

## AMPLIFICATION OF HYPERSONIC BY GaAs CRYSTALS

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### S u m m a r y

The paper analyzes two basic mechanisms of amplification of acoustic-electromagnetic waves. The first mechanism is similar to the principle of operation of a traveling wave tube due to the piezoeffect, deformation potential, and electrostriction in different materials. The second mechanism is related to the Gunn effect and the negative differential mobility of charge carriers in GaAs. The possible realistic constructions of filters, delays lines, etc. that can be used in communication and control systems are demonstrated. The second mechanism of amplification of hypersound due to the Gunn effect (negative mobility in GaAs) is analyzed in detail. It is shown that this mechanism is more efficient and very promising for designing active filters and delay lines.