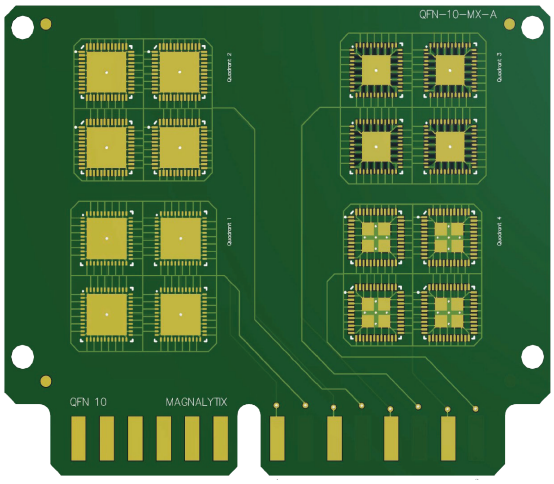
MAGNALYTIX®

MGX QFN 10 SIR Test Board

Practical Uses

The Magnalytix MGX QFN 10 SIR test board is designed to evaluate printed circuit board design features to improve outgassing under bottom terminated components. Bottom terminated components have notoriously low standoff gaps. The sizeable thermal lug and high number of signal pins generate a significant volume of flux residue. When outgassing channels are blocked, flux residue accumulates under the component terminations. Flux activator and functional additives designed to decompose are still present in the remaining flux residue. This wet and pliable flux residue is highly susceptible to leakage currents and dendritic growth propagation.



Primary Uses

- No-Clean design
  - Solder Paste Characterization
  - Printed Circuit board design options to improve flux outgassing
  - Electrochemical stability of the flux residue in harsh environments

Secondary Uses

- Cleaning process
  - Cleaning agents
  - Cleaning tools
  - Partially cleaned flux residues

Test Card Comparison

	MGX QFN 10 SIR Test Board	IPC B-52 SIR Test Board
Quadrant 1	QFN 48 - 0.5 mm Pitch - Signal Pins Solder Mask Defined	Not Included
Quadrant 2	QFN 48 - 0.5 mm Pitch - Signal Pins Non Solder Mask Defined	Not Included
Quadrant 3	QFN 48 - 0.5 mm Pitch - Signal Pins and Streets No Solder Mask	Not Included
Quadrant 4	QFN 48 - 0.5 mm Pitch - Signal Pins Solder Mask Defined	Not Included

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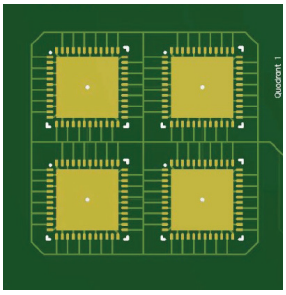
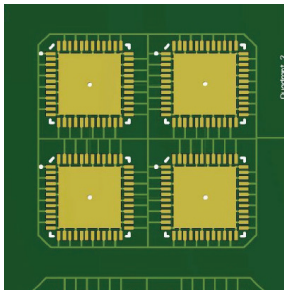
SIR Test Parameters



QUADRANT 1

EDGE PIN 1 =
EVEN PADS + GND LUG

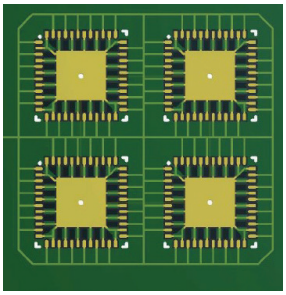
EDGE PIN 2 =
ODD PADS



QUADRANT 2

EDGE PIN 3 =
EVEN PADS + GND LUG

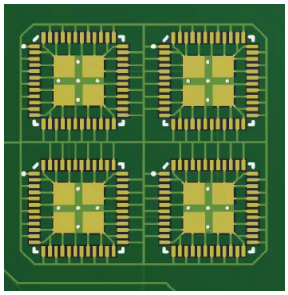
EDGE PIN 4 =
ODD PADS



QUADRANT 3

EDGE PIN 5 =
EVEN PADS + GND LUG

EDGE PIN 6 =
ODD PADS



QUADRANT 4

EDGE PIN 7 =
EVEN PADS + GND LUG

EDGE PIN 8 =
ODD PADS

Component Descriptions

The QFN 10 SIR test board finds use in Materials Characterization and Process Control.

- **QFN48** is one of the more challenging components to clean. With a standoff gap lower than 50µms, flux residues bridge the lands and thermal lug. The residues tend to be active due to poor outgassing channels. The board is a good study for companies that build with No-Clean solder materials and do not clean.
- Printed Circuit Board design options to study Solder Mask Definition, Encroached Vias, and Solder Mask Windows allows the OEM to study the activity of process residues.

- This board can be used to validate bare board fabrication processes.
- This test board can be used for solder masks evaluations for IPC-SM-840.
- This test board can be used for solder mask compatibility studies.

MGX QFN 10 Test Set

Each Magnalytix Test Set includes the substrates and components to build complete assemblies needed for 1 standard testing cycle and provide the objective evidence needed to meet IPC J-STD-001G-Am1. This includes:

10 Each – MGX QF 10 PCB | Reel of 160 – MGX QFN48

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