Abstracts

Hybrid Junction--Cutoff Waveguide Filters

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Low-pass and band-pass filter characteristics can be obtained in waveguide by the use of an arrangement of a waveguide hybrid junction and lengths of cutoff waveguide. Low-pass filters are obtained by terminating a conjugate pair of ports of the hybrid in identical cutoff waveguide sections through short lengths of phase correcting lines. Band-pass characteristics can be realized by introducing a third cutoff waveguide having a lower cutoff frequency at the input port of the hybrid. These filters have a matched input at all frequencies above the lower end of the pass band and are characterized by low-pass band insertion loss, steep skirt selectivity, and moderate rejection band attenuation. The power handling capabilities of the structure exceed those possible with conventional microwave filter circuits, and the design is particularly well suited for use at frequencies above 10 kmc. Simple techniques are available for constructing filters of this type having variable cutoff frequencies and variable bandwidths.

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