Abstracts

The Thermal Dielectric Quotient for Characterizing Dielectric Heat Conductors (Short Papers)

H.A. Wheeler and R.A. Lodwig. "The Thermal Dielectric Quotient for Characterizing Dielectric Heat Conductors (Short Papers)." 1981 Transactions on Microwave Theory and Techniques 29.11 (Nov. 1981 [T-MTT]): 1231-1233.

If a piece of dielectric is mounted between two conductors, the resulting thermal conductance and electrical capacitance are related by their quotient which is a property of the material, independent of the size and shape. This quotient is expressed in watts per (picofarad X kelvin). It is helpful in the selection of a material for conducting heat while adding least capacitance. For example, a beryllia ceramic block of 1 pF can conduct about 4 W/K. The highest is a diamond of unusual perfection, about 40 W/K. A table and a nomogram give these properties for a variety of materials.

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