Abstracts

Thin-Film Resonator Ladder Filter

L. Mang, F. Hickernell, R. Pennell and T. Hickernell. "Thin-Film Resonator Ladder Filter." 1995 MTT-S International Microwave Symposium Digest 95.2 (1995 Vol. II [MWSYM]): 887-890.

Thin-film bulk acoustic wave resonator (BAWR) ladder filters have been realized with IL ~ 2.2 dB, and selectivity ~ 15 dB for a three resonator filter, IL ~ 5 dB and selectivity ~ 32 dB for a five resonator filter. Filters with seven and nine resonators have also been characterized. This performance corresponds to achieving a figure of merit Q/r ~ 10. The performance possibilities of ladder filters have been calculated with the Q/r figure of merit as a parameter. It is anticipated with improvements in processing and device designs, A1N or ZnO thin-film BAWR ladder filters should achieve IL ~ 1.5 dB and selectivity ~ 40 dB, corresponding to Q/r ~ 40 at 1.5 GHz.

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