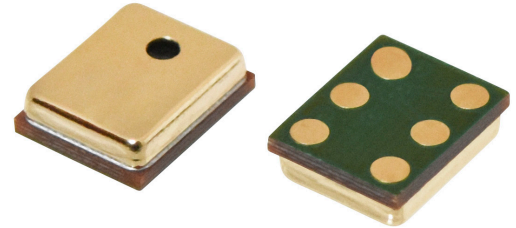


MODEL: CMM-4737DT-26186-TR | **DESCRIPTION:** MEMS MICROPHONE

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 _{DD}) | | 1.6 | 2.0 | 3.6 | V |
| current consumption (I _{DD}) | | | | 0.75 | mA |
| sensitivity reduction | V _{DD} = 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) | | 57 | | 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 _{out}) | 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 _{SLEEP}) | F _{CLOCK} < 1 kHz | | 3 | 4 | μA |
| fall-asleep time | F _{CLOCK} < 1 kHz | | | 50 | μs |
| wake-up time | F _{CLOCK} ≥ 1.024 MHz | | | 52 | ms |
| short circuit current (I _{SC}) | grounded data pin | | 1 | 10 | mA |
| output load (C _{LOAD}) | | | | 100 | pF |
| data format | 1-Bit PDM | | | | |
| clock frequency (F _{CLOCK}) | | 1.024 | 2.4 | 3.25 | MHz |
| clock duty cycle (F _{DC}) | | 40 | | 60 | % |
| clock rise time (t _{CR}) | | | | 10 | ns |
| clock fall time (t _{CF}) | | | | 10 | ns |
| logic input high (V _{IH}) | I _{OUT} = 1 mA | 0.75xV _{DD} | | | V |
| logic input low (V _{IL}) | I _{OUT} = 1 mA | | | 0.25xV _{DD} | V |
| logic output high (V _{OH}) | I _{OUT} = 1 mA | 0.9xV _{DD} | | | V |
| logic output low (V _{OL}) | I _{OUT} = 1 mA | | | 0.1xV _{DD} | V |
| delay time for valid data (t _{OV}) | | 18 | | 40 | ns |
| delay time for high z (t _{OH}) | | 0 | | 15 | ns |

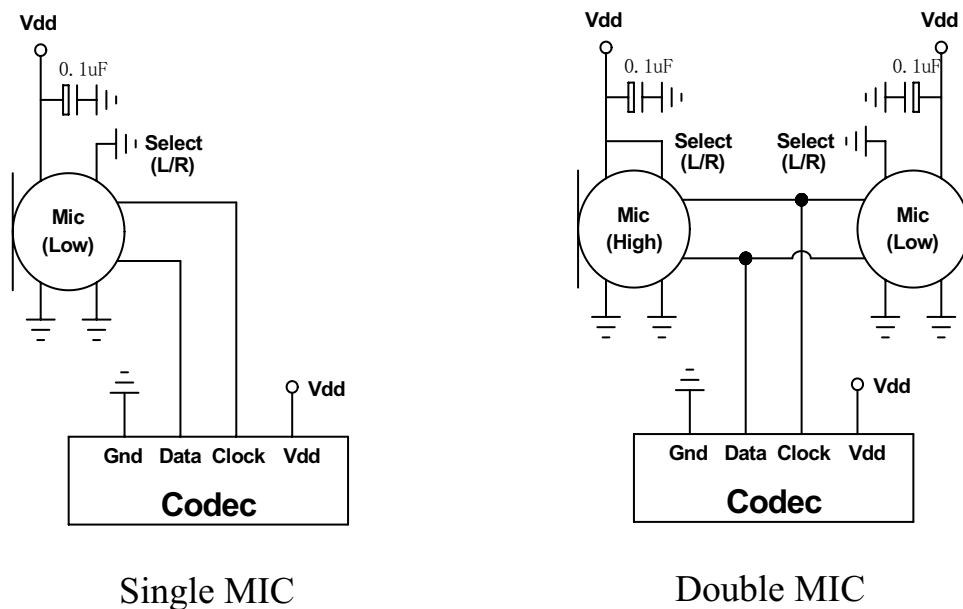
Notes: 1. All specifications measured at 23±2°C, humidity at 55±20%, V_{DD} = 2.0 V, F_{CLOCK} = 2.4 MHz, unless otherwise noted.

TIMING CHARACTERISTICS



| 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



ENVIRONMENTAL

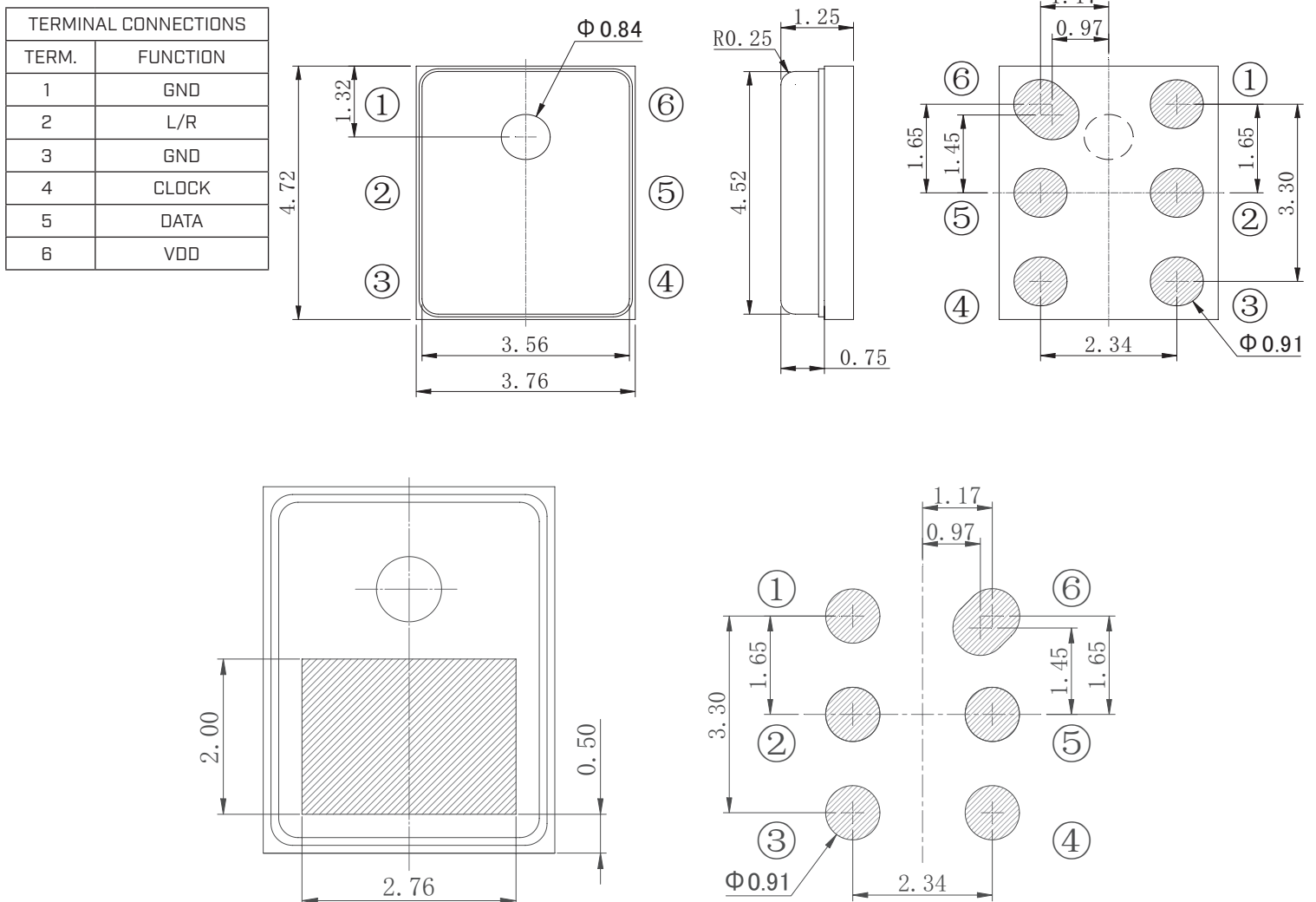
| parameter | conditions/description | min | typ | max | units |
|-----------------------|------------------------|-----|-----|-----|-------|
| operating temperature | | -40 | | 100 | °C |
| storage temperature | in packaging | -40 | | 85 | °C |
| RoHS | yes | | | | |

MECHANICAL

| parameter | conditions/description | min | typ | max | units |
|---------------|------------------------|-----|-------|-----|-------|
| dimensions | 4.72 x 3.76 x 1.25 | | | | mm |
| acoustic port | top | | | | |
| terminals | surface mount | | | | |
| weight | | | 0.025 | | g |

MECHANICAL DRAWING

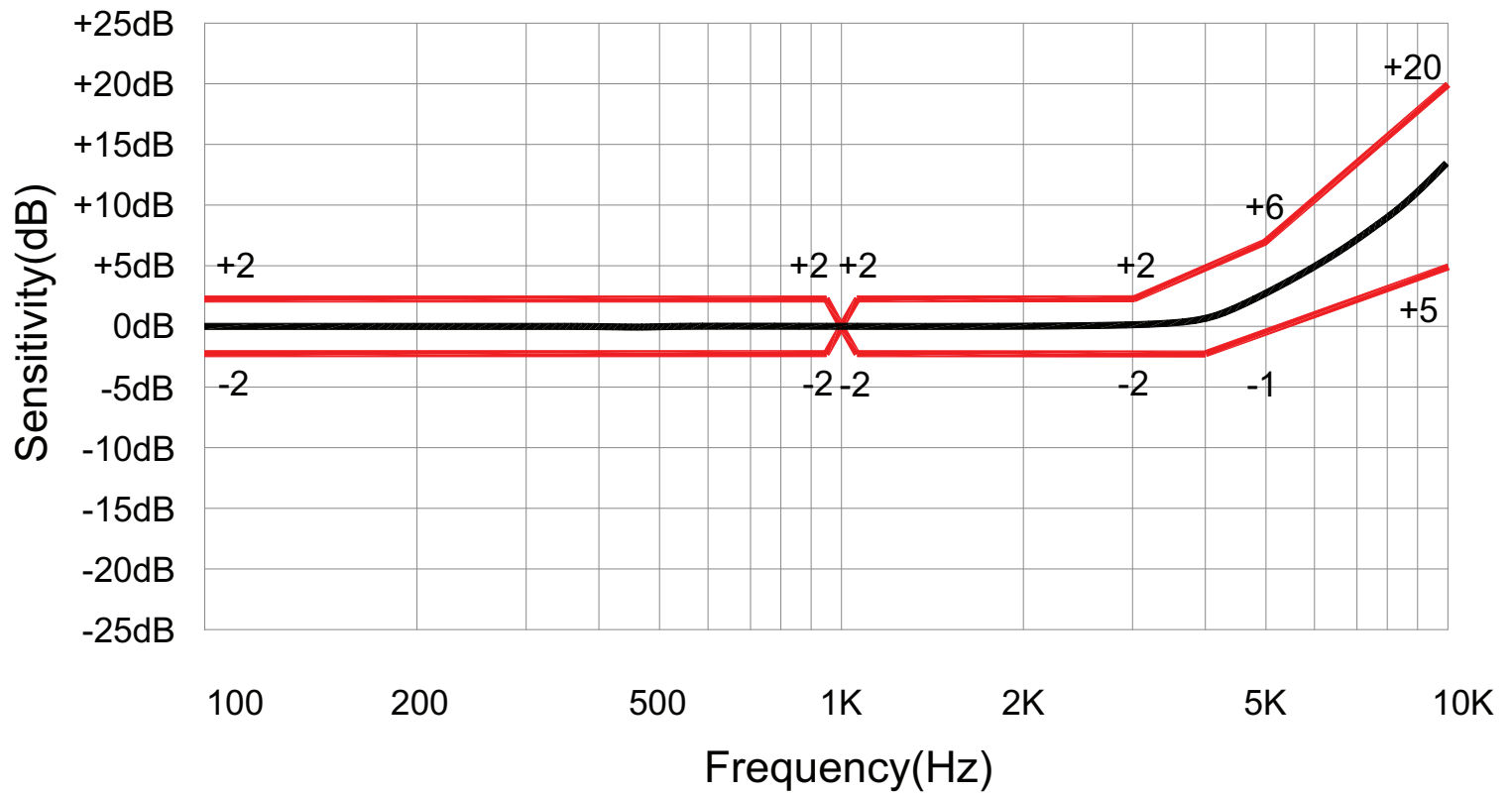
units: mm
tolerance: ±0.1 mm



Recommended Vacuum Nozzle Pickup
Top View

Recommended PCB Layout
Top View

FREQUENCY RESPONSE CURVE

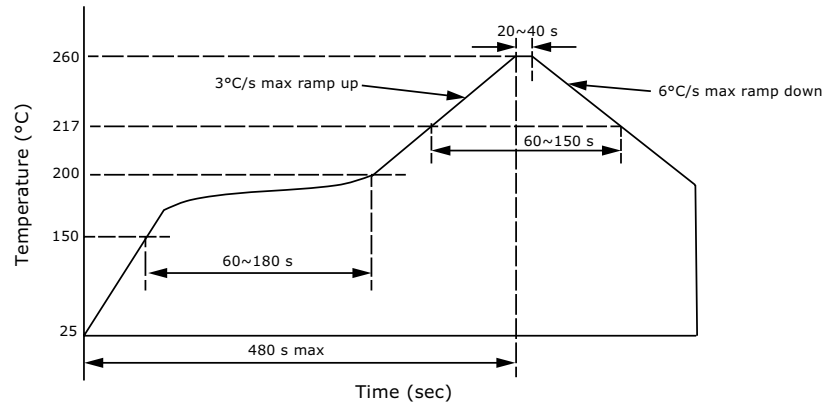


SOLDERABILITY

| 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 3 reflow cycles.

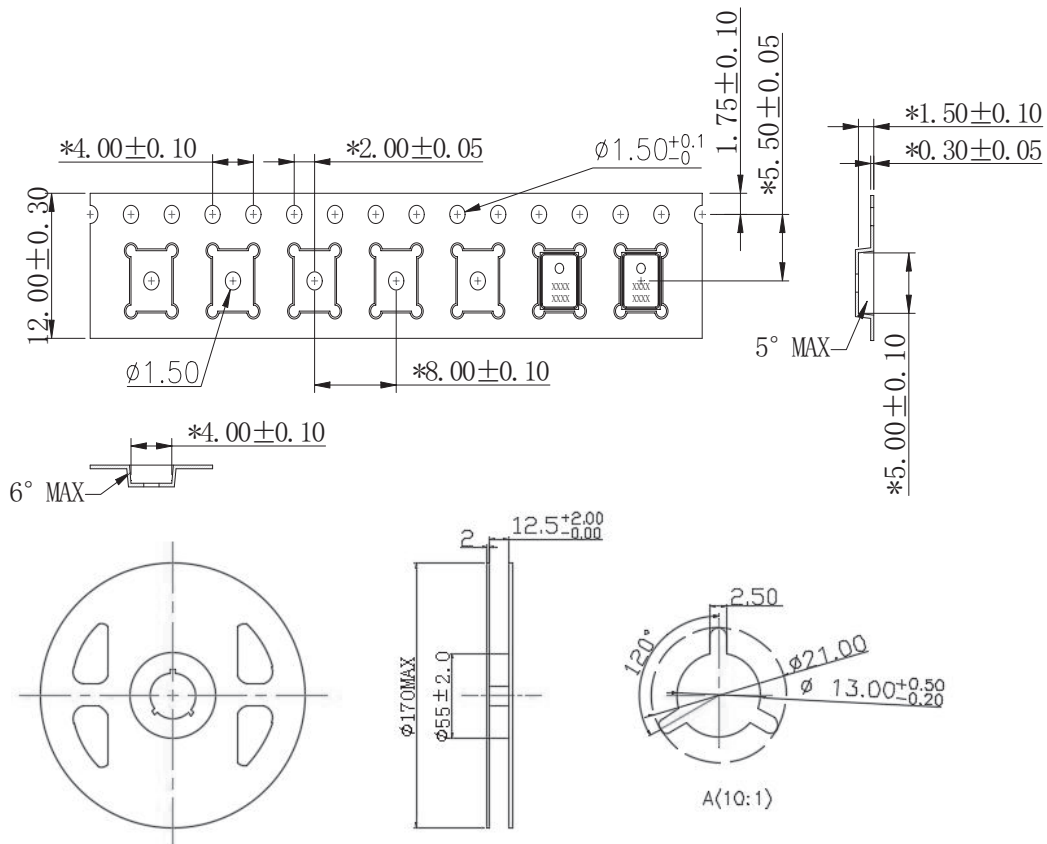


PACKAGING

| parameter | conditions/description | min | typ | max | units |
|---------------------------|---------------------------|-----|-----|-----|-------|
| reel storage ⁴ | 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 | logo, datasheet style update | 08/05/2022 |
| 1.03 | internal chip update | 06/24/2024 |
| 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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