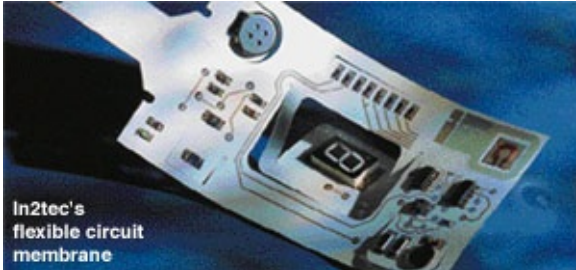




IN2TEC FLEXIBLE CIRCUIT TECHNOLOGY



In2tec has been producing flexible thick film Polyester circuits for over 15 years. In the Industry in the last 5 years there has been a pronounced drive to provide products that can replicate hard substrate pcb's whilst providing a design that will support complex curves. In2tec has been at the forefront of this technology and has the capability to produce polyester based substrates with surface mount and through hole components.

FLEXIBLE CIRCUIT ADVANTAGES

COST: Polyester substrate provides a significant material cost saving versus conventional FR4 copper board or flexible Kapton technology.

ENVIRONMENTAL: Conductive adhesive technology provides a lead free manufacturing process, with copper free conductors, providing a more environmentally acceptable alternative

INTERCONNECTION: Flexible circuit technology can reduce the necessity for additional flying leads, thereby reducing board to board connection requirements by 50%.

FLEXIBILITY: Flexible circuits have an inherent free flow curve following capability, minimising front surface design constraints.

FLAT PANEL INTEGRATION: With their extremely low profile and flexibility, polyester circuits provide lower manufacturing costs for total Front panel assembly, by providing all the components on one circuit without the need for holes, soldering and mounting.

WEIGHT SAVING: As with the cost, the material content provides a significant weight reduction versus copper based conductors and can reduce the need for additional mounting boards.



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FLEXIBLE CIRCUIT RESTRICTIONS

1. Complex multi-layer boards with complex 'via' (through board) requirements can be difficult to achieve utilising flexible polyester technology (and copper clad polyamide based solutions).

The advantage of polyester based solutions is that the circuit layout is a print based process, and therefore layering of up to 7 or 8 circuit layers with crossovers can be achieved on one substrate layer. This capability provides a design means to simulate through hole connections and multi-surfacing.

2. Small pitch components of less than 0.6mm are currently difficult to achieve due to the restrictions of the screen-print process. We have extensive experience in the utilisation of 0603, 0402 and many other smd connectors on flexible substrates.

3. Through board connection technology is available, but can be limited in densely populated layouts.

4. Through hole component incorporation is limited, and the design should be optimised for surface mount components.

Electrical Power Resistance

Silver printed track per track Max 0.5 Watts 0.2 Ohm/cm Typical non arcing

Resistance per joint.3 Ohm/cm Typical

Circuit Voltage 100 Volts Dependent on design

Typical rating per switch 1 to 10mA

Standard Maximum 100mA

Switch Capacitance 10pF Typical

Material Dielectric Strength

Polyester 125kV/mm

Polycarbonate 67kV/mm

Volume Resistivity

Polyester 10GOhm.cm

Polycarbonate 100 MOhm.cm

Environment

Operating temperature -30 to 60°C

In local non-flexing areas 120°C subject to design

IP rating 54 to 67 Dependent on design

Mechanical

Typically .3 to .5mm + component height

Note: The above data is approximate and for information only