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**Shifrin**

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(54) **TRANSMIT CIRCUIT FOR IMAGING WITH ULTRASOUND**

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367/138; 330/271

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(57) **ABSTRACT**

A digital-to-analog converter that outputs positive and negative portions of the desired bi-polar waveform as a representative unipolar waveform (e.g. absolute value of the bi-polar waveform) is connected to a switch. The switch selects between current driver paths as a function of the positive or negative polarity of the desired bi-polar waveform. The current drivers feed a push-pull output amplifier to generate the bi-polar ultrasound waveform. Alternatively, a digital-to-analog converter with differential outputs is connected to two difference amplifiers. The difference amplifiers provide current signals to the push-pull output amplifier through their supply nodes. A single scaling resistor connects between the conventional outputs of two differential amplifiers to reduce mismatching between the positive and negative waveform paths. As a result of the feedback between the two difference amplifiers, a lower level of even harmonic distortion products is achieved.

**39 Claims, 5 Drawing Sheets**

