Abstracts

A New Low Loss SAW Filter Structure with Extremely Wide Bandwidth for Mobile Communication Systems

J. Machui, G. Muller, W. Ruile, L. Reindl, R. Weigel and P. Russer. "A New Low Loss SAW Filter Structure with Extremely Wide Bandwidth for Mobile Communication Systems." 1993 MTT-S International Microwave Symposium Digest 93.3 (1993 Vol. III [MWSYM]): 1501-1504.

We present a low loss surface acoustic wave (SAW) filter with a dual-track configuration which is characterized by a new arrangement of interdigital transducers (IDTs) and reflectors in each acoustic track as well as a special electrical connection of the IDTs. Broadband filter characteristics can easily be achieved by using chirped components. The inherently good stopband rejection of the new structure has been further improved by applying proper weighting techniques to the IDTs and reflectors. A filter with a relative bandwidth of 10 % and a center frequency of 200 MHz has been designed by means of a new synthesis method. The filter has been fabricated on 128° Y-X LiNbO/sub 3/. We measured a minimum insertion loss of 4 dB, a small passband ripple of about 1 dB, and a stopband rejection better than 35 dB. Excellent agreement between simulation and measurement has been found.

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