Abstracts

S-Band, 3-Bit, 1 kW Peak, 0.8 dB Average Loss, Diode Phase Shifter and Driver Under $100

J.F. White. "S-Band, 3-Bit, 1 kW Peak, 0.8 dB Average Loss, Diode Phase Shifter and Driver Under $100." 1974 S-MTT International Microwave Symposium Digest of Technical Papers 74.1 (1974 [MWSYM]): 142-144.

There is a need for an S-band high power electronic phase shifter with low insertion loss and low cost for ground and ship-based phased array radars. Both diodes and ferrites are candidates for this application. Typically, the ferrite phase shifter is known to have low insertion loss; however, the recent use of wafer glassed PIN diodes removes the necessity for an expensive ceramic diode package and, furthermore, improves performance by eliminating diode package parasitic reactance. With these diodes, a complete 3-bit phase shifter having only 0.8 dB of average insertion loss has been made. This device has a rated power of 1 kW peak (the burnout level is 4 kW peak) using 120 microsecond-long pulses and 0.05 duty cycle. This paper describes the construction and testing of the phase shifter and a cost estimate for large quantities.

❑ Return to main document.