

Effect of the sensing layer resistivity on sensitivity in DSAWR sensors

ABSTRACT

SAW sensors have become important for gas detection applications in recent years. One of the parameters affecting the sensitivity of SAW sensors is the resistivity of the sensing layer. In this study, it is tried to determine the sensitivities of the sensors for different resistance values for the designed DSAWR. In accordance with this purpose, instead of using actual sensing layers whose resistance can be changed by parameters such as temperature etc., 8 different fixed resistors in the range of 3 to 4M ohms were used to fully demonstrate the effect of the resistance. It has been found that the DSAWR has better sensitivity for active layer resistances between $k\Omega$ to a few hundred $k\Omega$.

Keyword: SAW resonator; Gas sensor; SAW sensor; DSAWR