Abstracts

Optimized design and fabrication of a wireless pressure and temperature sensor unit based on SAW transponder technology

G. Schimetta, F. Dollinger, G. Scholl and R. Weigel. "Optimized design and fabrication of a wireless pressure and temperature sensor unit based on SAW transponder technology." 2001 MTT-S International Microwave Symposium Digest 01.1 (2001 Vol. I [MWSYM]): 355-358 vol.1.

The optimized design and fabrication of a passive pressure and temperature sensor unit based on SAW transponder technology fully meeting the restrictions of the European ISM RF band at 433.92 MHz is presented. The sensor unit consists of a reflective SAW delay line which is used as temperature sensor and transponder, and a capacitive pressure sensor. With a special arrangement of the impedance loaded splitfinger interdigital transducer, and the reference reflectors on the SAW substrate, a temperature corrected evaluation of the pressure signal is enabled. Due to the small dimensions and cost-effective design of the sensor unit, the utilization as a tire pressure sensor is proposed. A prototype of the SAW delay line and the micromachined pressure sensor is demonstrated.

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