

SiGe-power amplifiers in flipchip and packaged technology

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A SiGe HBT with 22 GHz ft was optimized for power applications. A driver stage measured on wafer achieves $P_{sat}=23$ dBm at 1.8 GHz with PAE up to 68%. A family of SiGe power amplifiers was developed for assembly in standard PSSOP packages and in flipchip technology. There are single and dualband PAs for 900 MHz and 1800 MHz GSM bands. The PAs are fully integrated three stage devices and feature high gain, output power and power added efficiency. The ICs incorporate power control circuits and operate from one positive supply voltage which can be as low as 2.5 V. At a nominal operating voltage of 3.5 V the 900 MHz packaged amplifier delivers up to 35 dBm output power at 58% PAE. The 1800 MHz amplifier produces up to 33 dBm power at 48% PAE. The devices can survive 5 V supply voltage under full power. An optimized application design gives similar results for packaged and flipchip devices.

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