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Compact Microstrip Ultra-Wideband Bandstop Filter With Quasi-Elliptic Function Response

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Abstract : This paper proposes a modified optimum bandstop filter with ultra-wideband stopband. The filter consists of three shunt open-circuited stubs and two non-redundant unit elements. The proposed bandstop filter is designed with unequal electrical lengths of the open-circuited stubs at the mid-stopband. Therefore, the filter can exhibit a quasi-elliptic function response that improves the selectivity and enhances the rejection bandwidth. The filter is designed to exhibit a fractional bandwidth of about 114% at a mid-stopband frequency of 3.0 GHz. The filter is successfully realized in theory, simulated, fabricated and measured. An excellent agreement is obtained between calculated, simulated and measured. The fabricated filter has a compact size with a low insertion loss in the passbands, high selectivity and good attenuation level inside the desired stopband

Keywords : microstrip filter, bandstop filter, UWB filter, transmission line filter
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