EPCOS

Product Brief 2010

T4020 & T4030

MEMS Microphones for Consumer Electronics

When it comes to performance and miniaturization, the T4020 and T4030 analog/digital MEMS microphones are at the forefront. Their dimensions correspond to a size reduction of up to 60% compared with alternative products and thus permit significantly more compact designs for consumer electronics applications such as mobile phones, MP3 players and digital cameras.

The T4030's digital PDM (pulse density modulation) output makes it largely immune to interference. Two channels can be transmitted via a single signal line, making stereo applications very simple.

These microphones are consequently not only ideal for regular telephony applications but are also predestined for applications making significantly higher demands on audio quality, such as VoIP, high-quality video recordings, telephone conferences and beam forming.

Both microphones are manufactured in the CSMP™ (chip-sized MEMS package) technology developed for SAW components that has already proved itself eminently in billions of mobile phones. They consequently benefit both from matured production processes and over 15 years of experience in the development of MEMS microphones.

EPCOS also uses the proven SAW production technology for the final electro-acoustic measurement. Not only the sensitivity, but also the frequency response, SNR, PSF, THD and power consumption are checked with a special measuring head, ensuring that all products observe the specifications.

MEMS microphones are naturally RoHS-compatible as well as being qualified for lead-free SMD reflow soldering processes.

T4030 (DigiSiMic) & T4020 (SiMic)

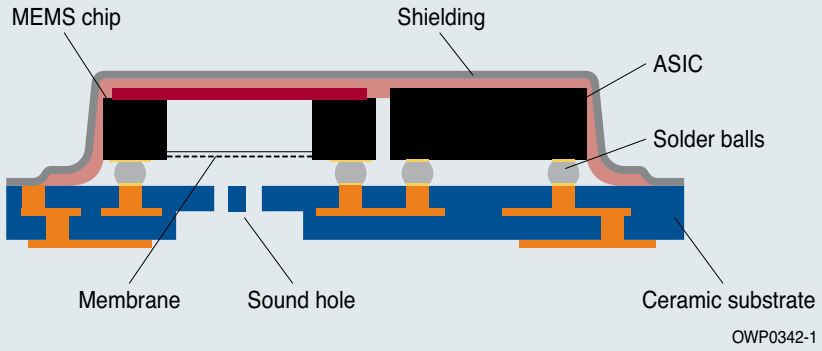
Features and benefits

- Excellent signal/noise ratio
- Flat and wide frequency response
- Omnidirectional microphone
- Suppression of noise signals at the supply voltage (PSF/PSRR)
- Very low nonlinear distortion (THD)

Abbreviations

- PSF power supply feed-through
- PSSR power supply rejection ratio
- SNR signal/noise ratio
- THD total harmonic distortion

Construction



Technical data and limit values

		SiMic T4020	DigiSiMic T4030
Signal/noise ratio at 94 dB SPL	SNR	62 dB(A)	60 dB(A)
Sensitivity at 94 dB SPL	S_{1kHz}	–42 dB V	–26 dB FS
Power supply feed-through Square wave 217 Hz 100 mV pp	PSF	–	–82 dB FS
Power supply rejection ratio Square wave 217 Hz 100 mV pp	PSRR	70 dB	–
Current consumption	I_{CC}	350 µA	650 µA
Total harmonic distortion at 100 dB SPL	THD	< 1%	< 1%
Supply voltage	V_{DD}	1.6 … 3.6 V DC	1.64 ... 2.86 V DC
Size	l × w × h_{max}	3.05 mm × 2.15 mm × 1.10 mm	3.25 mm × 2.25 mm × 1.10 mm

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