Abstracts

2-V 0.8-/spl mu/M CMOS monolithic RF filter for GSM receivers

W.S.T. Yan, R.K.C. Mak and H.C. Luong. "2-V 0.8-/spl mu/M CMOS monolithic RF filter for GSM receivers." 1999 MTT-S International Microwave Symposium Digest 99.2 (1999 Vol. II [MWSYM]): 569-572 vol.2.

A 2-V monolithic CMOS second-order RF filter for GSM receiver front-ends is presented. A negative transconductance cell is used to compensate the loss of on-chip inductors for the purpose of Q-tuning. By using a Miller capacitor, center-frequency tuning can be achieved to compensate for process variation. A prototype was fabricated by 0.8 /spl mu/m N-well single-poly-triple-metal CMOS technology and occupies an area of 868.2/spl times/748.4 /spl mu/m/sup 2/. The Q value can vary from 3.4 to 629 and center frequency (f/sub c/) can vary from 687 to 830 MHz. For Q of 30 and f/sub c/ of 829.6 MHz, the filter achieves a power gain of 2.0 dB, a noise figure of 24.5 dB, 1-dB compression point of -34 dBm, input referred third-order intercept point of -22 dBm, image rejection of 24.2 dB, and power dissipation of 45.8 mW.

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