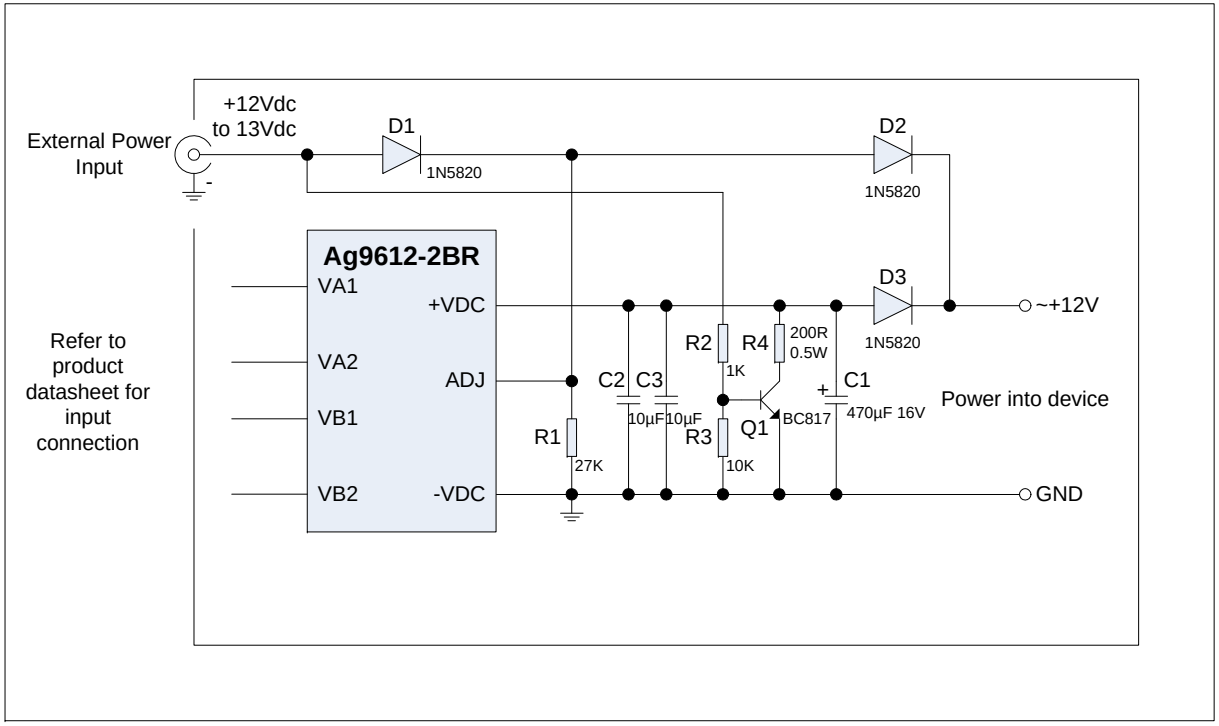
# Gating an Ag9612 Output with an External Power Supply

With only the Ethernet Data & Power Input connected, the ADJ input of the Ag9612 is connected to GND via R1. This will increase the nominal output voltage at +VDC ~ 12.5V.

D3 is a 1N5820 Schottky diode with a forward voltage drop of ~ 0.5V, therefore the voltage supplied to the device will be ~ +12.0V.

If an external +12Vdc to 13Vdc supply is also connected, D1 will take the ADJ input high, reducing the output voltage at +VDC to nominal ~ +9.8V). At the same time D2 will start to conduct maintaining the supply to the device at ~ +12.0V. The external supply will also turn Q1 ON via R2, this will connect the load resistor R4 across the Ag9612 output to ensure the part drive its minimum load.

If the external supply is removed the ADJ input will go low again, +VDC will return to ~ +12.5V and the Ag9612 will resume supplying power to the device via D3. Q1 will turn OFF and the load resistor R4 will be removed.