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Winding arrangements of output transformers

The windings of an output transformer can be arranged in different ways to achieve good balance and sufficient bandwidth. Good balance is desirable to avoid mode transfer (common mode signals picked up from the output line are transformed to differential mode signals). High bandwidth is desired to avoid ringing caused by capacitive loads and is achieved by sectioning the transformer. With increased sectioning, the leakage inductance is reduced.

With Faraday shield

Faraday shields, placed between the primary and the secondary windings, are used to reduce the capacitive coupling. A transformer with Faraday shield is more complicated to manufacture but can be used with any type of output drive type. In our Faraday shielded output transformers, such as the LL1517 and the LL1518, each coil is wound in three sections.

Primary cold ends facing secondary winding

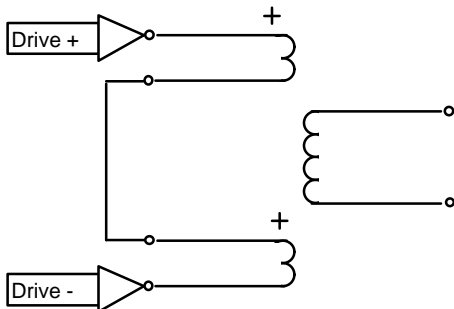
The primary and secondary windings can be arranged such that the cold (grounded) side of the primary winding faces the secondary winding. As the voltage swing in this end of the primary winding is only a fraction of the total swing, the capacitive coupling is greatly reduced. This technique requires different winding arrangement for unbalanced drive (e.g. LL5402) or balanced drive (e.g. LL1524).

Five-section structure for increased bandwidth

In a five-section structure, leakage inductance is minimized almost to the extent of a bifilar wound transformer. By letting the electrical potential of each layer of the secondary winding follow the potential of the adjacent primary winding, the capacitive coupling cooperates with the electrical signal.

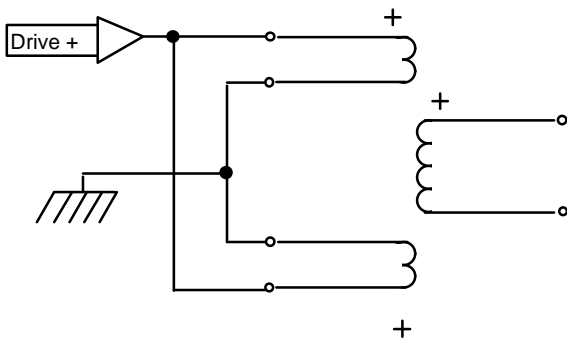
Three section structure, balanced drive.

The secondary is faced by primary neutral parts. In our two-coil output transformers each coil is divided in 3 sections. The primaries are used in parallel, and the secondaries are connected in parallel or in series.



Three section structure, unbalanced drive.

The secondary is faced by primary cold ends. In our two-coil output transformers, the primary side is connected in parallel, and the secondary side is connected in parallel or in series.



Five section structure, balanced drive.

Both coils drawn

