

DCR

DC RESISTANCE:

Any commercial Ohm meter or VOM can be used, but the following comments should be kept in mind when testing DCR:

Be aware of length of test leads. These often contribute to higher resistance measurements.

It is imperative to short the leads before testing to determine reference number. If possible "zero out" meter. If this is not possible, any value above zero must be subtracted from the actual measurement.

IMPEDANCE

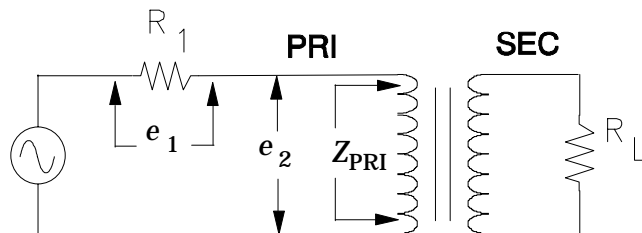
IMPEDANCE:

Although normally measured on an Impedance Analyzer at Rhombus, this valuable lab instrument is not always available to engineers. The best available method is outlined below.

The impedance of a transformer can be found by using Ohms Law after measuring the voltage and current on the primary winding. Due to the fact that measuring current is not as easy as measuring voltage, the "Voltmeter Method" is used.

The voltage of the primary is measured, and the voltage across a resistor is measured. The resistor should be a non inductive type and of low resistance. (Less than 10 Ω). The values for resistance and voltage are then substituted into the algebraic equivalent of Ohms Law below.

$$Z_{\text{pri}} = e_2 R_1 / e_1$$



Z_{PRI} = the impedance seen at the transformer's primary

e_1 = the voltage across the shunt resistor R_1

e_2 = the voltage at the transformer's primary winding

R_1 = the shunt resistor whose value is typically much lower than Z_{PRI}