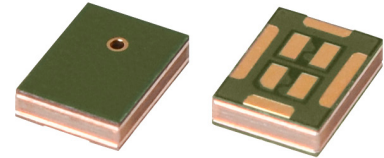


**MODEL:** CMM-4030DT-26154-TR | **DESCRIPTION:** MEMS MICROPHONE**FEATURES**

- digital (PDM)
- small package
- reflow solder compatible
- omnidirectional

**ELECTRICAL**

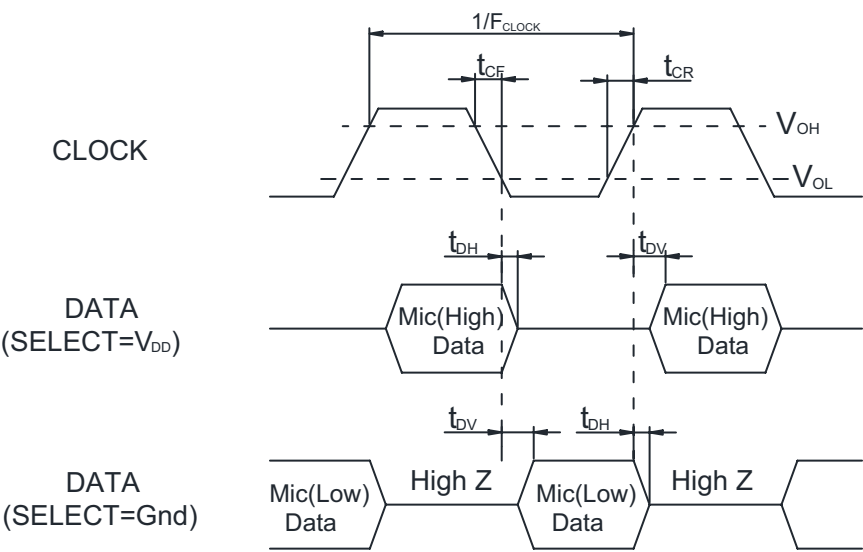
| parameter                              | conditions/description                       | min | typ  | max    | units  |
|----------------------------------------|----------------------------------------------|-----|------|--------|--------|
| directivity                            | omnidirectional                              |     |      |        |        |
| sensitivity [S]                        | at 94 dB SPL, 1 kHz                          | -27 | -26  | -25    | dB FS  |
| supply voltage [V <sub>DD</sub> ]      |                                              | 1.6 | 2.0  | 3.6    | V      |
| current consumption [I <sub>DD</sub> ] |                                              |     | 0.54 |        | mA     |
| sensitivity reduction                  | V <sub>DD</sub> = 3.6 ~ 1.6 V                |     | -0.5 |        | dB FS  |
| frequency [f]                          |                                              | 100 |      | 10,000 | Hz     |
| signal to noise ratio [S/N]            | at 94 dB SPL, 1 kHz (A-weighted)             |     | 65   |        | dBA    |
| total harmonic distortion [THD]        | at 94 dB SPL, 1 kHz                          |     | 0.2  |        | %      |
| acoustic overload point [AOP]          | at 10% THD, 1 kHz                            |     | 120  |        | dB SPL |
| output impedance [Z <sub>out</sub> ]   | at 1 kHz                                     |     |      | 300    | Ω      |
| power supply rejection [PSR]           | 100 mVp-p square wave at 217 Hz (A-weighted) |     | -90  |        | dB FS  |

**DIGITAL INTERFACE**

| parameter                                     | conditions/description     | min                  | typ | max                  | units |
|-----------------------------------------------|----------------------------|----------------------|-----|----------------------|-------|
| 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> ≥ 1 MHz |                      |     | 52                   | ms    |
| short circuit current [I <sub>SC</sub> ]      | grounded data pin          |                      | 1   | 10                   | mA    |
| output load [C <sub>LOAD</sub> ]              |                            |                      |     | 100                  | pF    |
| data format                                   | 1-Bit PDM                  |                      |     |                      |       |
| clock frequency [F <sub>CLOCK</sub> ]         |                            | 1.0                  | 2.4 | 3.2                  | MHz   |
| clock duty cycle [F <sub>DC</sub> ]           |                            | 40                   |     | 60                   | %     |
| clock rise time [t <sub>CR</sub> ]            |                            |                      |     | 10                   | ns    |
| clock fall time [t <sub>CF</sub> ]            |                            |                      |     | 10                   | ns    |
| logic input/output low [V <sub>IO(L)</sub> ]  | I <sub>OUT</sub> = 1 mA    | -0.30                |     | 0.35xV <sub>DD</sub> | V     |
| logic input/output high [V <sub>IO(H)</sub> ] | I <sub>OUT</sub> = 1 mA    | 0.65xV <sub>DD</sub> |     | V <sub>DD</sub> +0.3 | V     |
| delay time for valid data [t <sub>OV</sub> ]  |                            | 18                   |     | 60                   | ns    |
| delay time for high z [t <sub>OH</sub> ]      |                            | 0                    |     | 16                   | ns    |

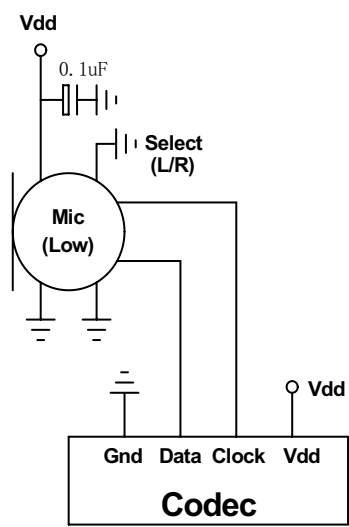
Notes: 1. All specifications measured at 23±2°C, humidity at 55±20%, V<sub>DD</sub> = 2.0 V, F<sub>CLOCK</sub> = 2.4 MHz, unless otherwise noted.

TIMING CHARACTERISTICS

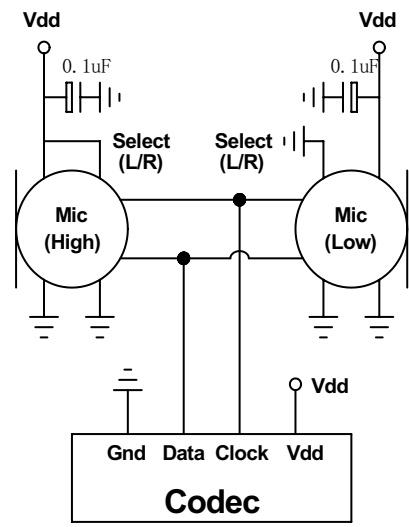


| Microphone | Select (L/R)    | Asserts Data On    | Latch Data On      |
|------------|-----------------|--------------------|--------------------|
| Mic [High] | V <sub>DD</sub> | rising clock edge  | falling clock edge |
| Mic [Low]  | GND             | falling clock edge | rising clock edge  |

RECOMMENDED INTERFACE CIRCUIT



Single MIC



Double MIC

ENVIRONMENTAL

| parameter             | conditions/description | min | typ | max | units |
|-----------------------|------------------------|-----|-----|-----|-------|
| operating temperature |                        | -40 |     | 105 | °C    |
| storage temperature   | in packaging           | -40 |     | 85  | °C    |
| RoHS                  | yes                    |     |     |     |       |

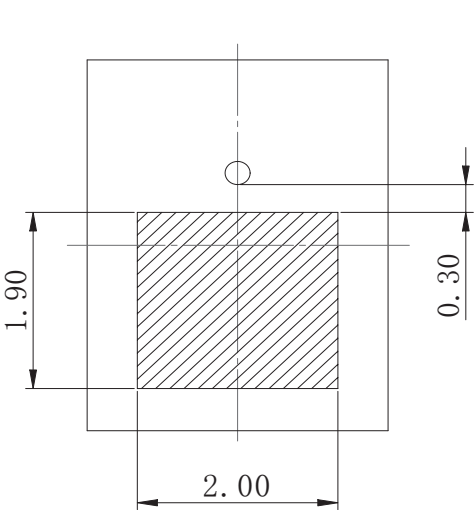
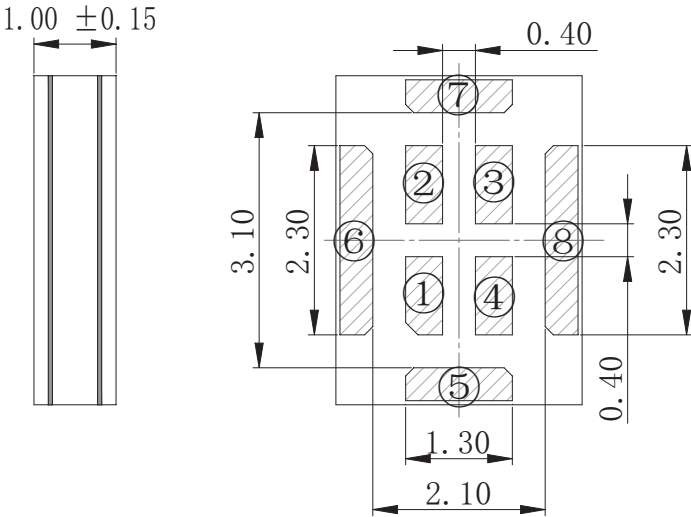
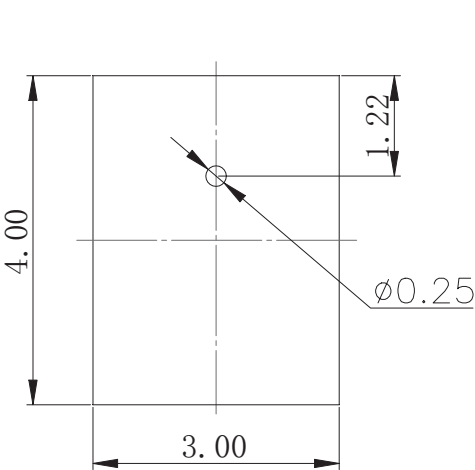
MECHANICAL

| parameter     | conditions/description | min | typ   | max | units |
|---------------|------------------------|-----|-------|-----|-------|
| dimensions    | 4.00 x 3.00 x 1.00     |     |       |     | mm    |
| acoustic port | top                    |     |       |     |       |
| terminals     | surface mount          |     |       |     |       |
| weight        |                        |     | 0.024 |     | g     |

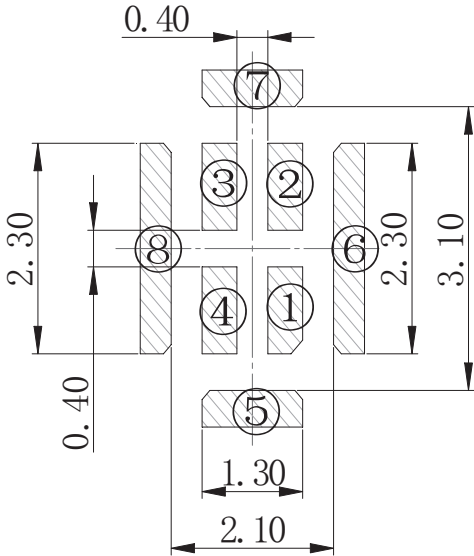
MECHANICAL DRAWING

units: mm  
tolerance: ±0.1 mm

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

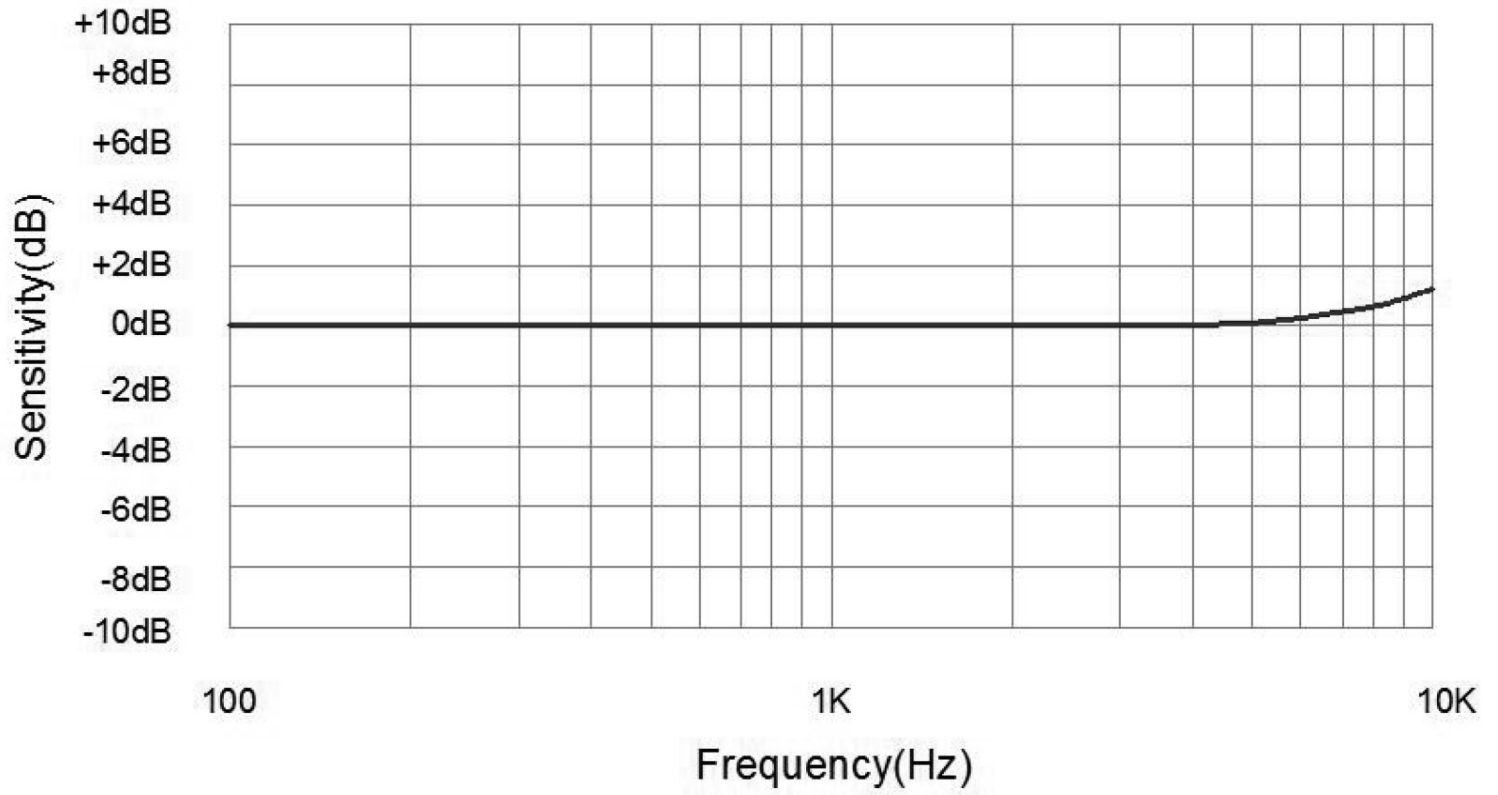


Recommended Vacuum Nozzle Pickup  
Top View



Recommended PCB Layout  
Top View

## FREQUENCY RESPONSE CURVE

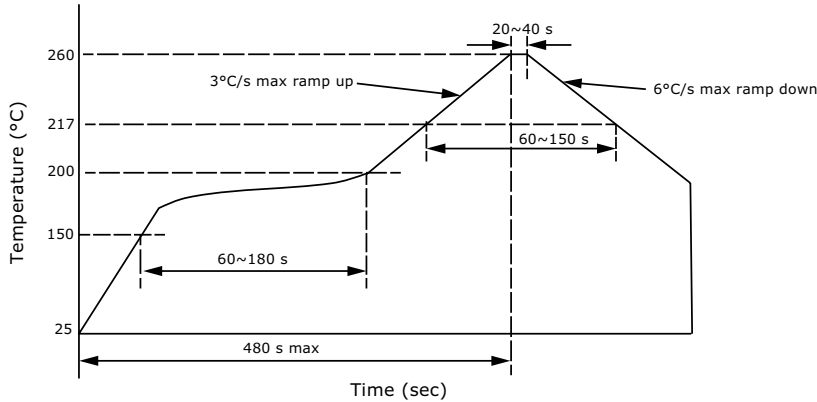


SOLDERABILITY

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

Note:

- 1. Vacuuming over acoustical hole is not allowed.
- 2. Not suitable for wash process.
- 3. Not recommended to exceed 5 reflow cycles.

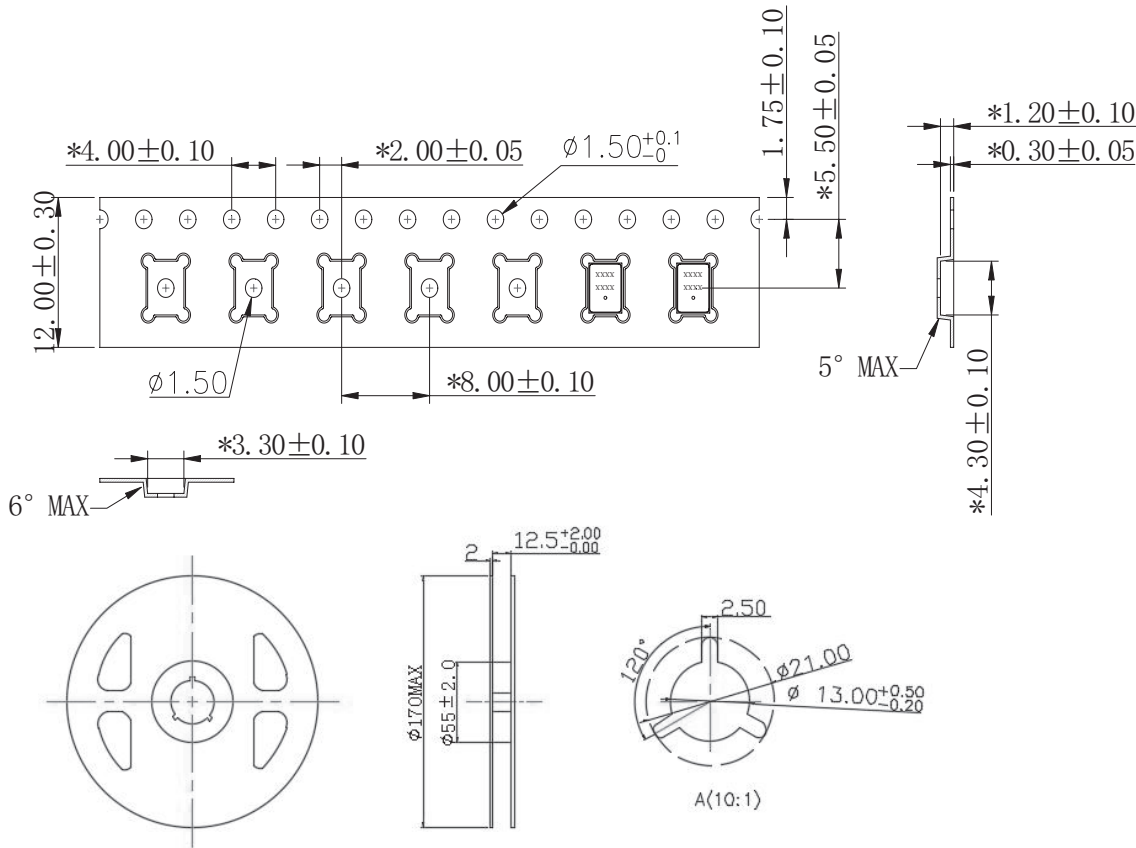


PACKAGING

| parameter                 | conditions/description    | min | typ | max | units |
|---------------------------|---------------------------|-----|-----|-----|-------|
| reel storage <sup>4</sup> | at relative humidity <75% | -40 |     | 85  | °C    |
| MSL                       | Class 1                   |     |     |     |       |
| reel size                 | Ø170 mm max               |     |     |     |       |
| reel QTY                  | 1,000 pcs per reel        |     |     |     |       |

Note:

- 4. Recommended storage period no more than 1 year. Floor life (out of bag) no more than 4 weeks.



REVISION HISTORY

| rev. | description                                  | date       |
|------|----------------------------------------------|------------|
| 1.0  | initial release                              | 11/12/2018 |
| 1.01 | brand update                                 | 01/16/2020 |
| 1.02 | modified housing, increased height tolerance | 05/26/2022 |
| 1.03 | logo, datasheet style update                 | 08/05/2022 |
| 1.04 | CUI Devices rebranded to Same Sky            | 09/11/2024 |

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



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

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Same Sky products are not authorized or warranted for use as critical components in equipment that requires an extremely high level of reliability. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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