

iDAC2: Spilling the Secret Sauce (4/6)

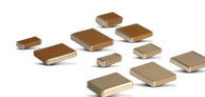
DirectDrive[®] look mom, no coupling capacitors

Commonly, coupling capacitors are employed to ensure the output from the DAC is free from DC (Direct Current). As the signal directly passes through coupling capacitors compared to other components in the system, these have an uncommonly large impact on sound quality. There is an after-market in coupling-capacitors. Take these rather special audiophile capacitors (pictured is the Duelund CAST Copperfoil Capacitor – yours for a cool 2,700 USD EACH). They are huge in size and expensive, sound every bit as good as their price yet a simple straight copper or silver wire invariably ‘impacts’ the signal less.



In the iDAC2 the analogue stage is direct-coupled (read: no coupling capacitors). In the iDAC2 a DC Servo is employed to ensure the output is always DC-free, however the DC Servo is implemented such as to make it effectively ‘invisible’ sonically-speaking, by using the same type integrated amplifier as for the actual signal path to perform the DC servo duties (so the DC servo is of the same level of quality) and the influence of the Servo on the signal becomes 20 times less than that of the main audio path through the circuit design and so completely disappears from measurements as well from the subjective sound quality.

In the iDAC2 we use MELF resistors as well as COG filter capacitors (these are at least as good as polystyrene and approach Teflon capacitors for performance) for the low-pass filter. Additionally, the filter is a mixed-mode type where a passive filter first removes the unwanted very high frequency noise from the DAC output, which would be detrimental to the integrated amplifier performance before an active filter implements the final roll-off.



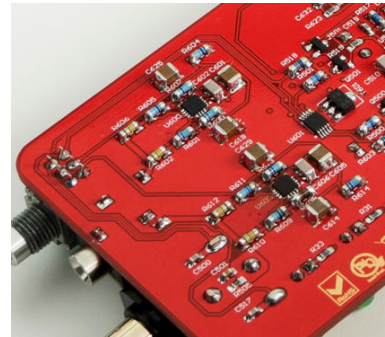
Dual-Mono Headphone section

The headphone amplifier is a non-trivial section either. It is an all-new dual-mono design with 350mW output into 16 Ohm and a maximum of 3.3V output available to drive high impedance headphones (> 100 Ohm). Using Direct Drive® technology it too is fully direct-coupled and MELF resistors are used for the gain setting network.

From above....



...from below.



With a well-respected pair of headphones such as the Fostex TL50-RPs, this reasonably-priced 'plug 'n play' combination really shines. It even surprises one or two far more expensive setups.

Next time, *Active Noise Cancellation® (part 5)*



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About iFi

iFi Audio, part of AGL, is headquartered in Southport, UK. And also owns the HiFi brand Abbingdon Music Research (AMR). AMR designs and manufacture high-end audio 'home-based' components. iFi Audio designs and manufactures portable and desktop 'ultra-fidelity' audio products. The combined in-house hardware and software development team enables AMR and iFi audio to bring to market advanced audio products.

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