

Rogers unveils high-thermal-conductivity laminate for high-power, high frequency circuit applications

Medical Design Technology

The fluoropolymer composite material is ideal for RF and microwave applications in military and high-reliability (hi-rel) applications required to handle high power levels, such as power amplifiers.

Rogers RT/duroid 6035HTC laminates feature a relative dielectric constant of 3.5 at 10 GHz, making them suitable for a wide range of circuits, including amplifiers, couplers, filters, and power combiners/dividers employed in avionics and other military and hi-rel systems. The laminates incorporate a unique filler material to achieve superior heat-transfer characteristics compared to other high frequency circuit materials with similar dielectric constant.

RT/duroid 6035HTC laminates exhibit outstanding thermal conductivity of 1.44 W/mK as well as low loss, with a loss tangent of 0.0013 at 10 GHz, for excellent high frequency performance. This combination of high thermal conductivity and low dielectric loss translates into improved amplifier performance.

The high thermal conductivity and low loss of RT/duroid 6035HTC result in excellent heat transfer away from high-power devices, such as transistors, for improved circuit and device reliability. RT/duroid 6035HTC laminates are fabricated with thermally stable, reverse-treated and electrodeposited copper foils. These low-profile copper foils help minimize conductor losses in high frequency circuits, with the thermal stability needed for high reliability in high-temperature applications, even at the power levels found in many military electronic-warfare (EW) and commercial communications systems.

As an added benefit, RT/duroid 6035HTC laminates are formulated for ease of processing compared to other high-thermal-conductivity circuit materials employing alumina fillers. The special filler material in RT/duroid 6035HTC supports clean drill holes with minimal tool wear compared to alumina, for noticeably longer drill-bit lifetimes and higher drill-hole repeatability in volume production applications. The RT/duroid 6035HTC laminates are available in a variety of dielectric thicknesses and cladding options to support a wide range of high frequency circuit applications.

About Rogers Corporation

Rogers Corporation is a global technology leader in specialty materials and components that enable high performance and reliability of consumer electronics, power electronics, mass transit, sustainable energy, and telecommunications infrastructure. With more than 175 years of materials science and process engineering knowledge, Rogers provides product designers with solutions to their most demanding challenges. Rogers' products include advanced circuit materials

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Published on Electronic Component News (<http://www.ecnmag.com>)

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