**Claims**

1. A power supply circuit, comprising:

a switchable match configured to change electrical characteristics thereof in response to changes in a load to which the switchable match is connected, the switchable match including:

a high voltage bus connectable to the load;

a low voltage bus connectable to the load such that the load is in series between the high voltage bus and the low voltage bus;

at least two capacitors having a fixed value of capacitance selectively connectable between the high voltage bus and the low voltage bus; and

a plurality of solid state switches equal in number to the number of capacitors having a fixed value of capacitance connectable between the high voltage bus and the low voltage bus, each switch configured and arranged to selectively connect or disconnect one of the capacitors having a fixed value of capacitance selectively connectable between the high voltage bus and the low voltage bus into electrical communication between the high voltage bus and the low voltage bus; and

a variable frequency power supply circuit including a variable frequency power supply operatively connected to a high voltage output connection, the high voltage output connection connected to the high voltage bus;

wherein the switchable match is configurable to include:

a first fixed capacitance, comprising the sum of the capacitances of one or more of the fixed capacitance capacitors, electrically connected between the high voltage bus and the low voltage bus, and, with the first fixed capacitance electrically connected between the high voltage bus and the low voltage bus, the switchable match is configured to transmit a greater percentage of a power transmitted thereto by the variable frequency power supply to the load connected thereto over a first range of resistance and reactance values of the load and a lesser percentage of the power transmitted thereto by the variable frequency power supply to the load connected thereto over a second range of resistance and reactance values of the load; and

a second fixed capacitance, comprising the sum of the capacitances of one or more of the fixed capacitance capacitors different than those providing the first capacitance, electrically connected between the high voltage bus and the low voltage bus, and, with the second fixed capacitance electrically connected between the high voltage bus and the low voltage bus, the switchable match is configured to transmit a greater percentage of the power transmitted thereto by the variable frequency power supply to the load connected thereto over a third range of resistance and reactance values of the load different from the first range and a lesser percentage of the power transmitted thereto by the variable frequency power supply to the load connected thereto over a fourth range of resistance and reactance values of the load.

2. The power supply circuit of claim 1, wherein the variable frequency power supply circuit comprises a DC power supply and a variable frequency output DC to AC Convertor.

3. The power supply circuit of claim 2, wherein the variable frequency power supply circuit further includes an amplifier.

4. The power supply circuit, of claim 1, wherein the variable frequency power supply is an RF generator.

5. The power supply circuit of claim 1, wherein the switchable match is configured as an L match.

6. The power supply circuit of claim 1, wherein the switchable match is configured as a π match.

7. The power supply circuit of claim 1, wherein the ranges of resistance and reactance of the load of the second range and the fourth range overlap.

8. The power supply circuit of claim 1, wherein the ranges of resistance and reactance of the load of one of the first range and the fourth range, and the second range and the third range, overlap.

9. The power supply circuit of claim 1, where the low voltage bus is a ground bus.

10. The power supply circuit of claim 1, wherein the solid state switches are electrically interposed between corresponding ones of the fixed capacitance capacitors and the high voltage bus.

11. A match connectable between a variable frequency power supply circuit and a load, including a variable frequency power supply operatively connected to the load, wherein electrical characteristics of the load dynamically changes, comprising:

a high voltage bus connectable to the load;

a low voltage bus connectable to the load such that the load is in series between the high voltage bus and the low voltage bus;

at least two capacitors having a fixed value of capacitance selectively connectable between the high voltage bus and the low voltage bus; and

a plurality of solid state switches equal in number to the number of capacitors having a fixed value of capacitance connectable between the high voltage bus and the low voltage bus, each switch configured and arranged to selectively connect or disconnect one of the capacitors having a fixed value of capacitance selectively connectable between the high voltage bus and the low voltage bus into electrical communication between the high voltage bus and the low voltage bus

wherein the match is configurable to include:

a first fixed capacitance, comprising the sum of the capacitances of one or more of the fixed capacitance capacitors, electrically connected between the high voltage bus and the low voltage bus, and, with the first fixed capacitance electrically connected between the high voltage bus and the low voltage bus, the switchable match is configured to transmit a greater percentage of a power transmitted thereto by the variable frequency power supply to the load connected thereto over a first range of resistance and reactance values of the load and a lesser percentage of the power transmitted thereto by the variable frequency power supply to the load connected thereto over a second range of resistance and reactance values of the load; and

a second fixed capacitance, comprising the sum of the capacitances of one or more of the fixed capacitance capacitors different than those providing the first capacitance, electrically connected between the high voltage bus and the low voltage bus, and, with the second fixed capacitance electrically connected between the high voltage bus and the low voltage bus, the switchable match is configured to transmit a greater percentage of the power transmitted thereto by the variable frequency power supply to the load connected thereto over a third range of resistance and reactance values of the load different from the first range and a lesser percentage of the power transmitted thereto by the variable frequency power supply to the load connected thereto over a fourth range of resistance and reactance values of the load.

12. The match of claim 11, wherein the switchable match is configured as one of an L match and a π match.

13. The match of claim 11, wherein the ranges of resistance and reactance of the load of the second range and the fourth range overlap.

14. The power supply circuit of claim 11, wherein the ranges of resistance and reactance of the load of one of the first range and the fourth range, and the second range and the third range, overlap.

15. The power supply circuit of claim 11, wherein the solid state switches are electrically interposed between corresponding ones of the fixed capacitance capacitors and the high voltage bus.

16. A method of matching a power supply to a load, comprising:

providing a power supply circuit, comprising:

a switchable match configured to change electrical characteristics thereof in response to changes in the load to which the switchable match is connected, the switchable match including:

a high voltage bus connectable to the load;

a low voltage bus connectable to the load such that the load is in series between the high voltage bus and the low voltage bus;

at least two capacitors having a fixed value of capacitance selectively connectable between the high voltage bus and the low voltage bus; and

a plurality of solid state switches equal in number to the number of capacitors having a fixed value of capacitance connectable between the high voltage bus and the low voltage bus, each switch configured and arranged to selectively connect or disconnect one of the capacitors having a fixed value of capacitance selectively connectable between the high voltage bus and the low voltage bus into electrical communication between the high voltage bus and the low voltage bus;

providing a variable frequency power supply circuit including a variable frequency power supply operatively connected to a high voltage output connection, a high voltage connection connected to the high voltage bus;

providing a first fixed capacitance, comprising the sum of the capacitances of one or more of the fixed capacitance capacitors, electrically connected between the high voltage bus and the low voltage bus, and, with the first fixed capacitance electrically connected between the high voltage bus and the low voltage bus, the switchable match is configured to transmit a greater percentage of a power transmitted thereto by the variable frequency power supply to the load connected thereto over a first range of resistance and reactance values of the load and a lesser percentage of the power transmitted thereto by the variable frequency power supply to the load connected thereto over a second range of resistance and reactance values of the load; and

providing a second fixed capacitance, comprising the sum of the capacitances of one or more of the fixed capacitance capacitors different than those providing the first capacitance, electrically connected between the high voltage bus and the low voltage bus, and, with the second fixed capacitance electrically connected between the high voltage bus and the low voltage bus, the switchable match is configured to transmit a greater percentage of the power transmitted thereto by the variable frequency power supply to the load connected thereto over a third range of resistance and reactance values of the load different from the first range and a lesser percentage of the power

transmitted thereto by the variable frequency power supply to the load connected thereto over a fourth range of resistance and reactance values of the load.