

Improving the LDMOS Temperature Compensation Bias Circuit to Optimize Back-Off

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Abstract : The application of today's semiconductor transistors in high power UHF DVB-T linear amplifiers has evolved significantly by utilizing LDMOS technology. This fact provides engineers with the option to design a single transistor signal amplifier which enables output power and linearity that was unobtainable previously using bipolar junction transistors or later type first generation MOSFETS. The quiescent current stability in terms of thermal variations of the LDMOS guarantees a robust operation in any topology of DVB-T signal amplifiers. Otherwise, progressively uncontrolled heat dissipation enhancement on the LDMOS case can degrade the amplifier's crucial parameters in regards to the gain, linearity, and RF stability, resulting in dysfunctional operation or a total destruction of the unit. This paper presents one more sophisticated approach from the traditional biasing circuits used so far in LDMOS DVB-T amplifiers. It utilizes a microprocessor control technology, providing stability in topologies where IDQ must be perfectly accurate.

Keywords : LDMOS, amplifier, back-off, bias circuit

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