Abstracts

An extended Doherty amplifier with high efficiency over a wide power range (2001 Vol. II [MWSYM])

M. Iwamoto, A. Williams, Pin-Fan Chen, A. Metzger, Chengzhou Wang, L.E. Larson and P.M. Asbeck. "An extended Doherty amplifier with high efficiency over a wide power range (2001 Vol. II [MWSYM])." 2001 MTT-S International Microwave Symposium Digest 01.2 (2001 Vol. II [MWSYM]): 931-934 vol.2.

An extension of the Doherty amplifier architecture which maintains high efficiency over a wide range of output power (>6 dB) is presented. This extended Doherty amplifier is demonstrated experimentally with InGaP-GaAs HBTs at a frequency of 950 MHz. P/sub 1 dB/ is measured at 27.5 dBm with PAE of 46%. PAE of at least 39% is maintained for over an output power range of 12 dB backed-off from P/sub 1 dB/. This is an improvement over the classical Doherty amplifier, where high efficiency is typically obtained up to 5-6 dB backed-off from P/sub 1 dB/. Generalized design equations for the Doherty amplifier are derived to show a careful choice of the output matching circuit and device scaling parameters can improve efficiencies at lower output power.

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