Design of Active Electromagnetic Interference Filter to Eliminate Common-mode Noise in Conducted Interference

Abstract

Passive Electromagnetic Interference (EMI) filters are being replaced with active EMI filters these days for dealing with high-frequency noise interference. Based on the measured values of noise source and noise termination impedances of equipment under test, a practical example of the design of an EMI filter to comply with the regulatory limits of conducted EMI is demonstrated. The elimination of Common-mode (CM) noise considering the design of both passive and active EMI filters is exhibited in the frequency range of 150 KHz-1MHz and although both of these filters allow the SMPS to pass the EMI limits, designing active EMI filters leads to optimal component values and eliminates CM noise over a wider frequency range.

References

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