Abstracts

A miniature high-Q grating-mode-type SAW resonator and a wide-band 1-GHz SAW-VCO for mobile communications

A. Isobe, M. Hikita, K. Asai and A. Sumioka. "A miniature high-Q grating-mode-type SAW resonator and a wide-band 1-GHz SAW-VCO for mobile communications." 2000 MTT-S International Microwave Symposium Digest 00.2 (2000 Vol. II [MWSYM]): 917-920.

We have designed and tested a compact high-Q SAW resonator for wide-band VCOs that oscillate in the 1-GHz band. This was achieved by optimizing the SAW propagation in the Al-grating structure, especially by changing the shape of the structure. The resonator chip size was 0.8 /spl times/ 0.8 mm and the Q value of the SAW resonator exceeded 200. Its spurious response originating from Rayleigh waves was almost negligible when the Al-grating thickness was optimized for the cut angle of the substrate. A 1-GHz VCO that used the SAW resonator showed a high control-voltage sensitivity of 25.0 MHz/V (2.3%/V) and a high phase-noise performance of <-106.0 dBc/Hz when offset 25 kHz from the carrier.

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