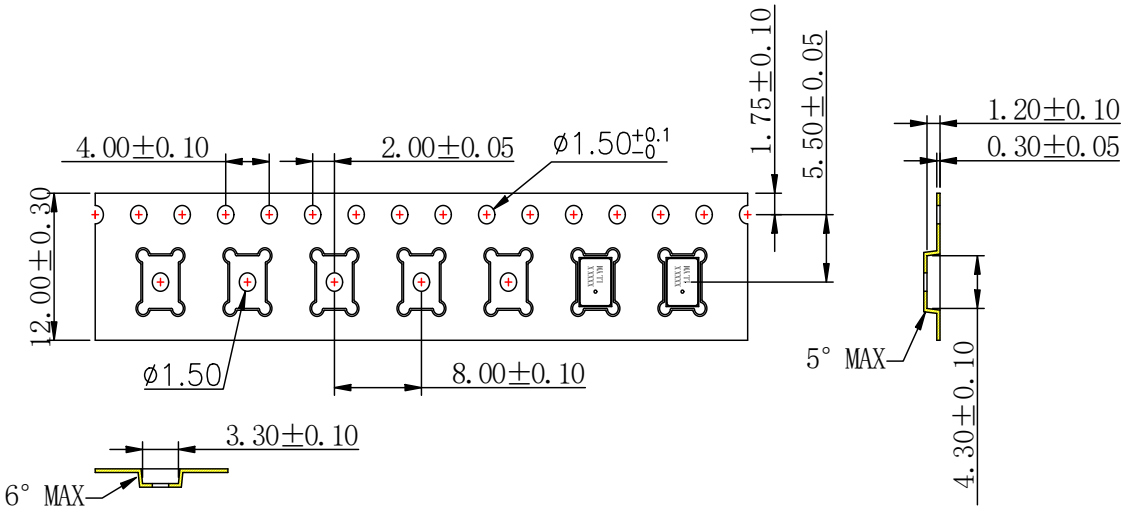
1. Not recommended to blow air heavily over acoustic port as debris could impact mic function.
2. Not suitable for wash process after reflow.
3. Not recommended to brush board with or without solvents after reflow process.
4. Not recommended to directly expose to ultrasonic processing or cleaning.
5.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

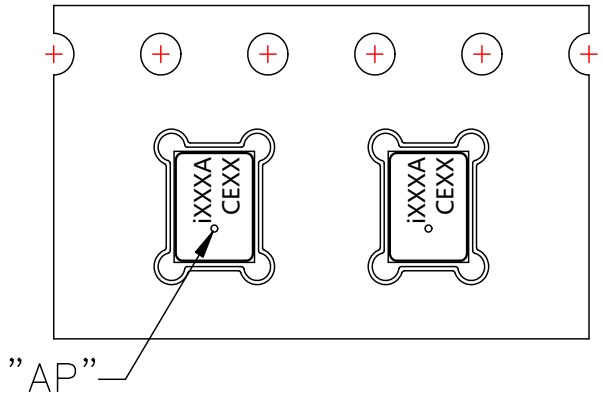


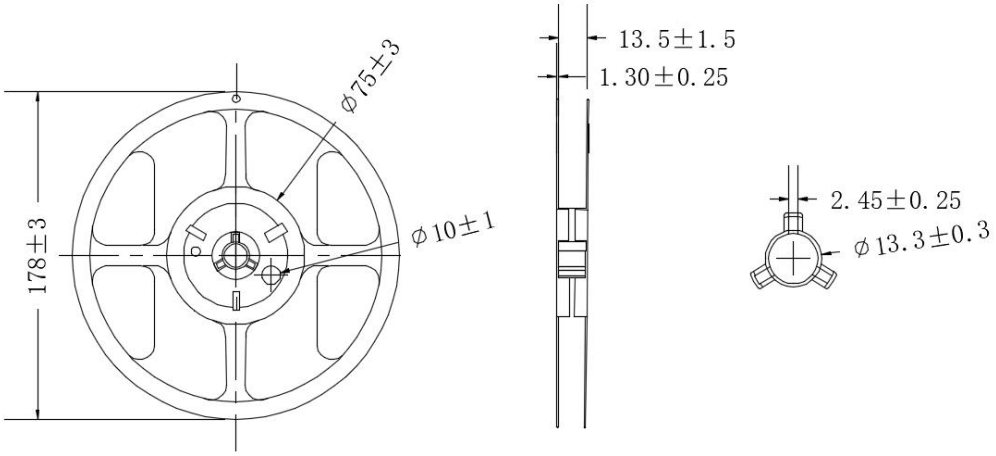
Recommended Vacuum Nozzle Pickup
Top View

PACKAGING

parameter	conditions/description	min	typ	max	units
MSL	Class 1				
reel size	Ø178 mm				
reel QTY	1,000 pcs per reel				
carton size	442 x 235 x 210 mm				
carton QTY	20,000 pcs				







REVISION HISTORY

rev.	description	date
1.0	initial release	10/21/2025

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

same sky

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