



13-mm diameter stereo headphones for handsets, music players, mobile video, and gaming devices

## World's smallest Hi-Fi Headphones

These ultra-small, ultra-comfortable headphones provide superior reproduction of music and voice, and are available in a modular format that shortens time-to-market.

### Key features

- ▶ Smallest size for the most comfortable fit
  - 13-mm diameter
  - Round shape, no sharp edges
- ▶ Flexible design-in with modular approach
  - Acoustic module with cable, acoustic base, and acoustic foam/ rubber, etc.
  - Earpiece design available separately (from NXP or third party)
  - Guaranteed sound quality, regardless of earpiece design
- ▶ Superior audio performance for music and voice
  - Hi-Fi studio sound comparable to an on-ear studio headphone
  - Wide frequency range: 20 Hz to 20 kHz
  - Excellent sound transparency
  - Highest voice clarity
  - Constant acoustical back volume
  - Real bass boost (integrated bass pipe)
  - Low distortion: THD of only 2% at 50 Hz
  - Semi-open acoustics from outside world
- ▶ Works with or without microphone
- ▶ High-volume, high-quality manufacturing with excellent reliability

These high-performance stereo headphones from NXP Sound Solutions measure only 13 mm in diameter, at least 2 mm less than competing products. They are some of the only headphones on the market that offer excellent reproduction of music and voice, so they're an ideal accessory for the latest generation of mobile phones, as well as for music players, mobile video systems, and gaming devices.

### Fast development, flexible designs

To reduce time-to-market, the headphones are available in a modular format that simplifies development while offering maximum design flexibility. Speaker functions are delivered in an acoustic module that includes the cable, an acoustic base, and an acoustic surface material (such as foam or rubber, manufactured to a specified thickness and dimension). The module uses a lightweight, ergonomic design with no sharp edges, for a fit so comfortable that users have said they forget they're wearing a headphone.

Isolating the speaker functions in a standalone acoustic module gives OEMs complete control over the exterior earpiece's design, finish, and color – without sacrificing sound quality. For the fastest, easiest approach, OEMs can use a stylish exterior casing from NXP Design that offers superior finishing and full color diversity.

### Superior audio and voice

Drawing on technology that is used in some of today's leading audio applications, these headphones deliver sound quality that is comparable to an on-ear studio headphone. They offer excellent audio transparency and the highest voice clarity. They also use a semi-open format to let in acoustics from the outside world, so the listener doesn't feel cut off or isolated.

The headphones operate over a wide frequency range (20 Hz to

20 kHz) and use an innovative, robust design to ensure constant acoustical back volume. The total harmonic distortion (THD) has been measured at only 2% at 50 Hz. An integrated bass pipe system in the acoustic base delivers real bass boost – a particularly important feature for the sound effects used in gaming devices. Microphone support increases application flexibility.

The headphones build on more than 75 years of leadership in acoustics and sound algorithms to ensure durability as well as performance. NXP Sound Solutions has produced over a billion mobile-phone speakers and uses fully automated production facilities. The speakers are manufactured to the highest standards of quality and reliability and have passed extensive lifetime testing.



#### Earpiece design

- ▶ NXP Design
- ▶ Any OEM design

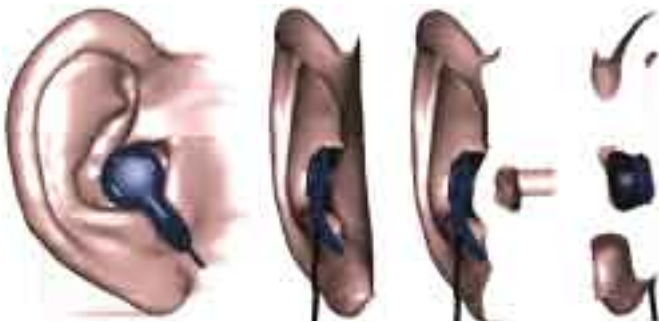
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#### Acoustic Module

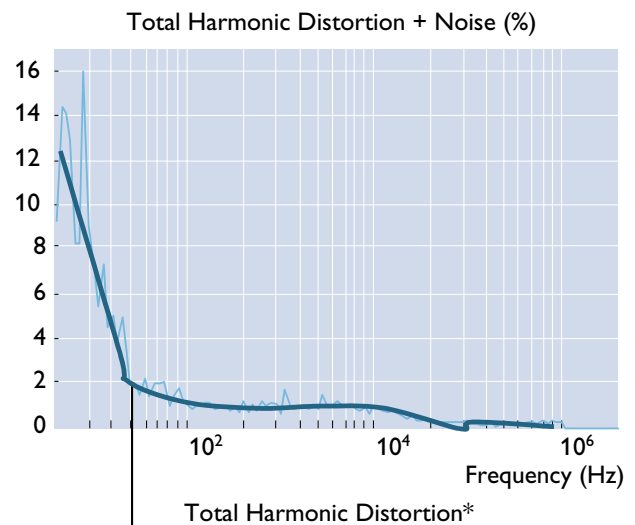
- ▶ Cable
- ▶ Acoustic base
- ▶ Acoustic foam



Acoustic module ensures superior sound regardless of earpiece design



The headphones deliver excellent audio and voice reproduction with low distortion



Only 2% THD at 50Hz

\* Excitation signal set to provide 94dB SPL at 500Hz in HATS (no correction)

Ergonomic design for the most comfortable fit