



... and there are small components.

value in the form of a simple ".1", or 100n etc, normally on a blue or beige body, which may be almost square, or sometimes in the form of a bead like package. Working voltage is commonly 100V, with tolerances of ± 10 or 20%. The temperature coefficient can be very high.

Other types

Ceramics aren't always suitable for RF or even audio uses and some can be affected in their value by appreciable AC voltages flowing through them so other types are often needed. The ones you are most likely to meet are Mylar, Mica, Polystyrene, Polyester and Electrolytic/Tantalum types. Paper versions are rather out of vogue now, but are often found in older surplus equipment. Polyester types have now superseded them.

Mylar

These are quite useful in the 1000pF + range for audio and some RF applications as they are more stable than ceramic types. Generally found in green, red or yellow rectangular resin encapsulations with radial leads, their markings are similar

to the higher value ceramic types (i.e. 102 and 223 for 1n and 22n). Tolerances are normally $\pm 10\%$, but 5 and 2% values are also obtainable.

Mica

Usually found in the form of "Silvered Mica" capacitors from 2p2 to 10,000pF. They are popular for RF tuned circuits due to their stability and reasonably predictable temperature coefficient (positive at around +50ppm). Tolerances can be as low as $\pm 1\%$, or $\pm 0.5\text{pF}$ for low values, another reason for selection. They are usually in a red or beige, square or rectangular encapsulation and clearly marked with their value and tolerance. Working voltage is normally several hundred volts.

Polystyrene

Found in a tubular package with axial leads, you can see the internal construction through the clear outside, of a roll of metal film with a dielectric between. The point that often confuses people is the red marking at one end of the package. It is NOT a polarity marking, but simply indicates which lead is attached to the

outside of the foil winding. Tolerances are available down to $\pm 2.5\%$, and they are a popular choice for tuned circuits with good stability and low slightly positive temperature coefficient.

Capacity markings are usually quite clear in the form of the actual capacity, i.e. 220pF for low values or 1n5 or 1500pF for higher values, 10pF is about the lowest value found, with .01uF at the top end. If you need a fairly accurate .01uF capacitor this is about the only way to do it!

Polyester

The most common type is the Mullard "Lozenge" type, with striped colour coding. These are in fact metallised polyester, where the basic substrate has had a very thin layer of metal film deposited on it. This gives a much higher capacitance in a smaller case. Values of .01-2.2uF are common, with a tolerance of ± 10 or $\pm 20\%$.

Best used at audio frequencies for coupling and decoupling, they are not able to carry much AC current due to the very thin metallising film. They do have the ability to "self-heal" an internal short circuit, as the thin film is