Abstracts

Internal impedance of conductors of rectangular cross section

G. Antonini, A. Orlandi and C.R. Paul. "Internal impedance of conductors of rectangular cross section." 1999 Transactions on Microwave Theory and Techniques 47.7 (Jul. 1999, Part I [T-MTT]): 979-985.

It is shown that the resistance and internal inductive reactance of a conductor of rectangular cross section are not equal when skin effect is well developed, i.e., when the cross-sectional dimensions are much larger than a skin depth, unlike the case of a conductor of circular cylindrical cross section. Hence, the high-frequency internal inductance cannot be determined from the resistance and must be computed separately. Also, the widely used time-domain representation of the internal impedance B/spl radic/s is not valid. Numerical results are given for conductors of various cross-sectional aspect ratios and dimensions.

❑ Return to main document.