Abstracts

Broadband Binary 180° Diode Phase Modulator (1964 [MWSYM])

R.V. Garver. "Broadband Binary 180° Diode Phase Modulator (1964 [MWSYM])." 1964 PTGMTT International Symposium Program and Digest 64.1 (1964 [MWSYM]): 199-203.

The recent emergence of diode phase modulators makes certain systems realizable which were previously impossible or impractical because of the high modulation power required to obtain high-speed phase control. Systems benefiting from this new diode phase shifter technology include high-speed electronic antenna scanners and phase modulation radars. It was as part of an effort to develop a video frequency phase modulated radar that the task reported here was undertaken. The system requires a phase shifter that can be switched between 0° and 180° phase shift in 20 nanoseconds or less. The amplitudes in each phase state must be equal and the switching transient should be small. Additional flexibility is allowed the system if the phase shifter is broadband. Other requirements on the phase shifter such as power limitations depend on the diode, and are not considered here. The purpose of this task is to find a suitable technique to satisfy the system requirements using presently available diodes. The new technique reported here has application to variable phase control as well as binary phase control.

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