



Dual, VARIABLE GAIN AMPLIFIER with Low Noise Preamp

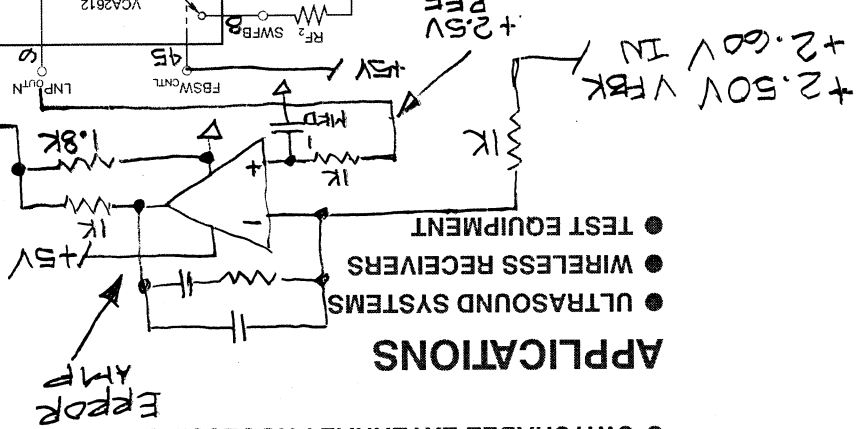
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FEATURES

- LOW NOISE PREAMP:
 - Low Input Noise: $1.25\text{ nV}/\sqrt{\text{Hz}}$
 - Active Termination Noise Reduction
 - Switchable Termination Value
 - 80MHz Bandwidth
 - 5dB to 25dB Gain Range
 - Differential Input/Output
- LOW NOISE VARIABLE GAIN AMPLIFIER:
 - Low Noise VCA: $3.3\text{ nV}/\sqrt{\text{Hz}}$, Differential
 - Programming Optimizes Noise Figure
 - 24dB to 45dB Gain
 - 40MHz Bandwidth
 - Differential Input/Output
- LOW CROSSTALK: 52dB at Max Gain, 5MHz
- HIGH-SPEED VARIABLE GAIN ADJUST
- SWITCHABLE EXTERNAL PROCESSING

APPLICATIONS

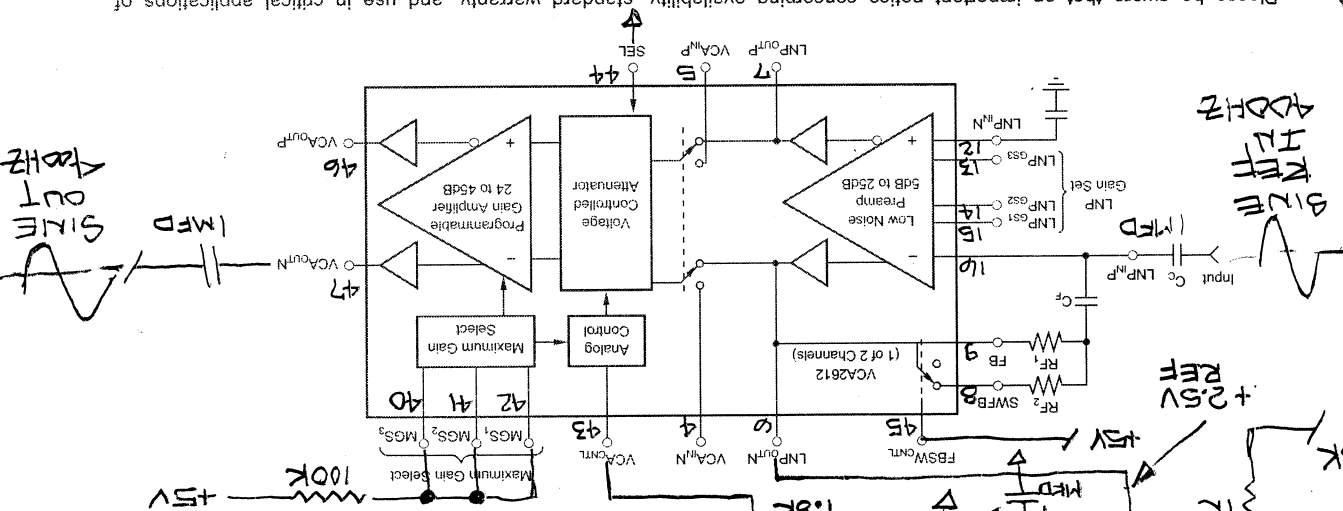
- ULTRASOUND SYSTEMS
- WIRELESS RECEIVERS
- TEST EQUIPMENT



The VCA2612 is a highly integrated, dual receive channel, signal processing subsystem. Each channel of the product consists of a low noise preamplifier (LNP) and a Variable Gain Amplifier (VGA). The LNP circuit provides the necessary connections to implement Active Termination (AT), a method of cable termination which results in up to 4,6dB noise figure improvement. Different cable termination characteristics can be accommodated by utilizing the VCA2612's switchable LNA feedback pins. The LNP has the ability to accept both differential and single-ended inputs, and generates a differential output signal. The LNP provides strappable gains of 5dB, 17dB, 22dB, and 25dB.

The output of the LNP can be accessed externally for further signal processing, or fed directly into the VGA. The VCA2612's VGA section consists of two parts: the Voltage Controlled Attenuator (VCA) and the Programmable Gain Amplifier (PGA). The gain and gain range of the PGA can be digitally programmed. The combination of these two programmable elements results in a variable gain ranging from 0dB up to a maximum gain as defined by the user through external connections. The output of the VGA can be used in either a single-ended or differential mode to drive high-performance Analog-to-Digital (A/D) converters.

The VCA2612 also features low crosstalk and outstanding distortion performance. The combination of low noise and gain range programmability make the VCA2612 a versatile building block in a number of applications where noise performance is critical. The VCA2612 is available in a TQFP-48 package.



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