



DIODE PRACTICAL **APPLICATIONS** DR. BASSAM ATIEH

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Series Diode Clippers

The diode in a series clipper "clips" any voltage that does not forward bias it:

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•A reverse-biasing polarity

forward-biasing polarity •**A** than 0.7 V (for a silicon diode)



Biased Clippers

Adding a DC source in series with the clipping diode changes the effective forward bias of the diode.



Parallel Clippers

The diode in a parallel clipper circuit "clips" any voltage that forward bias it.

DC biasing can be added in series with the diode to change the clipping level.



Summary of Series Clippers Circuits







Summary of Parallel Clippers Circuits









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Voltage multiplier circuits use a combination of diodes and capacitors to step up the output voltage of rectifier circuits.

Voltage Doubler

- **Voltage Tripler**
- **Voltage Quadrupler**

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This half-wave voltage doubler's output can be calculated by:

$$\mathbf{V}_{out} = \mathbf{V}_{C2} = 2\mathbf{V}_{m}$$

where \mathbf{V}_{m} = peak secondary voltage of the transformer

Voltage Doubler





Voltage Tripler and Quadrupler





























Biased Clamper Circuits

The input signal can be any type of waveform such as sine, square, and triangle waves.

The DC source lets you adjust the DC camping level.



جًامعة لمُـنارة 20 V

–20 V

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