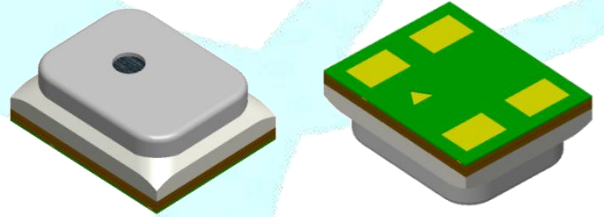


F1-(A4)CMOE-I110TM42-4P

Wide Band Compact

OMNI-DIRECTIONAL
Top PORT



Best sound electronics

Value no1. Micro sound provider

Creative technology starts from respecting of life of the individuals

Creative technologies to respect human life



Best sound electronics

Value no1. Micro sound provider

We offer you happiness with our excellent technology beyond an ordinary sound what you expect

Superior technology to deliver happiness



Best sound electronics

Value no1. Micro sound provider

Keep basic fundamentals to fill sound with new innovations

Creative technologies to respect human life



1. INTRODUCTION

- Analog MEMS Microphone
- Single Mode
- Top Port Type - Sensitivity is Typical -42dBV/Pa
- **Wideband Frequency - ± 2 dB at 50Hz ~ 8000 Hz (reference page 5)**
- Omni-directional
- RF Shielded - with embedded Ground
- Compatible with Sn/Pb and Halogen-free solder process
- RoHS compliant
- SMD reflow temperature of up to 260°C for over 30 seconds

2. APPLICATIONS

- Smartphones
- Ear-sets, Bluetooth Headsets
- Tablet Computers
- Wearable Devices
- Electrical Appliances
- Voice Recognition Systems of Appliances

3. MODEL NO.

F1-(A4)CMOE-I110TM42-4P

4. GENERAL MICROPHONE SPECIFICATIONS

Test Condition : 23 \pm 2°C, Room Humidity = 55 \pm 20 %, VDD=2.0V, unless otherwise noticed.

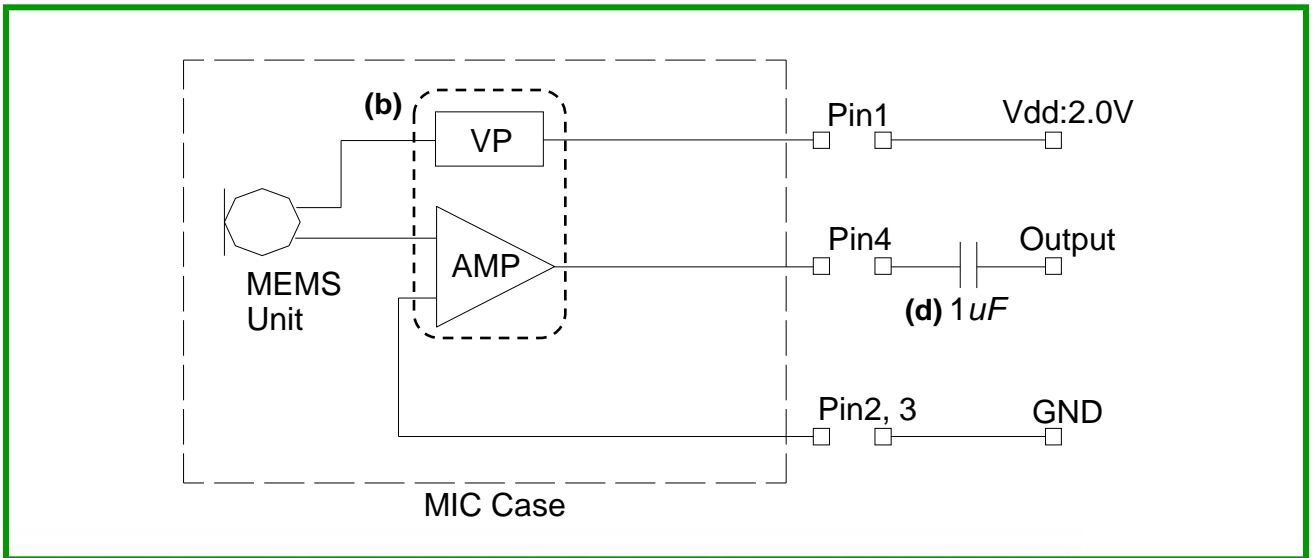
Parameter	Conditions	Min	Typ	Max	Units
Directivity		Omni-directional			
Operating Voltage (Vdd)		1.5	-	3.6	V
Sensitivity Change across Voltage	Vdd=1.5V~3.6V	No Change			dB

5. ELECTRO-ACOUSTIC CHARACTERISTICS

Test Condition : 23 ± 2°C, Room Humidity = 55 ± 20 %, VDD=2.0V, unless otherwise noticed.

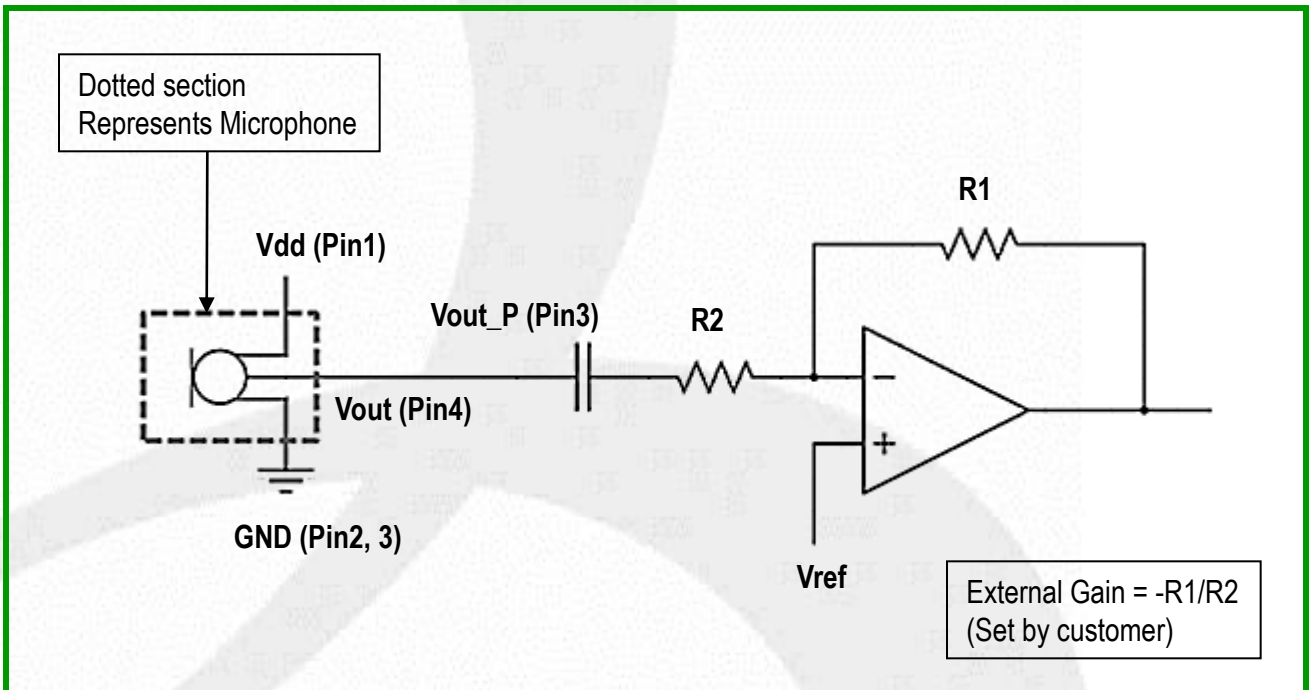
Parameter	Conditions	Min	Typ	Max	Units
Sensitivity (S)	94dB SPL at 1kHz, 0dB=1V/Pa	-45	-42	-39	dBV/Pa
Output Impedance (Z_{OUT})	94dB SPL at 1kHz	-	-	350	Ω
Current Consumption	Vdd=1.5 ~ 3.6V	50	70	110	μA
Signal to Noise Ratio (SNR)	94dB SPL at 1kHz, A-weighted (20Hz~20kHz)	-	59	-	dB(A)
Equivalent Input Noise (EIN)	94dB SPL at 1kHz, A-Weighted (20Hz ~20kHz)	-	35	-	dB(A)SPL
Frequency Response	94dB SPL, within ±2dB (0dB = dBV/Pa at 1kHz)	50	-	8000	Hz
	94dB SPL, within ±3dB (0dB = dBV/Pa at 1kHz)	8000	-	15000	
Power Supply Rejection (PSR)	100mVp-p square wave at 217Hz, Vdd=1.8V, A-weighted	-	-85	-	dBV(A)
Power Supply Rejection Ratio (PSRR)	200mVp-p sine wave at 1kHz, Vdd=1.8V	-	-	-	dB
Total Harmonic Distortion (THD)	94dB SPL at 1kHz	-	-	0.2	%
	120dB SPL at 1kHz	-	-	1.0	
	123dB SPL at 1kHz	-	-	3.0	
	125dB SPL at 1kHz	-	-	5.0	
Acoustic Overload Point (AOP)	THD>10% at 1kHz	128	130	-	dB SPL
DC Output Voltage	Vdd=1.5 ~ 3.6V	1.10	1.25	1.40	V
Start-up time		-	-	100	ms

6. MEASUREMENT CIRCUIT



- (a) **MEMS Unit** : Membrane & Back Plate (transmit the electric signal modified from sound signal to ASIC)
- (b) **ASIC** : Impedance converter (Mechanical Signal → Electric Signal)
- (c) **Vdd** : Power Supply (Operation of ASIC)
- (d) **Rectifier Capacitor** : Removed Direct Current Factor
- (e) **Output** : Output Signal of Microphone's Sensitivity
- (f) **GND** : Ground

7. RECOMMENDED INTERFACE CIRCUIT



8. TYPICAL FREQUENCY RESPONSE CURVE(FAR FIELD)

Far Field Measurement Condition

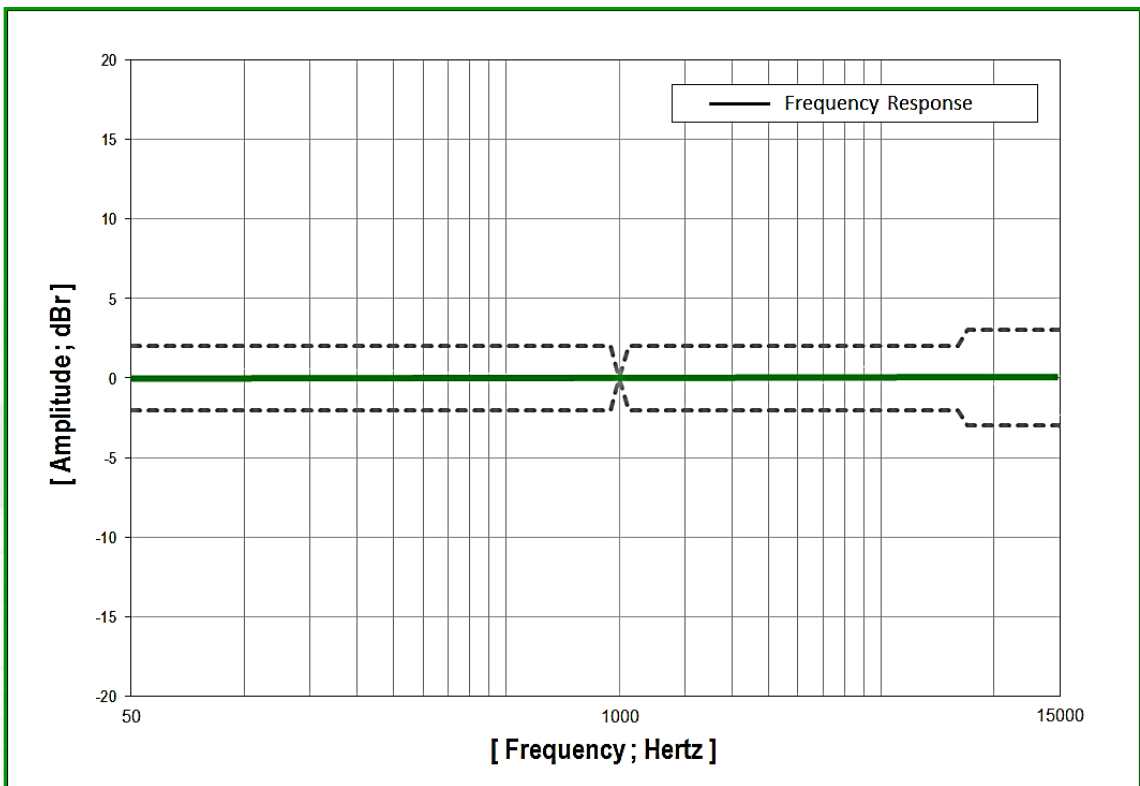
Temperature : 23 ± 2 °C

Supply Voltage : 2.0V

Acoustic stimulus : 1Pa (94dB SPL at 1kHz) at 50 cm from the loud-speaker.

The loud-speaker must be calibrated to make a flat frequency response input signal.

Position : The frequency response of microphone unit measured at 50cm from the loud-speaker.



■ Frequency Mask Specification

Frequency [Hz]	Lower Limit [dBr]	Upper Limit [dBr]	Note
50 ~ 1000	-2	+2	0dBr = dBV/Pa at 1kHz
1000	0	0	
1000 ~ 8000	-2	+2	
8000 ~ 15000	-3	+3	

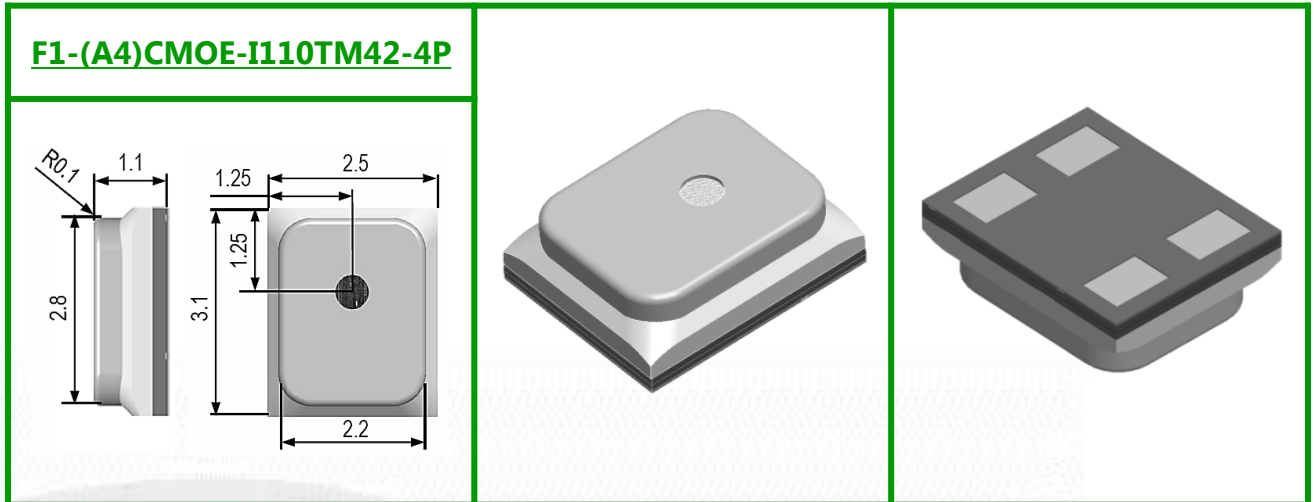
Note : Band Frequency Range

1. Narrow Band : 300Hz ~ 3.4kHz
2. Wide Band : 100Hz ~ 7kHz
3. Super Wide Band : 50Hz ~ 14kHz

9. MECHANICAL CHARACTERISTICS

※ PCB design & Pin size can be changed by model No.

SMD Type



Lettering

