Abstracts

Varactor Properties for Wide-Band Linear-Tuning Microwave VCO's

D.F. Peterson. "Varactor Properties for Wide-Band Linear-Tuning Microwave VCO's." 1980 Transactions on Microwave Theory and Techniques 28.2 (Feb. 1980 [T-MTT]): 110-119.

Varactor properties and a particular hyperabrupt doping profile are identified which can provide wide-band tuning linearity for an important class of microwave oscillators. The results are most appropiate for series-tuned oscillators realized with simple configurations of BJT's or FET's in chip, integrated, or monolithic form with low parasitics. The derivation for the doping profile is presented and includes the effects of large signals in modifying the effective varactor capacitance. In addition, breakdown conditions and the level and variation in series resistance are included. When the results are applied to BJT and FET oscillator circuits with measured large-signal properties, the profiles obtained predict excelent linearity for the FET over a 7-12-GHz frecuency range and fair linearity for the BJT circuit from 2 to 4 GHz. The profiles are reasonable and should be realizable with existing varactor fabrication technology.

❑ Return to main document.