

Case Study

Pocan[®] B 4225 for Printed-Circuit Connectors



Figure 1 Printed-circuit connectors in Pocan[®] B 4225

Printed circuit boards (PCBs) are used to hold electronic components, such as ICs, coils and capacitors, and to make electrical connections between them. The advantage of printed-circuit technology is that it allows users to dispense with conventional conductors, since the connection is established via conducting tracks. These tracks, which comprise layers of copper, are located on electrical insulating materials made up of glass fiber mats impregnated with epoxy resin (FR4 laminate). The FR4 laminate has a high tracking resistance and a low water absorption. Since the 1980s, the components have been directly soldered onto the printed circuits (SMD, Surface Mounted Devices). SMD technology makes it possible to increase the packing density while simultaneously miniaturizing the board and the appliance. Multi-layer printed circuit boards with as many as 48 layers were then developed in order to increase the packing density still further (especially for applications inside computers). It is also possible to use double-sided circuit boards.

The product range of Weidmüller, one of the leading manufacturers of components for electrical connection technology, includes terminal blocks, pluggable

and printed circuit boards and industrial Ethernet components. The constant miniaturization of printed circuit boards calls for innovative solutions when it comes to connection technology. Functionality, quality, precision and safety are essential requirements of the connectors employed. A wide range of new products is now available to fit a reference grid of 3.5 mm. They are suitable for voltages of up to 125 volts and rated currents of up to 12 amps, and have a connector cross-section of 1.5 mm². They can withstand long-term service temperatures of up to 100 °C.

The materials used in these applications have to fulfill stringent requirements. These include thermal requirements, such as flame-retardant properties, as well as tracking resistance, water absorption, high dimensional accuracy and stability and good rheological properties. These requirements are met by the flame retardant polyester Pocan B 4225, a 20 % glass fiber filled PBT from Lanxess Deutschland GmbH which Weidmüller uses to make printed circuit connectors.

Pocan B 4225 is a V-0 product with a glow wire ignition temperature (GWIT) of 700 °C, and a GWFI of 960 °C. Its RTI value, which constitutes a measure of its long-term service temperature, is ≥ 130 °C. With a CTI value of 3, an HWI value of 3 and an HAI value of 2, Pocan B 4225 meets the specifications for insulating materials laid down in UL 508. The ALL COLORS listing allows connectors to be produced in a wide range of colors.

Pocan® is a registered trade name of Lanxess Deutschland GmbH

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Unless specified to the contrary, the values given have been established on standardized test specimens at room temperature. The figures should be regarded as guide values only and not as binding minimum values. Kindly note that, under certain conditions, the properties can be affected to a considerable extent by the design of the mold/die, the processing conditions and the coloring.

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