

# Circuit Guidelines

INTEC EMI and RFI Filters, are available in the following Circuit Configurations:

## C - Filter

The C - Filter is a three terminal feed-thru capacitor. It is used to attenuate high frequency signals. This Filter should be avoided for use in circuits where large voltage transient occur in favour of a circuit which includes inductive elements .

## L - Filter

L-Filter consist of one inductive element and one capacitive element. L Filters can offer High Impedance or low impedance input depending upon their orientation of the circuit. These filters are most commonly used in application where one has high impedance source and a low impedance load (L1) or where one has a low impedance source and a high impedance load (L2).

## Pi - Filter

A Pi - Filter contains two capacitive elements and one inductive element. It presents a low impedance to both the source and the load, providing a better high frequency performance than the "C" or "L" configurations. Due to the possibility of "resonance", Pi-Filters are not recommended for switching applications.

## T - Filter

A "T" Filter consists of 2 inductive elements and one capacitive element. This circuit presents a high impedance input from either end and can be used in applications where transient conditions may occur. It has similar performance to a Pi - Filter circuit without the characteristics "resonance" of Pi - Filters and can be used in switching applications.

## TT - Filter / Multi-Section Circuit

INTEC's multy element filters are designed for higher insertion loss in circuits with relatively low source and load impedance, as well as applications where a high degree of filtering is required.

## INSERTION LOSS MEASUREMENT

Insertion loss is a measure of the effectiveness of a filter. It is defined as the ratio of voltage (A1) across the circuit load without the filter and voltage (A2) across the load with the filter. Insertion loss depends on the source and load impedance in which the filter is used. Measured in decibels (dB), insertion loss data in the catalogue are based on MIL-STD-202. They are defined for a matched 50 ohms system as per the following formula :  $IL(dB)=20\log(A1/A2)$

### (dB) Typical Attenuation

