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A CMOS Capacitor Array for ESPAR with Fast Switching Time

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Abstract : A 8-bit CMOS capacitor array is designed for using in electrically steerable passive array radiator (ESPAR). The proposed capacitor array shows the fast response time in rising and falling characteristics. Compared to other works in silicon-on-insulator (SOI) or silicon-on-sapphire (SOS) technologies, it shows a comparable tuning range and switching time with low power consumption. Using the 0.18um CMOS, the capacitor array features a tuning range of 1.5 to 12.9 pF at 2.4GHz. Including the 2X4 decoder for control interface, the Chip size is 350um X 145um. Current consumption is about 80 nA at 1.8 V operation.

Keywords : CMOS capacitor array, ESPAR, SOI, SOS, switching time
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