

# CMOS Power Amplifier for Handset Application

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## Abstract

CMOS power amplifiers are developed. IMD3 is minimized through sweet spot operation and 2<sup>nd</sup> harmonics suppression. The resulting Class-AB operation enhances the efficiency and linearity. Several performance enhancement techniques are also introduced. The Doherty and ET amplifiers based on the CMOS PA are also described. The same techniques are applied successfully to mm-wave power amplifiers. A LDO regulator is employed to suppress the memory effect, resulting in GHz video bandwidth. Thus, a highly efficient linear PA with large video-band is realized at mm-wave band for 5G application.

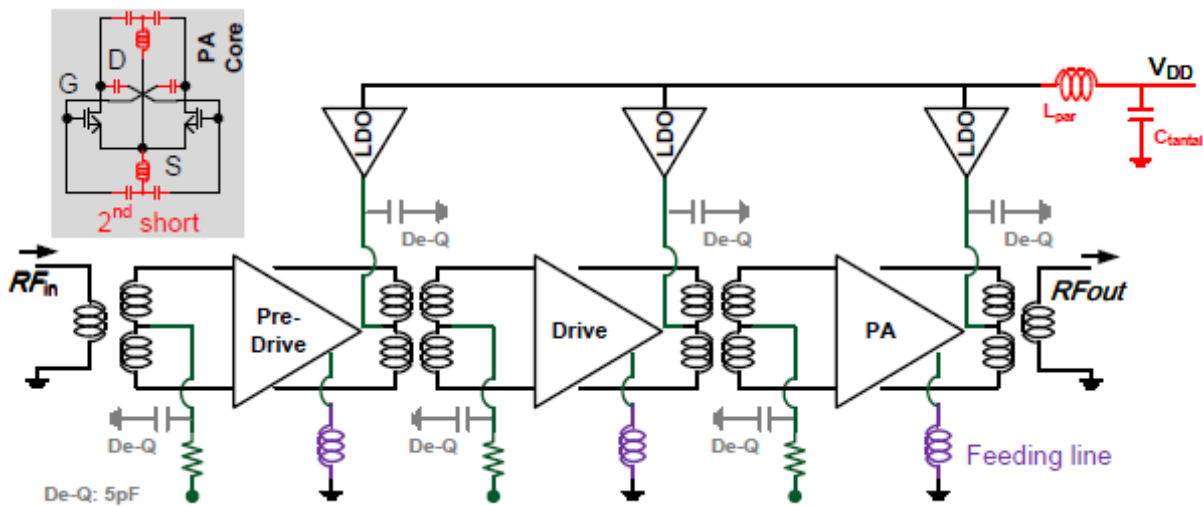


Figure 1 Schematic of the mm-Wave PA for 5G application

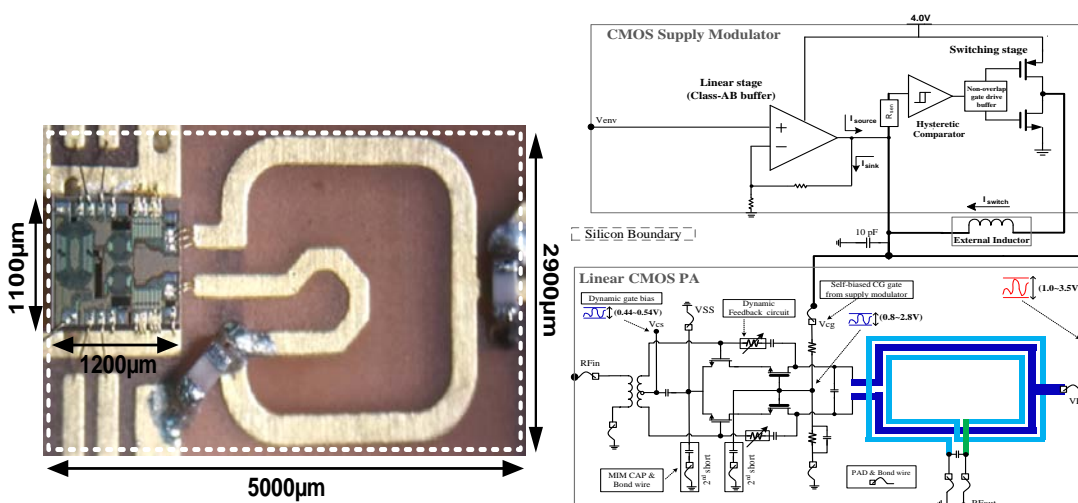


Figure 2 CMOS Doherty amplifier

Figure 3 CMOS ET amplifier