

## Compact 'butterfly' microwave ultra-wideband filter

### ABSTRACT

In this paper, a compact 5 poles Ultra-Wideband (UWB) microwave filter is designed by using a quarter wave short-circuited stubs. The UWB filter bandwidth is covered from 2.75 GHz to 10.0 GHz. This filter designed is developed from a Low Pass Chebychev prototype with a 0.1 dB passband ripple. The first pattern layout uses 5 vias connecting to the ground. This pattern layout is then re-arranged to reduce the total area space needed on microstrip by maintaining the optimum filter response. Finally, a compact microwave filter with 21 mm X 16.1 mm dimension is presented here with excellent scattering characteristic results.

**Keyword:** Compact; Microstrip; Microwave filter; Short-circuited stubs; UWB