

NJ-007 REALIZATION OF GROUNDED IMMITTANCE FUNCTIONS USING A SINGLE CCII AND THEIR APPLICATIONS TO CURRENT-MODE BIQUAD SYNTHESIS

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Novel circuits for realizing single-element-tunable resistor-inductor (R-L) and capacitor-frequency-dependent negative resistance (C-D) configurations are presented. These configurations use a minus-type second-generation current conveyor (CCII) and three passive elements, and do not require passive component matching. The R-L and C-D immittance functions can be applied to various types of filters which using a simple prototype circuit such as high-pass (HP) filter, low-pass (LP) filter and band-pass (BP) filter. The passive sensitivities to ω_p and Q_p of the filters are derived. Spice simulation results are given to verify the theoretical analysis.