



**Thin Film Technology Corp.**

# Introduction to Surface Mount Jumpers

# Surface Mount Jumpers

Surface mount jumpers are versatile components used in electronic circuit boards for various purposes, including bypassing traces, component customization, signal routing, and configuration options. This module will provide an in-depth technical overview of how surface mount jumpers are used in different applications.

# Jumpers, Not Resistors

- The term "zero-ohm resistor" is often used colloquially to refer to surface mount jumpers. This generalization stems more from appearance than actual function as surface mount jumpers are small, rectangular components that resemble surface mount resistors. This can lead to confusion, as surface mount jumpers do not actually function as resistors and do not provide any resistance in the circuit.
- While surface-mount jumpers and resistors are both integral components in electronic circuitry, they serve distinct purposes and exhibit fundamental differences in their construction and functionality.
  - Resistors are used to **impede** or **control** the flow of current by introducing resistance into the circuit.
  - Surface-mount jumpers are used to **establish** electrical connections and **facilitate** the flow of current between points.
- Surface mount jumpers are a very versatile component. They have many uses including bypassing traces, customizing board configurations, and routing signals.

# Bypassing Traces

Surface mount jumpers are used to bypass traces on a circuit board by creating a new electrical connection between two points. This is typically done when a trace is damaged or needs to be rerouted due to a design change or error.

## Process:

- Identify the damaged or incorrectly routed trace on the circuit board.
- Determine the start and end points for the new connection that the jumper will create.
- Select a suitable surface mount jumper, ensuring it is the correct size and shape for the application.
- Position the jumper over the two points where the new connection is needed.
- Solder the jumper to the circuit board, ensuring a secure and reliable connection.

# Customizing Board Configurations

Surface mount jumpers are used for component customization on circuit boards to enable different configurations or options without the need for redesigning the entire board. This is achieved by creating or modifying connections between components or traces.

## Process:

- Identify the customization requirements, such as changing component values or selecting between different circuit configurations.
- Determine the specific connections that need to be modified or created to achieve the desired customization.
- Select appropriate surface mount jumpers that match the required specifications, such as size, shape, and electrical characteristics.
- Position the jumpers on the circuit board to create or modify the necessary connections.
- Solder the jumpers to the circuit board to establish the new connections.

# Signal Routing

Surface mount jumpers are also used for signal routing on circuit boards to establish new paths for electrical signals between different points. This is typically done to bypass certain components or traces or to reroute signals to different locations on the board.

## Process:

- Identify the signal path that needs to be established or modified.
- Determine the start and end points for the new signal path.
- Select appropriate surface mount jumpers that match the required specifications for the signal, such as impedance and current-carrying capacity.
- Position the jumpers on the circuit board to create the new signal path.
- Solder the jumpers to the circuit board to establish the new signal connections.



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Surface mount jumpers are essential components in electronic circuit design, providing flexibility and versatility in circuit board customization and troubleshooting. Understanding their true role and their applications can greatly enhance the design and functionality of electronic devices.