Abstracts

Versatile FET Nonlinear Transfer Function Generator Elements

A. Katz and S. Moochalla. "Versatile FET Nonlinear Transfer Function Generator Elements." 1990 MTT-S International Microwave Symposium Digest 90.2 (1990 Vol. II [MWSYM]): 743-746.

A new means of generating nonlinear transfer functions useful in the production of limiters and linearizes has been discovered which offers both simplicity and high performance. This technique employs GaAs MESFETs in a passive configuration similar to that used for MMIC switches and attenuators. The resulting FET Non-linear Generator Elements (NLGEs) are readily adjustable over a wide range of both magnitude and phase transfer characteristics, and have displayed wide bandwidth performance and excellent thermal stability. FET NLGEs have been applied in both reflective and transmissive networks. A near perfect hard limiter has been produced using a FET NLGE which introduces less than 5 degree change in phase. Linearizes using FET NLGEs have been tested at L, C and Ku-bands and have provided a reduction in total intermodulation distortion products greater than 10 dB at the 2 and 3 dB output power back-off points over a bandwidth of up to 15 percent.

❑ Return to main document.