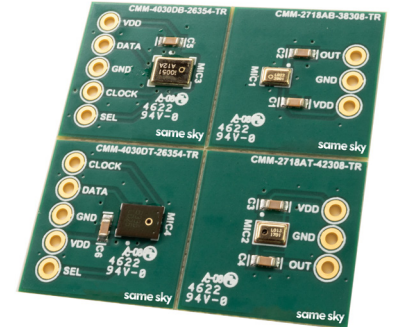


MODEL: DEVKIT-MEMS-001 | **DESCRIPTION:** MICROPHONE DEVELOPMENT KIT

FEATURES

- 4 detachable evaluation boards
- 2 digital MEMS, one top port & one bottom port
- 2 analog MEMS, one top port & one bottom port
- plated through hole I/O terminals for multiple testing options


EVAL BOARD

	circuit	technology	output	acoustic port	size [mm]	sensitivity typ [dB]	current typ [μA]
CMM-2718AB-38308-TR	MIC1	MEMS	analog	bottom	2.75 x 1.85	-38	80
CMM-2718AT-42308-TR	MIC2	MEMS	analog	top	2.75 x 1.85	-42	80
CMM-40300B-26354L-TR	MIC3	MEMS	digital	bottom	4.0 x 3.0	-26	650
CMM-40300T-26354-TR	MIC4	MEMS	digital	top	4.0 x 3.0	-26	540

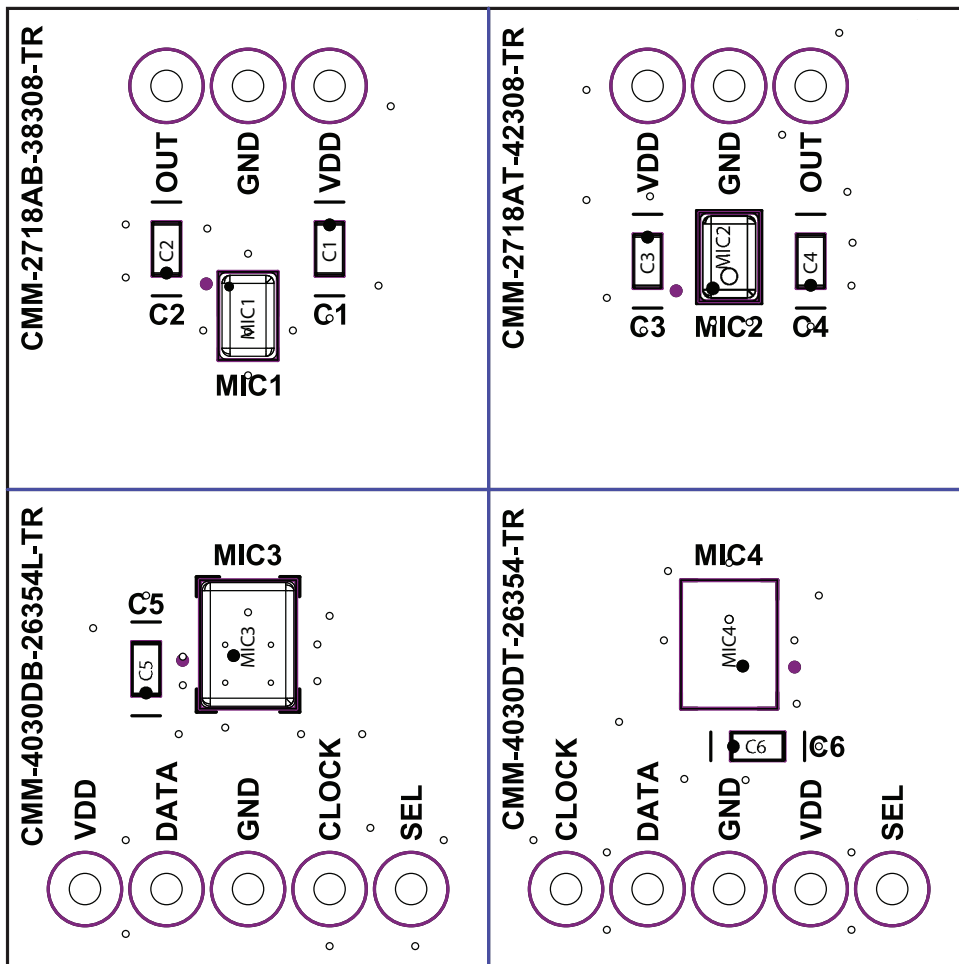
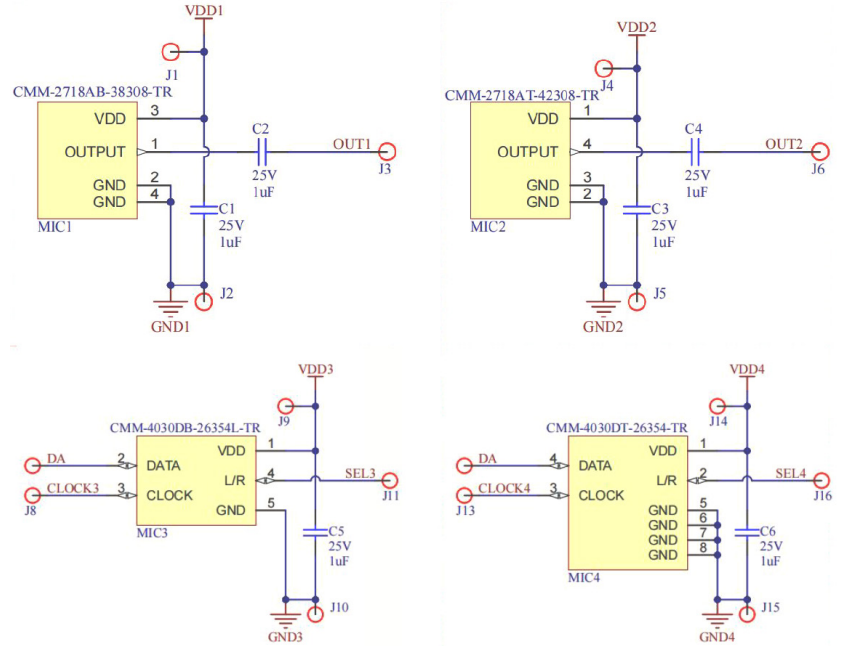
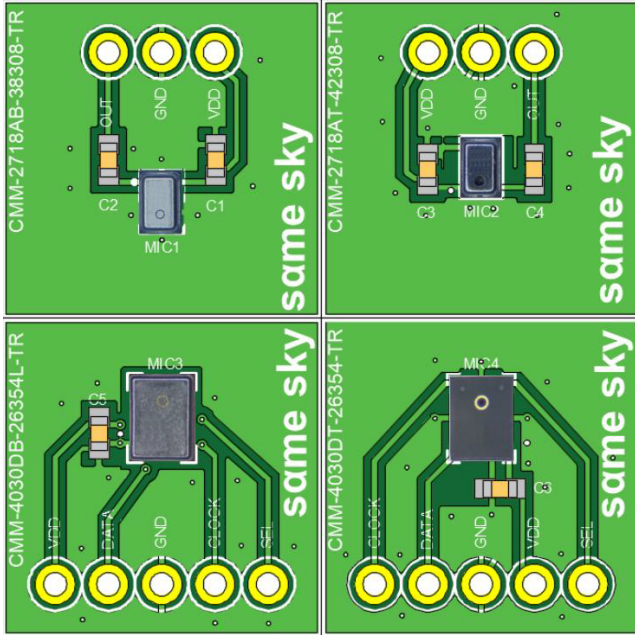
OPERATIONAL INSTRUCTIONS

The Same Sky MEMS microphone evaluation board consists of four independent microphone evaluation circuits. Two of the microphones provide analog output signals and two of the microphones provide digital output signals. Top and bottom sound port options are provided for both the analog and the digital output microphones. 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 1.6-3.6 Volts should be connected between the VDD and GND pins of the board to be evaluated.

Please refer to the respective data sheets for proper connections to the remaining signal pins.

CIRCUIT DIAGRAMS & BOARD LAYOUTS



CMM-2718AB-38308-TR

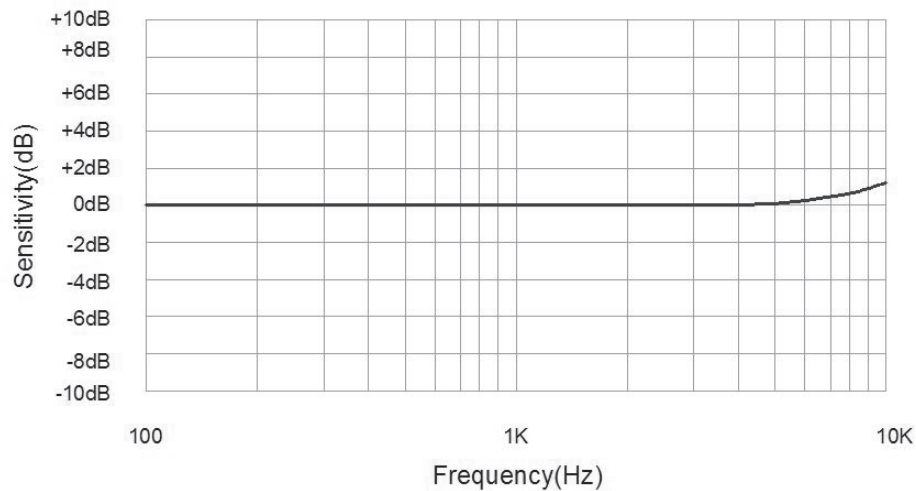
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ELECTRICAL

parameter	conditions/description	min	typ	max	units
directivity	omnidirectional				
sensitivity (S)	at 94 dB SPL, 1 kHz	-41	-38	-35	dB
supply voltage (V _{DD})		1.6	2.0	3.6	V
current consumption (I _{DD})	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]		65		dBA
total harmonic distortion (THD)	at 94 dB SPL, 1 kHz		0.2		%
acoustic overload point (AOP)	at 10% THD, 1 kHz		130		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



CMM-2718AT-42308-TR

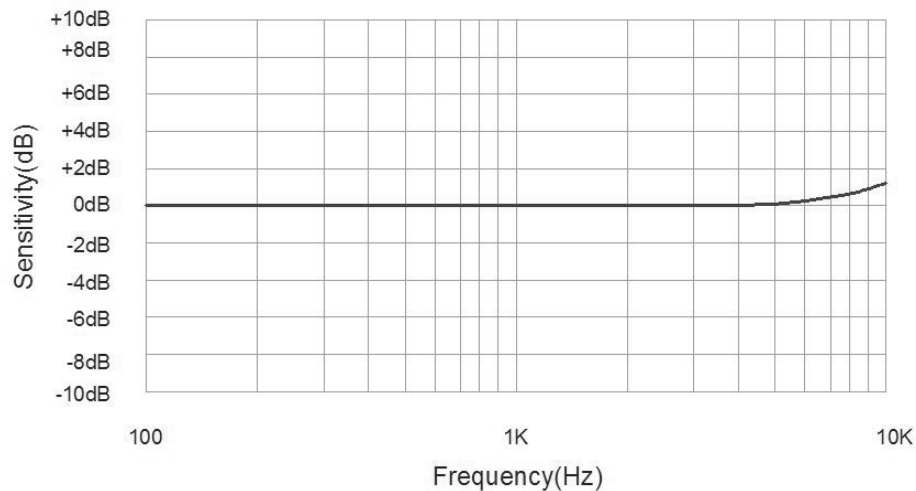
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ELECTRICAL

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})		1.6	2.0	3.6	V
current consumption (I _{DD})	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]		60		dBA
total harmonic distortion (THD)	at 94 dB SPL, 1 kHz		0.2		%
acoustic overload point (AOP)	at 10% THD, 1 kHz		130		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



CMM-4030DB-26354L-TR

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ELECTRICAL

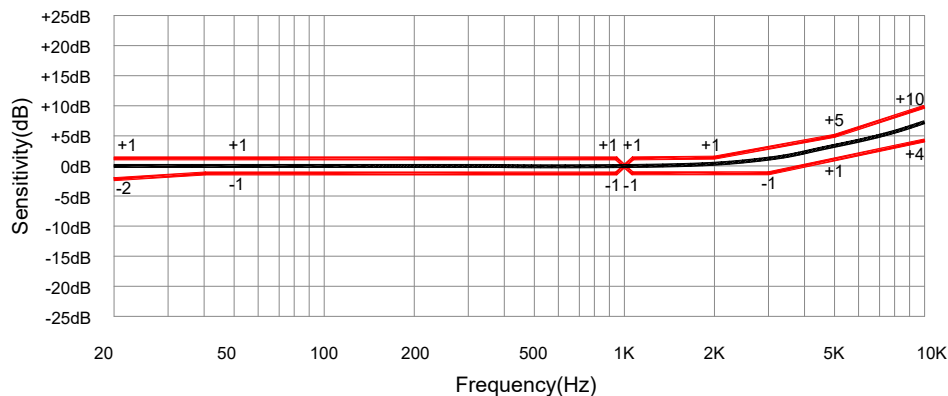
parameter	conditions/description	min	typ	max	units
directivity	omnidirectional				
sensitivity (S)	at 94 dB SPL, 1 kHz	-29	-26	-23	dB FS
supply voltage (V _{DD})		1.65		3.6	V
current consumption (I _{DD})	low-power mode		280		μA
	normal mode		650		μA
signal to noise ratio (S/N)	at 94 dB SPL, 1 kHz [A-weighted]		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
power supply rejection (PSR)	100 mVp-p square wave @ 217 Hz [A-weighted]				
	low-power mode		-90		dB FS
	normal mode		-80		dB FS

DIGITAL INTERFACE

parameter	conditions/description	min	typ	max	units
clock frequency	sleep mode	0		10	kHz
	low-power mode	150		900	kHz
	normal mode	1.3		4.8	MHz
sleep current (I _{SLEEP})	F _{CLOCK} < 10 kHz		3		μA
DC output	full scale= ±100		4		%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 V _{DD} and C _{CLOCK} are applied			20	ms
mode switch time	time to switch between modes, V _{DD} 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} = 1.8 V, F_{CLOCK} = 2.4 MHz (normal mode), F_{CLOCK} = 768 kHz (low-power mode), L/R pin grounded, no load, unless otherwise noted.

FREQUENCY RESPONSE CURVE



CMM-4030DT-26354-TR

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ELECTRICAL

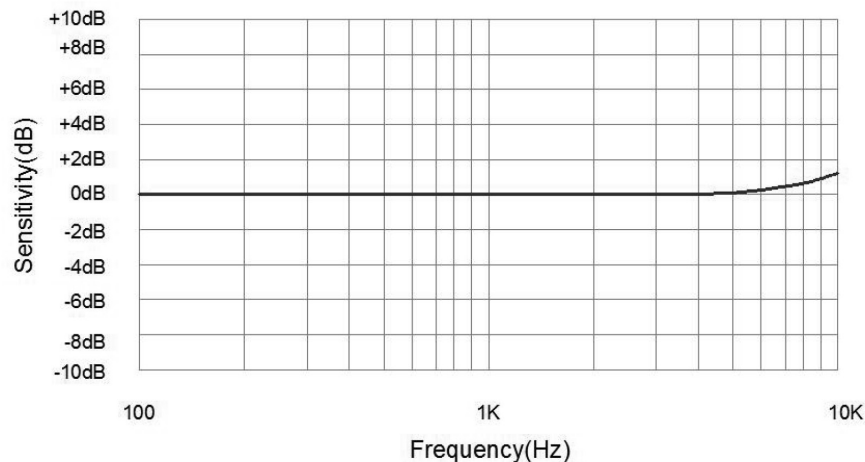
parameter	conditions/description	min	typ	max	units
directivity	omnidirectional				
sensitivity (S)	at 94 dB SPL, 1 kHz	-29	-26	-23	dB FS
supply voltage (V _{DD})		1.6	2.0	3.6	V
current consumption (I _{DD})			0.54		mA
sensitivity reduction	V _{DD} = 3.6 ~ 1.6 V		-0.5		dB FS
frequency (f)		100		10,000	Hz
signal to noise ratio [S/N]	at 94 dB SPL, 1 kHz [A-weighted]		65		dBA
total harmonic distortion [THD]	at 94 dB SPL, 1 kHz		0.2		%
acoustic overload point [ADP]	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 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})		1.0	2.4	3.2	MHz
clock duty cycle (F _{DC})		40		60	%
clock rise time (t _{CR})				10	ns
clock fall time (t _{CF})				10	ns
logic input/output low (V _{IOL})	I _{OUT} = 1 mA	-0.30		0.35xV _{DD}	V
logic input/output high (V _{IOH})	I _{OUT} = 1 mA	0.65xV _{DD}		V _{DD} +0.3	V
delay time for valid data (t _{OV})		18		60	ns
delay time for high z (t _{OH})		0		16	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.

FREQUENCY RESPONSE CURVE



REVISION HISTORY

rev.	description	date
1.0	initial release	05/14/2019
1.01	brand update	04/06/2020
1.02	logo, datasheet style update	08/05/2022
1.03	modified board design	04/13/2023
1.04	CUI Devices rebranded to Same Sky	09/11/2024
1.05	replaced CMM-4030DB-26354-TR with CMM-4030DB-26354L-TR	05/06/2026

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.

Same Sky reserves the right to make changes to the product at any time without notice. Information provided by Same Sky is believed to be accurate and reliable. However, no responsibility is assumed by Same Sky for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

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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