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Burn-in & Test Strategies Workshop

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Burn-in & Test Strategies Workshop



Poster Session





The Next Generation of Scrub Contacting Technology

Bert Brost and Tony Tiengtum

Back to the Basics



Basics of Contactor Design

Keep it simple Solve the right problems Generate implementable solutions Create realistic models Leverage adaptive models

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Poster Session

Contacting Challenges and Solutions

Challenges

- · Provide an improved scrub at the lead/pad of the device
- Isolate scrub action from the test interface board pads
- · Increase real contact surface area for low contact resistance
- Create a high bandwidth 50 Ohm impedance interconnect
- · Error-poof contactor assembly and rebuild maintenance



Solution

- Ball in socket design
- Scrub along the circumference of a circle
 - · Rotation of the pin on a fixed axis for improved scrub
- · Isolate scrub action from test interface board pads
 - · Motion of pin control with a stationary mount
- Operate in the ≥ 60 GHz range
 - Short electrical path

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Poster Session

Contactor Basics for Simplicity



PHYSICAL PROPERTIES

Material	Homogeneous Metal Alloy
Signal Length	0.6636 mm
Contact Height at Rest	0.7188 mm
Pad Scrub	250 μm
Contact Force	75 grams
Contact Pin Life	700,000 Insertions
Cleaning Cycles	30,000 Insertions

ELECTRICAL PROPERTIES

Inductance	0.18 nH
Current	3 Amps
Resistance	< 0.03 Ohms
Impedance	45 Ohms (25 ps rise time)
Return Loss	32 GHz @ -10 dB
Insertion Loss	40 GHz @ -1 dB

Customer Measured Performance



Conclusion

- Provides a good surface scrub and self cleaning
- · Decoupled motion from test interface board pad
- Maintains pointing accuracy (allowable tolerance)
 - · Ensures repeatable self alignment
 - Repeats forces in the Z, X, and Y
- Decouples forces from load board pads
- Reduced solder stick (intermetalic migration) with a homogeneous alloy

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