# PICONICS

BROADBAND CONICAL INDUCTORS

The Piconics broadband conical inductor is ideal for applications ranging from test instrumentation to microwave circuit design. The broadband inductor makes an excellent bias tee for use in communications platforms and RF test set-ups. The unique broadband response of the coil is attributed to its precision winding, selective gold plating and powdered iron filling.
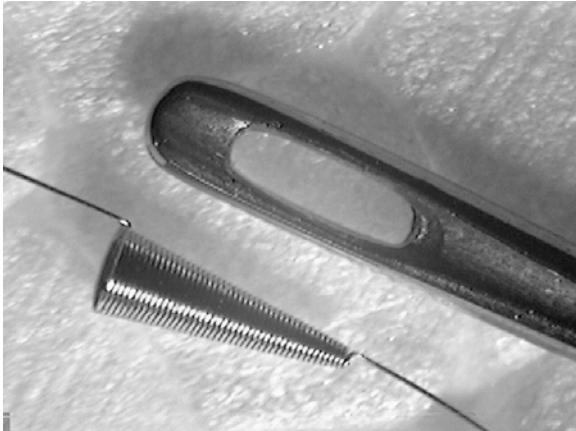
CONICAL INDUCTOR OPERATION

Conical geometry is known to broaden the bandwidth of a coil. The conical shape allows relatively low stray capacitance from the high frequency end of the coil to degrade performance. Stray capacitance is a serious problem with high frequency chokes, as it reduces the self resonant frequency. There are basically two areas where stray capacitance is found. One is between the individual turns of an inductor, and the other is between the entire device and a ground plane. The series self resonances are the most undesirable, for they appear as a short circuit across the device. Conical coil devices use very fine wire and have low stray capacitance to a ground plane because of their small physical size.

BIAS TEE APPLICATIONS

Bias Tees are passive components whose function is to combine a dc bias voltage to a high frequency AC signal. The Piconics Broadband Conical inductor features a bandwidth extending and including 10 MHz to 40 GHz with no resonance and flat across the full band. This allows the full band to be utilized in signal transmission. Applications include 40 GB data transmission systems and RF and Microwave AA radio platforms.

FIBER OPTIC TRANSMITTER/RECEIVER CIRCUITS

With the increased demand for fiber optic transmission lines, active device with extremely broad bandwidths are in greatest demand. The power supply must be isolated from the active fiber optic device in order to drive it without damage. The broadband conical inductor solves this isolation problem over the full band by means of a single device. This single conical inductor will replace multiples of narrow band inductors in series