

Benefits of identifying capacitor outside foil in certain circuits

In some applications, identification of the capacitor lead that is attached to the outside foil shield can be used to reduce noise as follows:

- In Power Supply circuits where the Capacitors are used for filtering or decoupling, connecting the outside shield to ground can be very effective at reducing noise.
- In electronic circuits that are subject to exposure to high frequency signals from within the device as well as from external RFI connecting the foil side to ground can be very helpful in reducing noise.
- When capacitors are used in coupling applications using the foil side as the input (lowest impedance side) can substantially reduce noise by allowing a low resistance path to ground for the noise. This is especially helpful in cascaded stages resulting in high gain.
- In loudspeaker crossover applications the shield side should also be connected to the lowest impedance side. If the capacitor is in series with the driver (as in feeding a tweeter) the foil side should be considered as an input and connected to the input terminal, and the other side connected to the tweeter. If it is in a parallel position (as in feeding a woofer) the shield side should connect to the input terminal and the other side to the other speaker terminal.

Various methods can be used to identify the outside foil. Two simple and useful methods are described on the YouTube video at <https://www.youtube.com/watch?v=ALfh6HMMuyE&t=32s>. Fast forward to the 2 min/22 second timeline for the technical explanation overview. At the 8 min/38 second timeline is the beginning of method #1 using an oscilloscope. At 21 min/10 seconds is the beginning of method #2 using an amplifier.