



SPM04C Low-Noise Bottom Port Piezoelectric MEMS Microphone

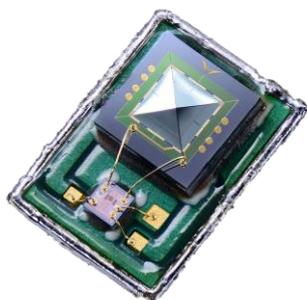
GENERAL DESCRIPTION

SPM04C is the world’s first and only piezoelectric MEMS microphone. It’s the most reliable high SNR MEMS microphone for smartphones, wearables and IoT devices. It’s also a drop-in replacement for capacitive MEMS microphones.

As the first and only piezoelectric MEMS microphone, SPM04C is inherently waterproof, dustproof, shockproof and particle-resistant — making in the most reliable consumer-grade microphone in the industry.

It also features a high signal-to-noise ratio (SNR) and low noise, delivering the best acoustic performance possible for all your applications.

In addition, SPM04C microphones are very stable over time and in harsh environments so noise cancelling and voice microphones will always stay in sync — making them well matched for microphone array applications.



With SPM04C, you’ll enable systems with:

- Exceptional far-field audio, which greatly increases the distance of sound capture
- Ambient noise cancellation, which boosts the clarity of phone conversations as well as consumer experience with voice-enabled applications
- Superior “audio zoom” recording features, which lets the consumer focus on a single sound source
- Better performance for voice-enabled smart home devices and automotive infotainment systems.

FEATURES

- Unique piezoelectric MEMS transducer
- Very-low noise floor
- Low part-to-part variation
- High dynamic range
- Flat frequency response
- Durable piezoelectric MEMS construction
- Small size
- Waterproof

SPM04C SPECIFICATIONS

Component Requirements
(All data taken at 25°C unless otherwise specified)

Operating Temperature Range	-40°C to +85°C
Storage Temperature Range	-40°C to +85°C
IP Rating	IP68
Directivity	Omnidirectional
Maximum Input Sound Level (for less than 10% distortion)	125dB
Sensitivity (0dB = 1V/Pa, 1kHz)	-38 ±3dB
Operating Voltage Range	1.6V to 3.6V
Current Consumption	150mA (Typical)
Frequency Range	100Hz ~ 10KHz
Output Impedance	<= 400Ω
Total Harmonic Distortion	0.1% (at 94dB)
S/N Ratio (Sensitivity at 1KHz, A-weighted noise)	>= 60dB
Power Supply Rejection Ratio	>= -60dB
Power Supply Rejection	>= -80dB

RELIABILITY SPECIFICATIONS

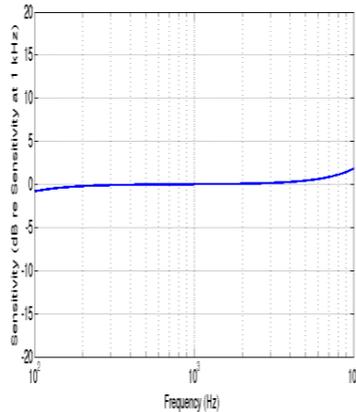
Test	Descriptions
Water Immersion	IPX8 (10m, 5 days)
Dust Immersion	IP6X dust immersion
High Temperature Operating	+125°C, 168 hours
Static Humidity	+85°C, 85% RH, 1000 hours
ESD Sensitivity	MIL-STD 883E method 3105.7, 8KV
Random Vibration	4 cycles, 20~ 2KHz with peak acceleration 20g
Mechanical Shock	Half sine shock pulse (3000g for 0.3ms), 18 shocks
Drop Test	1.5m steel surface, 18 times
Simulated Reflow	260°C, 3 passes, without solder



SPM04C

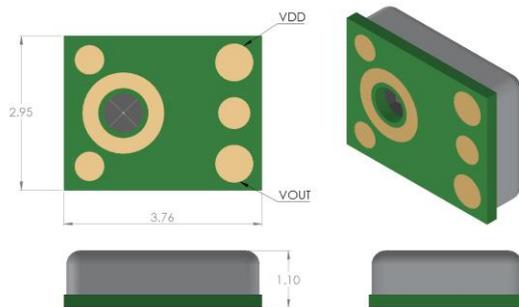
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SPM04C CHARACTERISTICS



SPM04C PACKAGE SIZE

SPM04C is pin-compatible with the most common capacitive MEMS microphones and it's also a drop-in replacement.



SUPPLY CHAIN

SPM04C leverages a reliable manufacturing process that has been field-proven in billions of components embedded in smartphones. This controlled manufacturing process means that our microphones are remarkably consistent in manufacturing with little variation from microphone to microphone.

JL World microphone products assembled in our world class factories and they are tested to the most stringent standards to ensure delivery of high reliability products to our customers. SPM04C is designed and manufactured with breakthrough piezo-MEMS technology. JL World has the support of world-class, large-scale, wafer fabs for both the MEMS and ASIC die in SPM04C.

TECHNICAL DESCRIPTION

The SPM04C is a low noise, low part-to-part variation, high dynamic range, single ended analog output piezoelectric MEMS microphone. This microphone consists of a piezoelectric sensor and circuitry to buffer and amplify the output. The SPM04C is ideal for voice user interface, beamforming arrays, smart phones, cameras, teleconferencing systems, and other applications where low noise, high stability and durability are desired.

The SPM04C has a small 3.76 mm X 2.95 mm X 1.1 mm package. This microphone is reflow solder compatible with no sensitivity degradation.

APPLICATIONS

- Smartphones
- Wearables
- Smart home devices
- Video cameras
- IoT devices
- Automotive

ABOUT JL WORLD

JL World is a unique company with worldwide customers, a strong balance sheet and exciting growth potential. JL World's design and manufacturing activities are keenly targeted towards providing all our customers with competitive pricing, dependable reliability and winning performance across our core product families. Our continuing goal is to persistently improve our products, technology and service to form long-term partnerships with our customers.

With over 20 years of experience in research and manufacturing, JL World has become the primary provider of choice for advanced acoustic components solution, we continue to forge long term relationships with outstanding global customers in various industrial sectors. Our mission is to develop enabling solutions that offer our customers the freedom to innovate.

CONTACT US



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