

Peak Inverse Voltage

Q: *I'm so confused! The bridge rectifier and the full-wave rectifier **both** provide full-wave rectification. Yet, the bridge rectifier use **4** junction diodes, whereas the full-wave rectifier only uses **2**. Why would we **ever** want to use the bridge rectifier?*



A: First, a slight confession—the results we derived for the bridge and full-wave rectifiers are not precisely correct!

Recall that we used the junction diode **CVD model** to determine the transfer function of each rectifier circuit. The problem is that the CVD model does **not** predict **junction diode breakdown**!

If the **source** voltage v_s becomes too **large**, the junction diodes can in fact **breakdown**—but the transfer functions we derived do **not** reflect this fact!

Q: *You mean that we must **rework** our analysis and find **new** transfer functions!?*

