RF Current Probe

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First version of probe using Irwin clamp # 59100CD (1.5 in.) Ferrite holders made from plexiglass Output level is 1 V / Amp in a 50 Ω load.







Probe Schematic

(Snap On) Free Hanging Ferrite Core ID 0.610" Dia (15.49mm) OD 1.360" W x 0.591" H (34.54mm x 15.01mm) Length 0.835" (21.21mm) #43 material Fair-Rite: 0443806406 DK: 1934-1209-ND

1:20 Turns



FREQUENCY RESPONSE S21 mode



Red = Simulated, Green & Blue = Measured

Green and Blue curves are measured data with wire at approximate center of ferrite. Obtained by reversing the probe.

Output polarity is in-phase when the current enters on the coil high side (as in page 1) = blue curve.



Phase reversal is obtained by reversing the probe.

Output polarity is in-phase when the current enters on the coil high side (as in page 1) = blue curve.



Red = Calculated <u>transfer impedance</u> in output Volts per Amps Shows 1 VAC / Amp Insertion Impedance caused by adding probe on a conductor. Calculated (Green), Measured (Brown)



The probe output impedance comes from the 43 $\Omega\,$ resistor across the coil.



The inductance disappears above 30 MHz and a resonance occurs at 35 MHz. Comes from the ferrite material # 43

Ferrite Holders



Vue du dessus

Vue de côté



QTY required: 2x / probe

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NOTES: Dimensions in mil. Material: PLA Not to scale

Simulations should help !



