Abstracts

Temperature compensated planar narrow-band notch filter with fully automated laser-trimming

M. Schallner. "Temperature compensated planar narrow-band notch filter with fully automated laser-trimming." 2001 MTT-S International Microwave Symposium Digest 01.3 (2001 Vol. III [MWSYM]): 1919-1922 vol.3.

A new narrow-band notch filter using a planar dual mode ring resonator (RR) is presented. The resonator operates at harmonic frequencies and is manufactured on a temperature stable calcium magnesium titanate substrate, using photo-lithographic thin film processes. An innovative fully automated active laser-trimming procedure is used to adjust the center frequency and the bandwidth of the filter. High unloaded quality factors of more than 400 have been obtained at Ka-band frequencies. With these high quality factors a 3 dB bandwidth of less than 1% in conjunction with a notch depth of more than 40 dB can be achieved. In addition, the frequency tuning range of the laser-trimming is larger than 10% without any significant change of the filter characteristic or the quality factor of the resonator. The measured temperature coefficient of the filter is -2 ppm/K. We use a notch filter with an electrical length of four wavelengths to suppress the undesired residual local oscillator signal in the transmitter chain of our latest microwave Point-to-Point (PP) and Point-to-Multipoint (PMP) transceivers.

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