Abstracts

A New Class of Self-Protecting Low-Noise Microwave Amplifiers

Y.A. Budzinsky and S.P. Kantyuk. "A New Class of Self-Protecting Low-Noise Microwave Amplifiers." 1993 MTT-S International Microwave Symposium Digest 93.2 (1993 Vol. II [MWSYM]): 1123-1126.

The ESA (electrostatic amplifier) was originally developed by Robert Adler in the United States and independently by S. P. Kantyuk in the Soviet Union. It has been developed and extended at ISTOK to a family of devices having some unique properties. ESA's can provide low noise figures (1...4 dB from L- through Ku-bands), wide dynamic range, high resistance to jamming, linear amplitude and phase characteristics, and the ability to handle high levels of input power (up to 500 kW) without additional protection. In radar applications no additional protective devices such as multipactors, gas discharge T/R tubes, diode limiters, or switches are required. The recovery to maximum sensitivity after an input overload is typically 10-50 ns. These devices have been combined with magnetron oscillators to provide compact transmitters and are widely used in ground-based pulse-doppler radar systems.

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