Abstracts

Design of an LTCC switch diplexer front-end module for GSM/DCS/PCS applications

R. Lucero, W. Qutteneh, A. Pavio, D. Meyers and J. Estes. "Design of an LTCC switch diplexer front-end module for GSM/DCS/PCS applications." 2001 Radio Frequency Integrated Circuits (RFIC) Symposium 01. (2001 [RFIC]): 213-216.

This paper presents the results of an antenna switch/filter module integrating GSM/DCS/PCS diplexer functions and Rx/Tx antenna switching on a low temperature co-fired ceramic (LTCC) substrate. Although the RF front-end module (FEM) was configured for dual-band (GSM/DCS) applications, the high pass filter function was designed to operate in the PCS band as well. Harmonic filtering was included in the diplexer design, which reduced the filtering requirements for the power amplifier. The 50-ohm in/out FEM utilized GaAs PHEMT switches and associated bias passives surface mounted on the LTCC substrate. S-parameter characterization of the FEM demonstrated excellent insertion and return loss characteristics. For GSM, the return and insertion losses measured at 912 MHz were better than 28 dB and less than 1.7 dB, respectively. Similarly, for DCS applications, the return and insertion losses at 1.77 GHz were better than 19 dB and less than 1.5 dB, respectively. In both cases, the design approach yielded excellent agreement between measured and simulated results.

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