HV430DB3
20 REN Ring Generator

Introduction

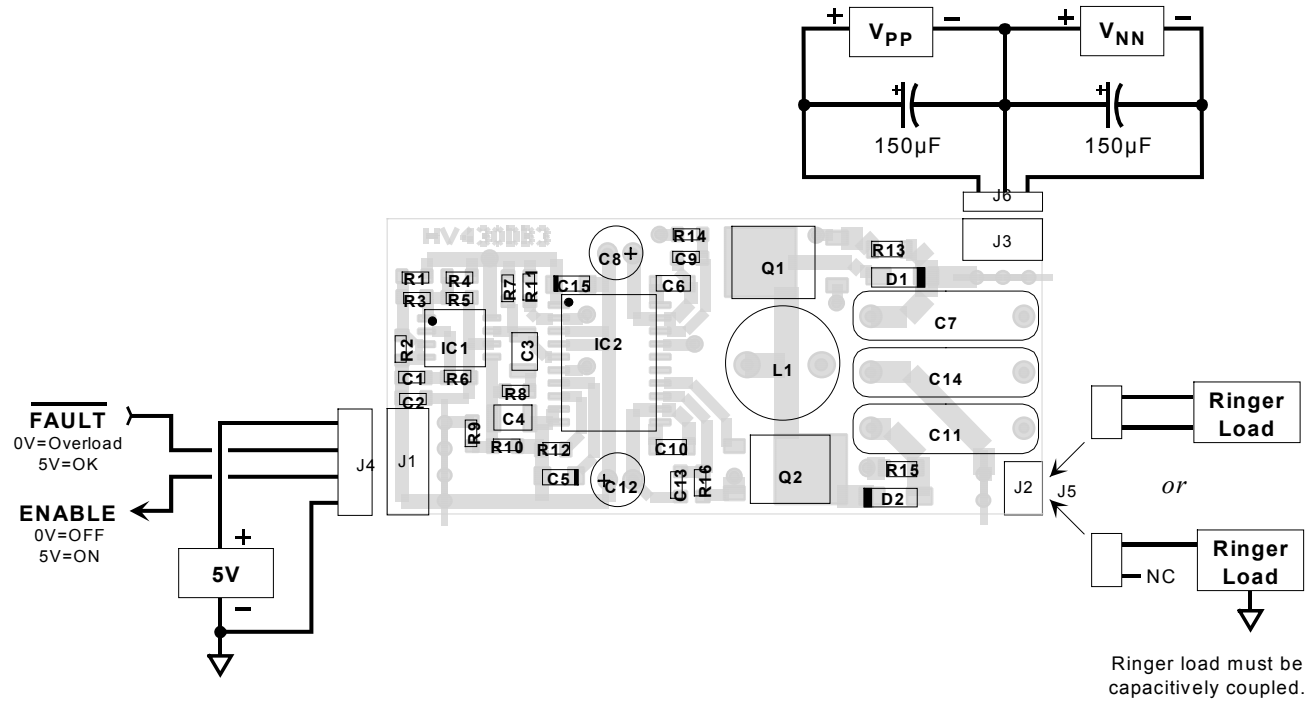
The Supertex HV430DB3 demo board is an efficient, switchmode sinewave ringing generator utilizing the HV430 integrated circuit. It contains all the circuitry necessary to drive a 20 REN (North American) ringer load. Simply connect power supplies, ringer load, and enable input as shown below. A Fault output is provided to indicate an output overload condition. Output amplitude and offset are dependent on the high voltage supplies.

The circuitry of the HV430DB3 includes a PWM sinewave reference, the HV430, and an output stage. Complete schematics and a bill of materials are provided on the following pages.

Specifications

Ringing Frequency		20Hz ±1Hz
Ringing Amplitude *@ V_{PP}-V_{NN} = 310V*		95V_{RMS} ±10%
Ringer THD		5% typ
Max Ringer Load		20 REN *(North American)*
Efficiency *(at max load)*		80% typ
Supply Voltages:	V_{CC}	+5.0V ±10%
	V_{PP}	+50 to +180V
	V_{NN}	-50 to V_{PP}-325V

Board Layout and Connections



+5 Volt Supply

Supplies the HV430 and PWM sinewave reference circuit.

V_{PP} & V_{NN} Supplies

Used to power the high voltage driver stage. Each supply must have at least 150µF of output capacitance. The difference between these two supplies must not exceed 325 volts.

Enable Input

This input enables/disables the ringer output. A logic high (5V) turns on the output, while a low (0V) turns off the output. When off, the output is in a high impedance state. This input is internally pulled low on the HV430.

Fault Output

Goes low during an overload condition. It is open-drain with a 100kΩ pull-up resistor to +5 volts.

Ringer Output

The HV430DB3 provides an unbalanced output. Connect the ringer load between ringer output and ground. For convenience, a ground terminal is provided at J2.

Output DC offset will be halfway between these 2 supplies, while amplitude (in volts peak-to-peak) will be about 90% of the difference between these supplies.

The ringer load must be capacitively coupled to prevent DC current flow, although DC currents may exist for short periods (<1 sec).

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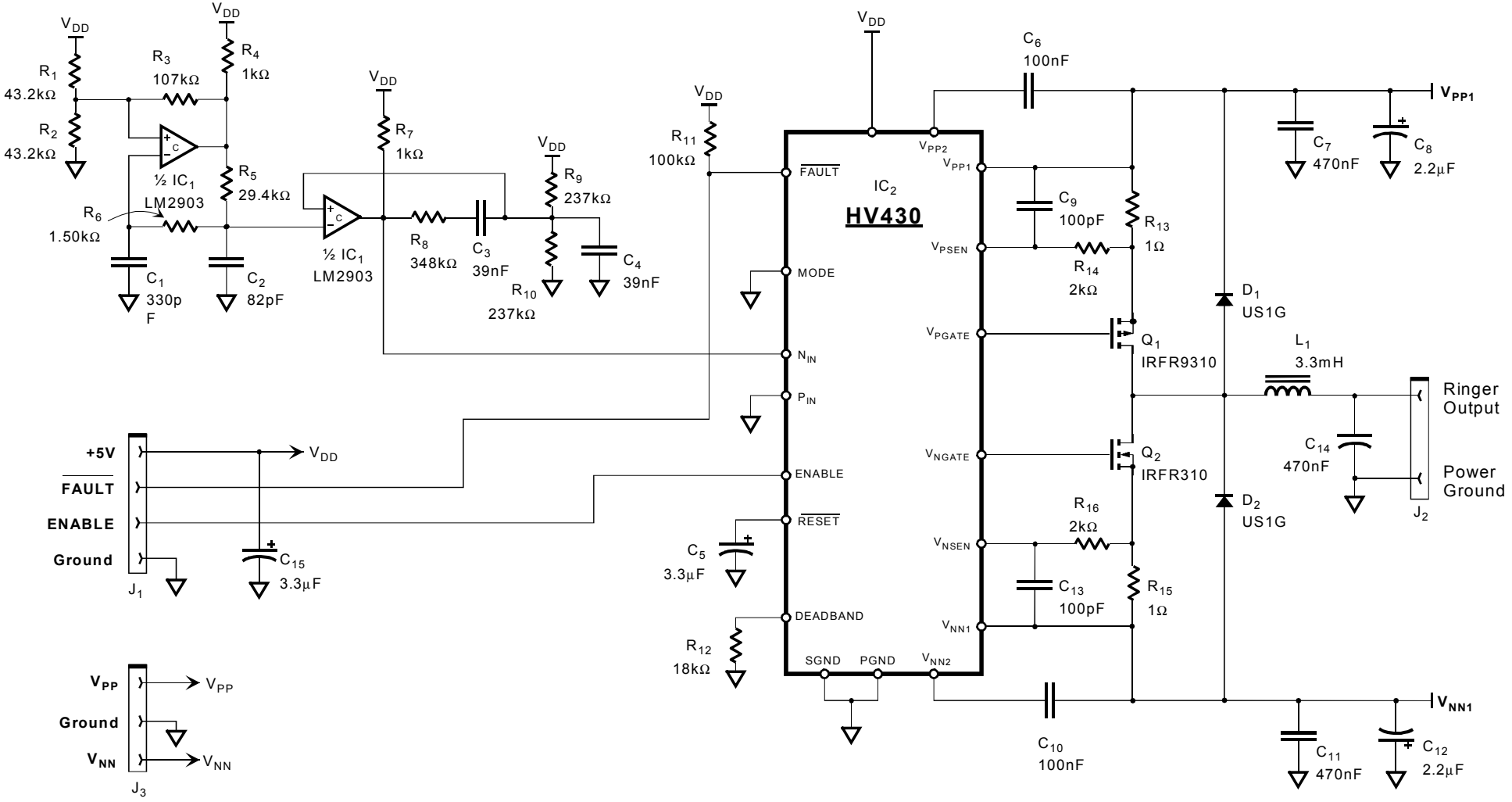

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