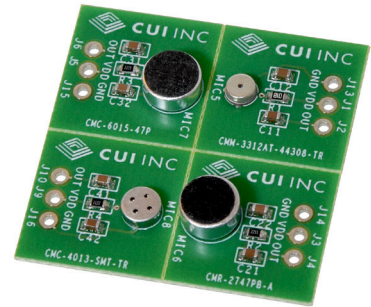


MODEL: DEVKIT-ECM-001 | **DESCRIPTION:** MICROPHONE DEVELOPMENT KIT**FEATURES**

- 4 detachable evaluation boards
- 1 analog MEMS that is compatible for ECM drop-in replacement
- 1 noise cancelling, 1 unidirectional, & 1 omnidirectional ECM included
- plated through hole I/O terminals for multiple testing options

**EVAL BOARD**

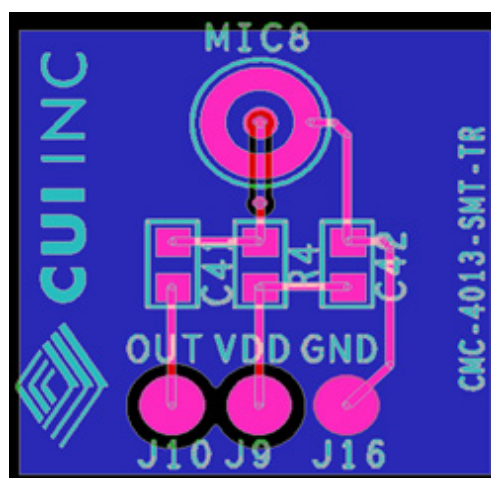
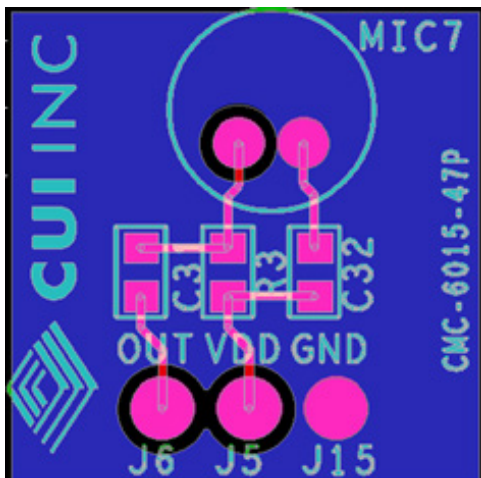
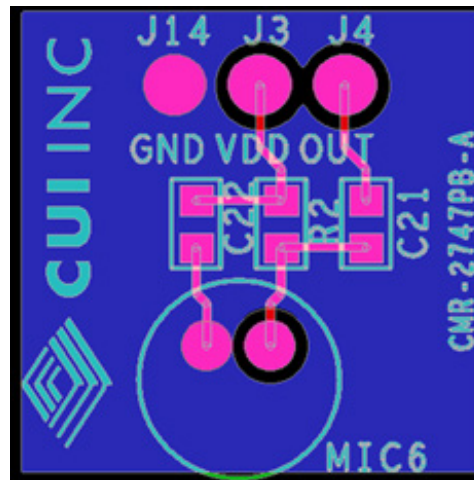
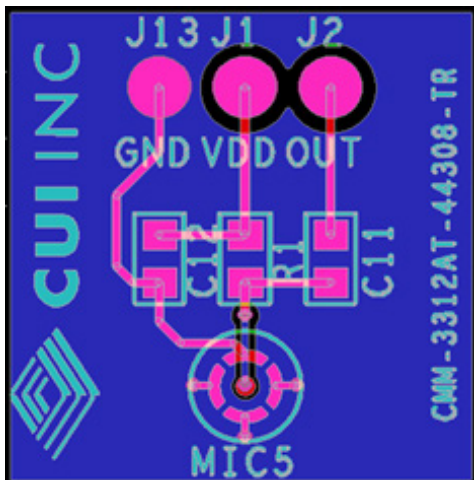
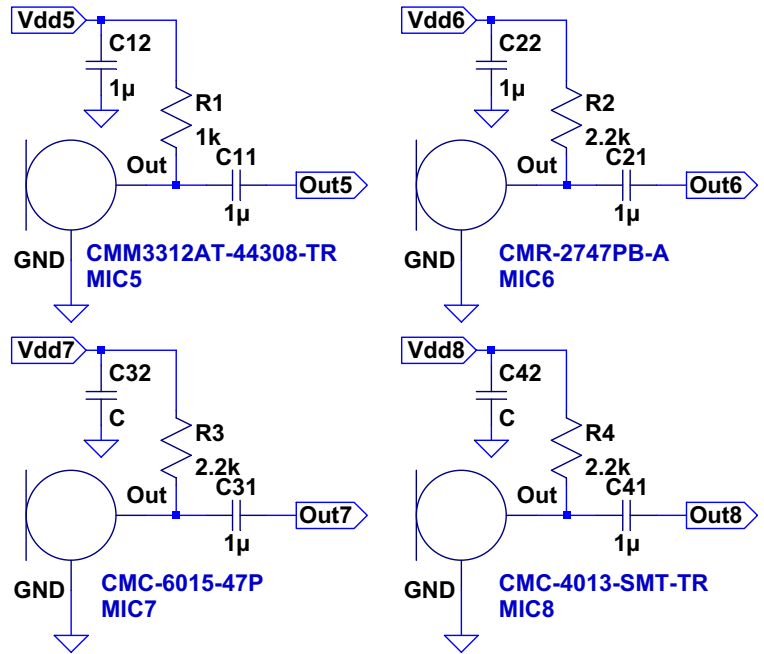
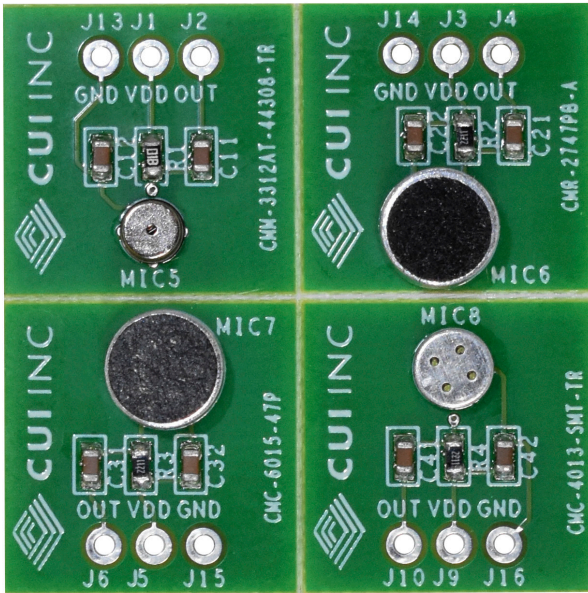
| | circuit | technology | output | acoustic port | size dia (mm) | sensitivity typ (dB) | current typ (μA) |
|---------------------|---------|------------|--------|---------------|---------------|----------------------|------------------|
| CMM-3312AT-44308-TR | MIC5 | MEMS | analog | top | 3.3 | -44 | 80 |
| CMR-2747PB-A | MIC6 | ECM | analog | top | 6.0 | -47 | 500 |
| CMC-6015-47P | MIC7 | ECM | analog | top | 6.0 | -47 | 500 |
| CMC-4013-SMT-TR | MIC8 | ECM | analog | top | 4.0 | -42 | 500 |

OPERATIONAL INSTRUCTIONS

The CUI Devices electret condenser microphone (ECM) evaluation board consists of four independent microphone evaluation circuits. One of the microphones is constructed to be noise cancelling, one is constructed to provide unidirectional sound capture, one is constructed to provide omnidirectional sound capture and the fourth microphone is an analog output MEMS microphone with the two pin connections configured in a similar manner to the ECMs. External bypass capacitors are included on the power supply rails of the evaluation boards and DC blocking capacitors are placed in the analog output signal paths.

A DC power supply of 2~10 Volts should be connected between the VDD and GND pins for the ECM evaluation circuits. A DC power supply of 1.6~3.6 Volts should be connected between the VDD and GND pins for the MEMS microphone evaluation circuit. The recommended operating voltage for all of the evaluation boards is 2 V. Please refer to the respective data sheets for additional information regarding each of the microphones.

CIRCUIT DIAGRAMS & BOARD LAYOUTS



CMM-3312AT-44308-TR

WWW.CUIDEVICES.COM/PRODUCT/AUDIO/MICROPHONES/MEMS-MICROPHONES/CMM-3312AT-44308-TR

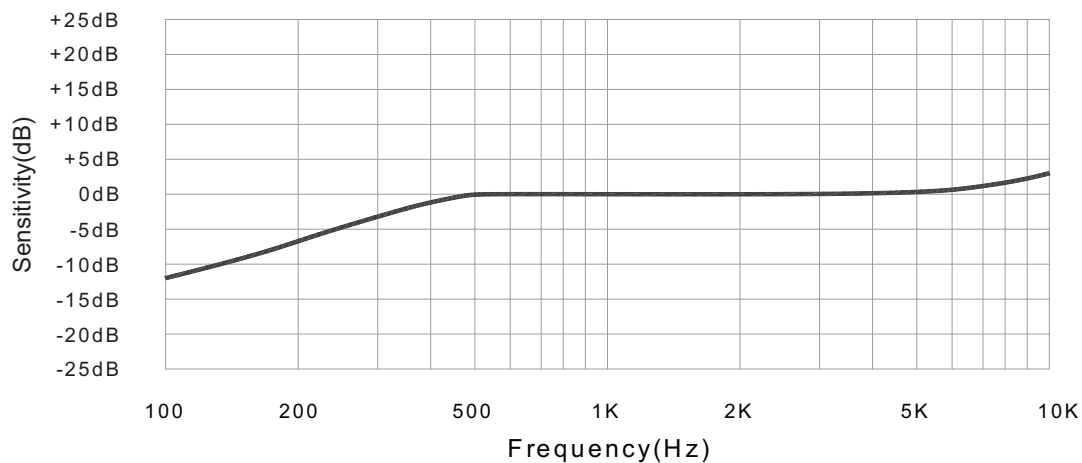
ELECTRICAL

| parameter | conditions/description | min | typ | max | units |
|---|----------------------------------|-----|------|--------|--------|
| directivity | omnidirectional | | | | |
| sensitivity (S) | at 94 dB SPL, 1 kHz | -47 | -44 | -41 | dB |
| supply voltage (V _{DD}) | | 1.6 | 2.0 | 3.6 | V |
| current consumption (I _{DSS}) | V _{DD} = 2.0 V | | 80 | | μA |
| sensitivity reduction | V _{DD} = 3.6 ~ 1.6 V | | -0.5 | | dB |
| frequency (f) | | 100 | | 10,000 | Hz |
| 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 | | 0.2 | | % |
| acoustic overload point (AOP) | at 10% THD, 1 kHz | | 105 | | dB SPL |
| output impedance (Z _{out}) | at 1 kHz | | | 300 | Ω |

Notes: 1. All specifications measured at 23±2°C, humidity at 55±20%, unless otherwise noted.

FREQUENCY RESPONSE CURVE

Frequency Response (0dB=1V/Pa)



CMR-2747PB-A

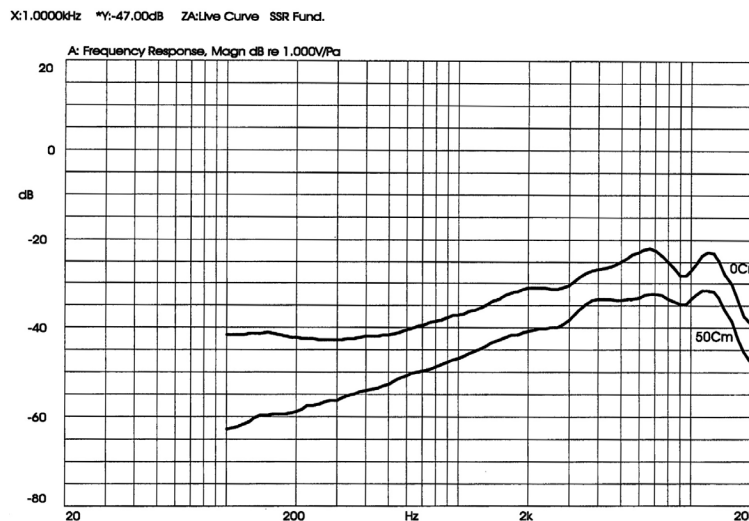
WWW.CUIDEVICES.COM/PRODUCT/AUDIO/MICROPHONES/ELECTRET-CONDENSER-MICROPHONES/CMR-2747PB-A

ELECTRICAL

| parameter | conditions/description | min | typ | max | units |
|---|----------------------------------|-----|-------|--------|--------|
| directivity | noise cancelling | | | | |
| sensitivity (S) | at 94 dB SPL, 1 kHz | -50 | -47 | -44 | dB |
| supply voltage (V _{DD}) | | 2.0 | | 10.0 | V |
| current consumption (I _{DSS}) | V _{DD} = 2.0 V | | | 500 | μA |
| sensitivity reduction | V _{DD} = 2.0 ~ 1.5 V | | -3 | | dB |
| frequency (f) | | 100 | | 20,000 | Hz |
| signal to noise ratio (S/N) | at 94 dB SPL, 1 kHz (A-weighted) | | 56 | | dBA |
| total harmonic distortion (THD) | at 94 dB SPL, 1 kHz | | | 10 | % |
| acoustic overload point (AOP) | at 10% THD, 1 kHz | | 110 | | dB SPL |
| output impedance (Z _{out}) | at 1 kHz | | 2,200 | | Ω |

Notes: 1. All specifications measured at 23±2°C, humidity at 55±20%, unless otherwise noted.

FREQUENCY RESPONSE CURVE



CMC-6015-47P

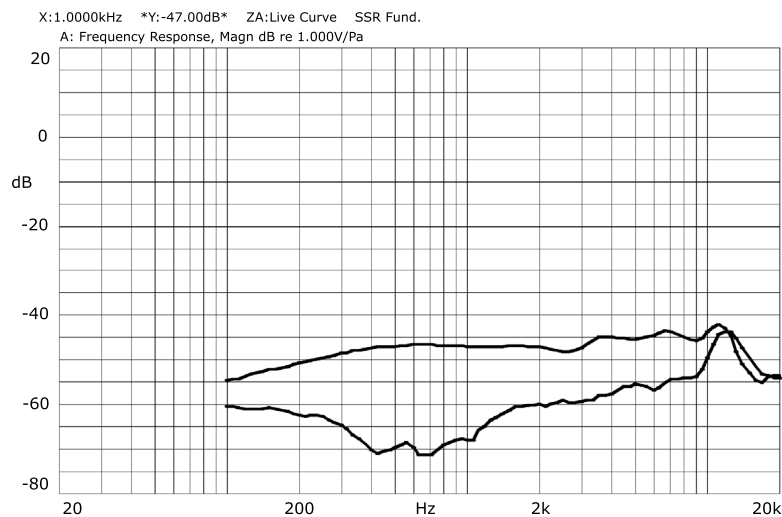
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ELECTRICAL

| parameter | conditions/description | min | typ | max | units |
|---|----------------------------------|-----|-------|--------|--------|
| directivity | unidirectional | | | | |
| sensitivity (S) | at 94 dB SPL, 1 kHz | -50 | -47 | -44 | dB |
| supply voltage (V _{DD}) | | 2.0 | | 10.0 | V |
| current consumption (I _{DSS}) | V _{DD} = 2.0 V | | | 500 | μA |
| sensitivity reduction | V _{DD} = 2.0 ~ 1.5 V | | -3 | | dB |
| frequency (f) | | 100 | | 20,000 | Hz |
| signal to noise ratio (S/N) | at 94 dB SPL, 1 kHz (A-weighted) | | 56 | | dB |
| total harmonic distortion (THD) | at 94 dB SPL, 1 kHz | | | 10 | % |
| acoustic overload point (AOP) | at 10% THD, 1 kHz | | 110 | | dB SPL |
| output impedance (Z _{out}) | at 1 kHz | | 2,200 | | Ω |

Notes: 1. All specifications measured at 23±2°C, humidity at 55±20%, unless otherwise noted.

FREQUENCY RESPONSE CURVE



CMC-4013-SMT-TR

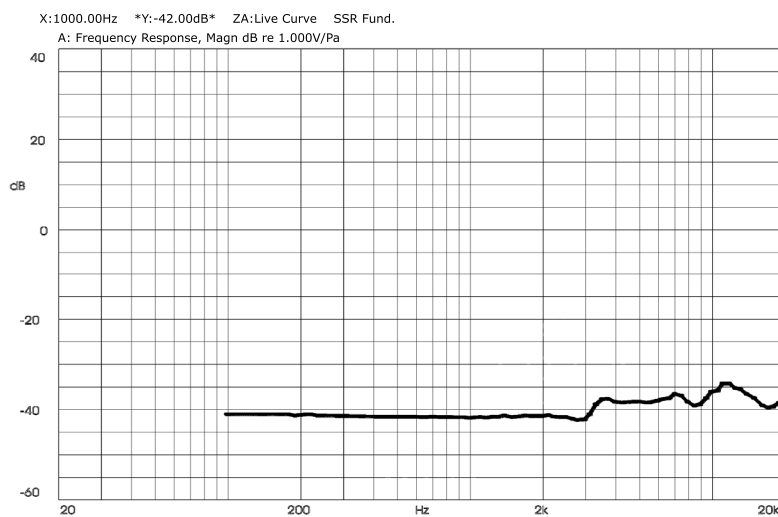
WWW.CUIDEVICES.COM/PRODUCT/AUDIO/MICROPHONES/ELECTRET-CONDENSER-MICROPHONES/CMC-4013-SMT-TR

ELECTRICAL

| parameter | conditions/description | min | typ | max | units |
|---|----------------------------------|-----|-------|--------|--------|
| directivity | omnidirectional | | | | |
| sensitivity (S) | at 94 dB SPL, 1 kHz | -45 | -42 | -39 | dB |
| supply voltage (V _{DD}) | | 2.0 | | 10.0 | V |
| current consumption (I _{DSS}) | V _{DD} = 2.0 V | | | 500 | μA |
| sensitivity reduction | V _{DD} = 2.0 ~ 1.5 V | | -3 | | dB |
| frequency (f) | | 100 | | 20,000 | Hz |
| 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 | | | 10 | % |
| acoustic overload point (AOP) | at 10% THD, 1 kHz | | 118 | | dB SPL |
| output impedance (Z _{out}) | at 1 kHz | | 2,200 | | Ω |

Notes: 1. All specifications measured at 23±2°C, humidity at 55±20%, unless otherwise noted.

FREQUENCY RESPONSE CURVE



REVISION HISTORY

| rev. | description | date |
|------|-----------------|------------|
| 1.0 | initial release | 05/14/2019 |
| 1.01 | brand update | 04/02/2020 |

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

CUI DEVICES

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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