Abstracts

New thermometer for RF and microwave thermal therapy using MMIC in Si BJT VCO type

Y. Kotsuka, K. Orii, H. Kojima, K. Kamogawa and M. Tanaka. "New thermometer for RF and microwave thermal therapy using MMIC in Si BJT VCO type." 1999 MTT-S International Microwave Symposium Digest 99.2 (1999 Vol. II [MWSYM]): 607-610 vol.2.

A new wireless-thermometer is proposed for thermal therapy that uses a silicon bipolar transistor voltage controlled oscillator (Si VCO), based on three-dimensional (3D) MMIC technology. The method for detecting temperature is examined. As the result, the VCO's oscillation frequency (around 4.35 GHz) is extremely linear against temperature from 30/spl deg/C to 50/spl deg/C. Tests using a phantom material show that a prototype thermometer can be read through at least 7 cm of soft tissue.

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