

Josephson junction digital to analog converter for accurate AC waveform synthesis, Patent 5,812,078

Description

Problem

In metrology applications, primary standards for AC voltage rely on thermal voltage converters that compare the heating effect of AC and DC inputs. Direct waveform synthesis from an accurate AC voltage source is needed. It would provide the first independent check of the accuracy of thermal voltage converters and change the fundamental method of AC metrology from detector-based to source-based calibrations.

Invention

This invention provides a low-phase noise digital to analog converter utilizing Josephson junctions in connection with the first programmable voltage standards for metrologically accurate waveform synthesis and cryogenic radar systems.

Benefits

Commercial Application

A low noise accurate signal generator for a calibration system or a radar system

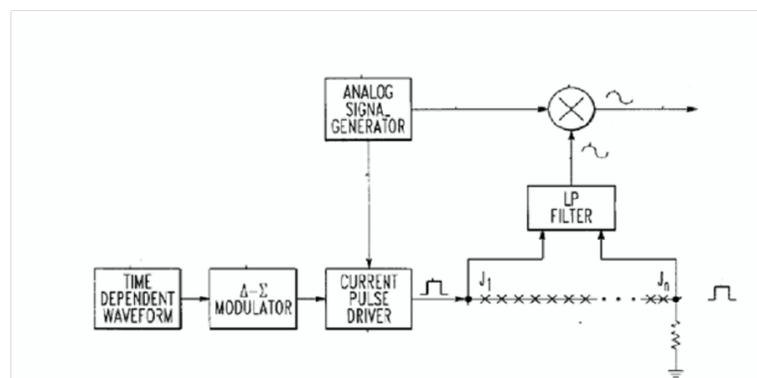
Competitive Advantage

Provides quantum mechanically accurate voltage pulses

Improves detection of targets in clutter which would otherwise not be detected

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Block diagram of one embodiment of the invention where the mixer is relevant to radar application