



ABSTRACT

INTEGRATED CIRCUIT SYSTEMS AND METHOD FOR ANALOG SIGNAL RECORDING AND
PLAYBACK

Integrated circuit system and method for analog signal recording and playback having improved performance and a very high level of integration. The integrated circuit is complete with preamplifier, automatic gain control, filter, fixed references including a band gap reference, trimming, power output amplifier, memory array, multiple closed loop sample and hold circuits, column decoder, column driver, row decoder, address counters, master oscillator and chip function timing circuits including sample clock, charge pumps, high voltage regulator and waveshapers, low VCC detector, power-on reset and recording reference circuits on a single chip. The chip is configurable for use of the filter as an antialiasing input filter, as an output smoothing filter or to cut out the filter, preamplifier and/or the output power filter, and for special test modes including mass programming patterns. The system uses a writable analog reference scheme to put many error sources in the common mode, and provides a double ended output for maximum power output in a limited voltage range, and to allow direct connection to a speaker. Trim bits are provided for trimming the oscillator and filter so that the filter characteristics match and track the oscillator frequency and provision is made for absolute addressing and digital end of message markers. Programming is by way of a multi level iterative write process for high resolution, with the chips being directly cascable. Other aspects of the integrated circuit and its operation are disclosed.