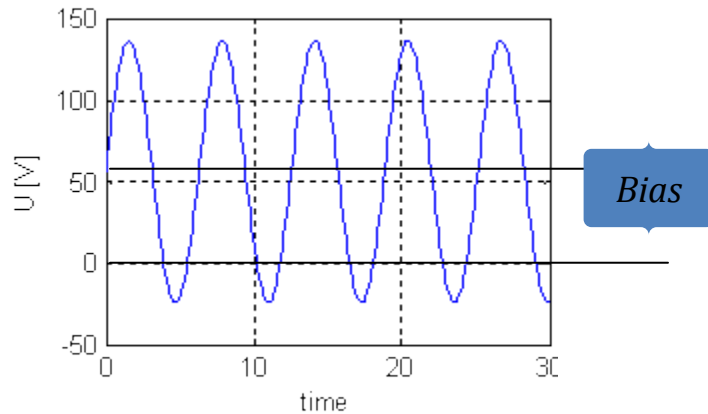


Bias T

If you are in the US at the moment, you have heard a lot about bias on TV. Apparently all the major networks are shoring up Obama, while the Republicans have only that steadfast stalwart of balanced media coverage, Rupert Murdoch, to provide us with the journalistic integrity that we have come to expect from Fox News and his other outlets. But fear not, we are not here to talk about bias on TV, but rather “Bias Ts.”

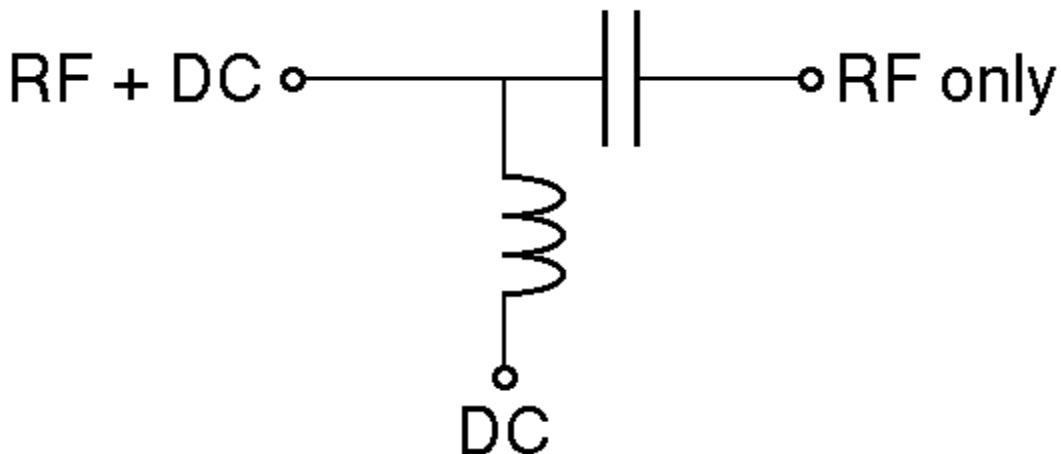
A “Bias T” is a simple device that allows us to put a DC component onto an RF signal. Some applications require this. When driving a piezoelectric crystal, it is sometimes preferable to have a constant DC component in addition to the RF signal. A DC bias can increase the piezoelectric effect in some crystals. We may want to apply a positive or negative DC bias.

In the diagram below a positive bias is applied to the signal, so that the RF is centered on a 55 V point as opposed to 0 Volts.



Since most RF amplifiers are AC coupled, they will strip any DC component off the signal applied. Therefore, this needs to be added to the amplified signal to be applied to the load (crystal).

Below is a simple schematic of the circuit that allows us to accomplish this.



The output of the amplifier will be connected to the port designated **RF only** and the DC voltage is applied to the port designated **DC**. The capacitor will allow the RF to pass through with little loss while preventing the DC from feeding back to the amplifier. The inductor allows the DC to pass without loss while providing high impedance to the RF. Basically, this allows us to combine the two signals and apply both the RF signal and DC bias to our load.

The value of the capacitor and inductor are chosen depending upon the operating frequency. If you have an application and would like us to provide you with the appropriate values so you can build one – let us know. Or, if you would be interested in purchasing a Bias T, please contact our Sales Department, at 585-214-0598 x 1, or at info@eandiltd.com and we will be happy to provide you with a quotation.

Have to go now; someone is trying to hack into my mobile phone.

Tony Harris, President