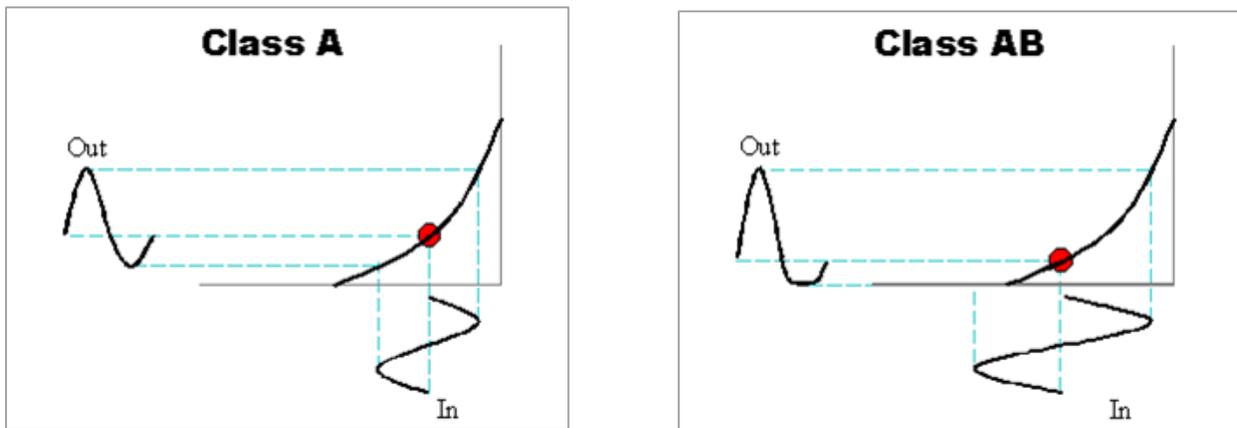


Class A vs. Class AB

The difference between a Class A and a Class AB amplifier is simply the point at which the transistors are biased. In the case of Class A, the transistor is biased so that over the entire cycle of the RF input, the transistor is operating within its linear portion. In the case of Class AB, part of the cycle of the input is actually turning the transistor off.

This means that in the case of a Class A amplifier, the output is a faithful reproduction of the input signal whereas, in the case of Class AB some distortion is inevitable.

Refer to the diagrams below;



What does this mean and what do I need to consider when deciding which type of amplifier I need?

You should always choose a Class AB amplifier if possible, as it will be lower cost and more efficient. But whether you can do this will depend upon your specific application. If you are simply trying to deliver power to your application such as heating or agitating, then class AB will normally be sufficient.

However, if the fidelity of the signal that you are transmitting is important to you and you require information from this signal, then it is probable that you will require a Class A amplifier.

E&I rates all their amplifiers at their 1 dB compression point. (For the definition of 1 dB compression see: [1dB Compression](#)) This is the point where the power gain is 1 dB below that of the linear range. The specification that we use to define the distortion is the harmonic content. The level of harmonic content is specified as dBc. This is the level of the harmonic signal below the fundamental, measured in dB. (For a definition of dB see [decibel](#)) The harmonic content of our amplifiers is typically specified at the rated power and for -25 dBc. Our amplifiers always have a push-pull configuration which results in the 2nd harmonic being lower than the third. So whereas, the 2nd harmonic will be in the region of -40 dBc, it is possible that

at some frequencies the 3rd could be as high as -25 dBc. We do not specify the harmonic content on our Class AB amplifiers. However, for a comparison point, the worst case 3rd harmonic for our Class AB amplifier could typically be -14 to -15 dBc.

If you have any questions or would like a more in depth explanation pertinent to your specific application, please contact us at info@eandiltd.com