

## Product brief

# MERUS™ multilevel class D audio amplifier ICs

Unparalleled power efficiency and exceptional audio quality at lower system costs

Infineon's MERUS™ family of class D audio amplifiers includes highly efficient, fully integrated, digital, class D audio amplifier ICs based on Infineon's proprietary multilevel switching technology. These devices support a supply voltage range from 4 V to 26 V, allowing it to be used across portable and battery powered, home and professional audio applications.

Infineon's proprietary multilevel switching technology enables very low power loss under all operating conditions and enables the class D audio amplifier to be used in filterless configurations at fully rated power in a wide range of audio products. The ultrahigh power efficiency and cool operation makes the audio amplifiers suitable for use in portable audio systems where there is a need for an extended battery playback time or the reduction of battery size without compromising on battery playback time to save cost.

MERUS™ class D audio amplifier ICs feature an embedded digital power management scheme. They consume significantly less input power (~0.25 W) and offer high power output in a small form factor without any compromise on the quality of the produced sound. The power management algorithm dynamically adjusts switching frequency and modulation scheme to optimize power loss and EMI across the output power range. Flexible power mode profiles allow the user to utilize the multilevel switching technique for very low power loss or very high audio performance.

### Key features

- > Multilevel switching technology with three-level and five-level modulation
- > Fourth order closed loop feedback error control
- > Low idle power dissipation
- > Low THD+N (0.003%)
- > Low EMI emission
- > 64-pin thermally enhanced QFN package with pad-down exposed thermal pad (EPAD)

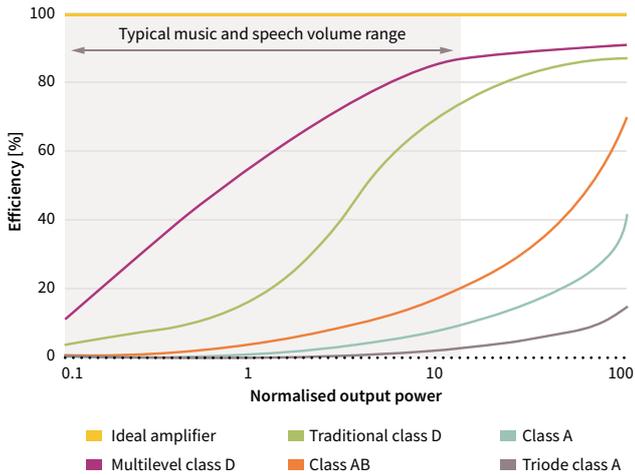
### Key benefits

- > Ultrahigh power efficiency
- > HD audio quality and suppression of supply voltage disturbance
- > BoM reductions through filterless, heatsink-free operation

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## Audio amplifier efficiency



The graph shows efficiency as a function of output power for a range of different amplifier architectures.

A typical 100 W stereo amplifier with peak up to 100 W will have the majority of the music signal content in the grey range on the left of the chart. For home use, the average may be quite a bit lower, only playing at an average output of a few hundred milliwatts.

In this grey range, the multilevel amplifier is much more effective than the traditional class D amplifier which translates into less power consumption in AC input and in battery powered applications.

## Product portfolio

Product name	Peak output [W]	Input type	Supply voltage [V]	Main features	Orderable part number
MA12040P	2x40	I <sup>2</sup> S digital audio input	4–18	Digital volume control and limiter	MA12040PXUMA1
MA12040	2x40	Analog audio input	4–18	Selectable gain (20 dB/26 dB)	MA12040XUMA1
MA12070P	2x80	I <sup>2</sup> S digital audio input	4–26	Digital volume control and limiter	MA12070PXUMA1
MA12070	2x80	Analog audio input	4–26	Selectable gain (20 dB/26 dB)	MA12070XUMA1

For more details on the product, click on its part number.

Published by  
Infineon Technologies Austria AG  
9500 Villach, Austria

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