

44N MULTIFILM

HIGH PERFORMANCE EPOXY PREPREG FOR FILLING CLEARANCE HOLES

Multifilm 44N is a high resin content multifunctional (180°C Tg) epoxy prepreg, with a proprietary microdisperse ceramic filler system, for use in filling clearance holes in thin metal (CIC) cores. These products have been developed to provide the user with a film (prepreg) type material to fill clearance holes that have been drilled through or etched into the metal for through hole interconnects. Based on the same resin system as our 45N multifunctional epoxy, these prepregs offer complete compatibility in terms of materials and processes resulting in products with low Z-axis expansion, high heat resistance, void free insulation and absence of resin recession.

Multifilm products have been formulated to improve thermal conductivity and crack resistance and to minimize resin shrinkage back into the holes. It can be used with standard prepreg and laminate, making possible one lamination step to fill the metal core and bond laminate layers together. The prepreg style is:

106(44N0680),RC=80%±5%,RF=50%±5%,GEL=90-110 sec,Ply
yield=0.0015"

Applications are MLB's which have distributed layers of thin (6 mil) CIC. A starting suggestion would be to use one or two plies of filled 106 (44N) prepreg against the metal backed up with one or more plies (depending on dielectric thickness requirements) of standard prepreg to build thickness.

Process recommendations:

We suggest the use of vacuum or vacuum assist lamination. Utilize a low pressure 'kiss' cycle up to the melt point of the resin (around 170°F/76°C to 190°F/88°C [depending upon heat up rate]) followed by full pressure (200 psi minimum) through the remainder of the cycle. Pressure, temperature and time may vary depending on the available equipment, panel size and complexity and other factors. Controlling the heatup rate, of the multilayer package, to 8-12°F/4-7°C per minute between 150°F and 250°F/65-120°C is recommended.

A 90 minute cure at a temperature of 360°F/182°C should achieve a Tg of 180°C. When the lamination package contains layers of metal core the cure time may need to be extended to offset the heat lagging effects of the metal.

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