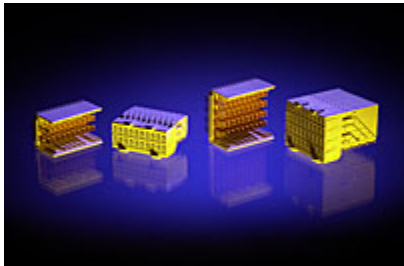


What do signal Fidelity and Backplane connectors have in common?



Give up . . . ? *Titan* liquid crystal polymer (LCP) resin. Recently introduced by Eastman Chemical Company, it became the material of choice in a new *Z-PACK* high-speed connector product line for electronics giant Tyco Electronics.

Titan LCP resin is designed to meet the rigorous technological specifications and processing requirements of the computer and telecommunications industries. The resin played a key role in a 12-month effort to develop a high-

speed, differential board to backplane electrical connectors capable of multigigabit transmission speed.

Board materials are increasingly more important in reducing dielectric loss and improving signal performance. At 3-5 gigabits per second (GbPS), maintaining signal fidelity was a critical design challenge. *Titan* LCP resin excelled by delivering good dielectric performance when subjected to higher frequencies. According to Andy Homick, Tyco manufacturing development mold engineer, "In addition to good dielectric performance, our customer required that the connector color match existing components. Eastman worked closely with us to not only meet performance requirements but also match the customer's color specification."

Heat resistance was another important consideration in the board design, especially given the high-frequency transmission speeds and the fine pitch (0.3-0.5 mm). *Titan* LCP resin has a higher heat distortion temperature (HDT) in comparison to other LCPs. High HDT also represents a significant advantage in allowing the backplane to be surface mounted.

The extremely thin-walled part (0.36 mm) and intricate geometry were other design challenges met by Eastman's LCP. "The material exhibited exceptional flow while maintaining dimensional stability," remarked Paul Flynn, Eastman business market manager. "Eastman has invested considerably in the development of polymer technology to meet the increasing demands for miniaturization among electronic components. *Titan* LCP resin is the byproduct of our research and extensive experience in developing polymers for thin-walled applications."

Today's race for ever-increasing bandwidth underscores the importance of innovative electronics design and high-performance materials. Close collaboration among supply chain partners is essential for adapting to dynamic markets. "Eastman is poised to offer the high level of service required to meet the needs of the electronic component market," said Flynn. "Our structure puts us closer to our customers giving us the agility to respond to their needs."

Tyco Electronics is one of the major business units of Tyco International Ltd. (NYSE:TYC, LSE:TYI, BSE:TYC). Headquartered in Harrisburg, Pennsylvania, U.S.A., Tyco Electronics is the world's largest passive electronic components manufacturer, and a world leader in cutting-edge wireless technologies, fiber optic active components, and complete power systems. The company has facilities in 51 countries serving customers in the aerospace, automotive, computer, communications, consumer electronics, industrial and power industries. Tyco Electronics provides advanced technology products from more than thirty well-known and respected product brands, including Agastat, Alcoswitch, AMP, AMP NETCONNECT, Buchanan, CoEv, Critchley, Elcon, Elo TouchSystems, HTS, M/A-COM, Madison Cable, OEG, Potter & Brumfield, Raychem, Schrack, Simel and TDI Batteries.

Eastman Chemical Company, headquartered in Kingsport, Tennessee, U.S.A., manufactures and markets plastics, chemicals and fibers worldwide with 2000 sales of US\$5.3 billion. The quality systems of all Eastman's plastics are registered under ISO 9000 except at plants in operation less than one year.