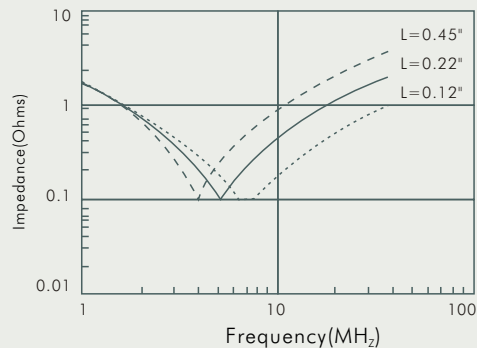


The Essence of Capacitor

THE PARASITIC INDUCTANCE

Four contributed inductances

- 1)Component aspect ratio(chip length vs. width)
- 2)Circuit trace inductance
- 3)Via hole inductance
- 4)Packaging inductance

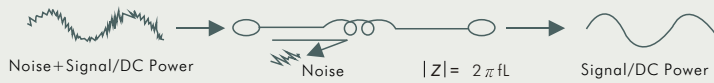


Frequency Response vs. Chip length

INDUCTIVE NOISE SUPPRESSION

When an inductor is inserted in series of a noise producing circuit, its impedance increases with frequency.

In this configuration, it is possible to attenuate and eliminate the noise components (high frequency components).



f : Frequency
L : Inductance value

CAPACITIVE NOISE SUPPRESSION

When a capacitor is connected (bypass capacitor) to ground from a noisy signal line or power line, the circuit

impedance decreases as the frequency increases. Since noise is a high frequency phenomenon, it flows to ground

If a capacitor has been connected to ground, there by making it possible to eliminate noise.



f : Frequency
c : Inductance value