Abstracts

Coplanar 4-bit HEMT phase shifters for 94 GHz phased array radar systems

K. Zuefle, F. Steinhagen, W.E. Haydl and A. Hulsmann. "Coplanar 4-bit HEMT phase shifters for 94 GHz phased array radar systems." 1999 MTT-S International Microwave Symposium Digest 99.1 (1999 Vol. I [MWSYM]): 303-306 vol.1.

Coplanar 4-bit phase shifters for W-band operation at 94 GHz have been developed using PM-HEMTs as switching elements. The phase shifter MMIC uses double stub loaded lines and branch line couplers. A two-stage variable gain cascode amplifier was integrated with the phase shifter. This combination has insertion gain of 2-8 dB and occupies an area of 1.5/spl times/4 mm/sup 2/. A redesigned version of the phase shifter occupies 1/spl times/2.5 mm/sup 2/ chip area, and has a standard phase deviation of less than 2.1/spl deg/ for all phase states.

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