



***TacPreg® TP-32 combines with Taconic's TLC-32
for use in multi-layer application***

A patented stripline transient protection device has been successfully implemented using a multiple layer construction of TLC core laminates bonded by TacPreg® TP-32 to set the distance between layers and define the coupling layers dielectric constant value. Taconic materials helped simplify the construction of the device by allowing TacPreg® TP-32 prepreg to set electrical and mechanical properties usually defined by a thin core laminate material and by eliminating the use of bond film adhesives. The use of matched dielectric constant prepregs and laminate cores with similar loss tangent values has created an RF device where electrical performance is based on the characteristics of both materials. Taconic prepregs and laminates make for a predictable high performance, low loss material set.

Simplified circuit element description: duplex function, high frequency path from TLC-32 layer, coupled through TacPreg® TP-32; output through TLC-32 layer. The low frequency path is contained on the TLC input laminate.

The properties of TLC-32 and TacPreg® TP-32 show excellent electrical results and have proven to be very robust mechanically. Development of the device has provided confirming positive results between electrical simulations, data from AWR software, and the measured performance from the first product fabrication. Comparison of measured vs. simulated electrical data shows the usefulness of designing with a single monolithic dielectric value and similar layer loss tangents. The initial product measured an Insertion Loss of less than 0.25 dB, port return loss greater than 20 dB, and frequency characteristics matching electrical simulations with no skew or shift.

TacPreg® TP-32 set the distance between core layers and developed strong lamination bonds. The prepreg layer thickness was determined by using test coupons prior to final electrical design. Overall the Taconic material stack handled edge routing, plate up, Hot Air Solder Leveling, dice, and SMT reflow. Other devices that are suitable for TacPreg® TP-32 include: package construction, bias networks, couplers, baluns, and shielded transmission line topologies.

This lightning surge protector is a typical application, where the benefits from TacPreg® TP-32 are combined with a suitable Taconic base material.

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