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ration. the output recovery speed is greatly enhanced permitting switching or slew rate values in excess of 40 volts per micro-second. Typically, recovery speeds are ten times larger if saturation is permitted to occur and a slew rate of 40 volts per microsecond would be impossible and the distortion would be high.

FIG. 2 is similar to FIG. 1 except that a driven supply approach is employed where the output point is now the power supply common and the amplifier output is grounded. The high voltage pre-drivers 48, 48' are eliminated and the circuit is driven by an operational amplifier 80 which is powered from a regulated low voltage source, for example, ± 15 volts supply. Idle current in the bias string 53 is supplied via from the ± 15 V source supply via resistors 82, 82'. Of note, is that the critical circuit functions are the same as illustrated in FIG. 1, and the same reference numerals are applied to the elements having the similar functions. The driven supply approach illustrated in FIG. 2 is preferred since it eliminates the high voltage drivers 48-48', which operate above V_H . This greatly simplifies the power supply arrangement of the amplifier and is much more cost effective.

While there have been described what are at present considered to be the preferred embodiments of the present invention, it will be apparent to those skilled in the art that various changes and modifications may be made therein without departing from the invention, and it is intended in the appended claims to cover such changes and modifications as fall within the spirit and scope of the invention.

What is claimed is:

1. An amplifier switchably operative in a plurality of voltage modes depending on the level of the input signal comprising:

circuit means for each voltage mode including a common driver for each level, and a plurality of output devices arranged in parallel, each operative at a selected voltage level and being coupled to the common driver for the corresponding voltage mode, one output device of each level being coupled in series to an output device of the next lower level; and

switching diode means being coupled between series connected outputs of each output device.

2. The amplifier of claim 1 further comprising means for preventing saturation of the common driver and each output device in each level.

3. The amplifier of claim 2 wherein the means for preventing saturation in each level comprises paired diode means coupled to each level and a common terminal of said diode means coupled to the input.

4. The amplifier of claim 3 wherein the diode means comprises at least a plurality of diodes for providing multiple voltage drops in a lower voltage mode with respect to a higher voltage mode.

5. The amplifier of claim 1 further comprising regulator means coupled between the output of the amplifier and an input to the common driver of an elevated voltage mode for causing the driver and parallel connected output devices to be conductive before the input signal causes switching between the voltage modes.

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6. The amplifier of claim 5 wherein the regulating means comprises a zener diode.

7. The amplifier of claim 5 wherein the regulator further comprises a series resistor for regulating current to the driver whereby the output devices are turned On at a relatively low level.

8. The amplifier of claim 5 wherein the regulator means comprises reactive means operative to produce a current to the driver at relatively high frequency.

9. The amplifier of claim 8 wherein the driver is turned on at said high frequency bypassing switching between voltage modes.

10. The amplifier of claim 1 wherein the output devices produce shared output current.

11. The amplifier of claim 1 wherein the output devices in a lower voltage mode include impedance means coupled in parallel to the output and wherein said impedance means acts as a load for each output device.

12. The amplifier of claim 1 wherein the driver and each output device comprises complementary pairs of solid state switching means coupled to a common output.

13. The amplifier of claim 1 wherein the driver and the output devices are Darlington connected.

14. The amplifier of claim 13 wherein the Darlington connected devices have a common base terminal coupled to an emitter of the driver.

15. An amplifier switchably operative in a plurality of voltage modes depending on the level of the input signal comprising:

a saturable driver for each level, and at least one saturable output device operative at a selected voltage level and being coupled to the driver for the corresponding voltage mode, the at least one output device of each level being coupled in series to an output device of the next lower voltage level; switching diode means being coupled between the series connected outputs; and

means for preventing saturation of the driver and output device in each level.

16. The amplifier of claim 15 wherein the means for preventing saturation in each level comprises paired diode means coupled to each level and a common terminal of said diode means coupled to the input.

17. The amplifier of claim 16 wherein the diode means comprises at least a plurality of diodes for providing multiple voltage drops in a lower voltage mode with respect to a higher voltage mode.

18. An amplifier switchably operative in a plurality of voltage modes depending on the level of the input signal comprising:

a driver for each level, at least one output device operative at a selected voltage level relative to the input signal and being coupled to the driver for the corresponding mode, the at least one output device of each level being coupled in series to an output device of the next lower voltage level;

switching diode means being coupled between the series connected outputs; and

regulator means for causing the driver and output devices of each next higher voltage mode to turn on prior to the input signal achieving the selected voltage level.

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