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TM

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## Coaxial Contacting

Jim Brandes  
Xcerra / Multitest

### Technologies that Benefit from Coaxial:

- Data Center
- Increasing Processing Speed
- Internet of Things



### Package Characteristics:

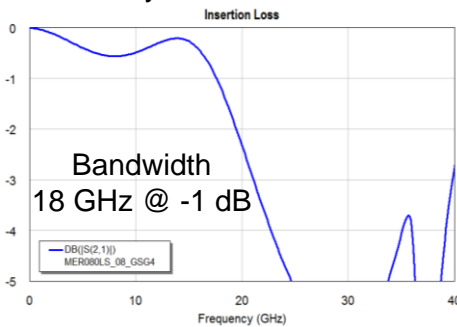
- Array Packages
- Highly Integrated Devices
- Densely Packed, Hi I/O count
- Poor Ground Configurations



### Contacting Requirements:

- High Bandwidth
  - >25 GHz to accommodate >50 Gbit/s
- Low Inductance & High Current
  - Clean power delivery at high frequencies
- High Isolation
  - Accommodate large quantities of closely spaced I/O
- High Compliance
  - Accommodate planarity issues of large packages
- Low Force
  - Avoid handler force limitations

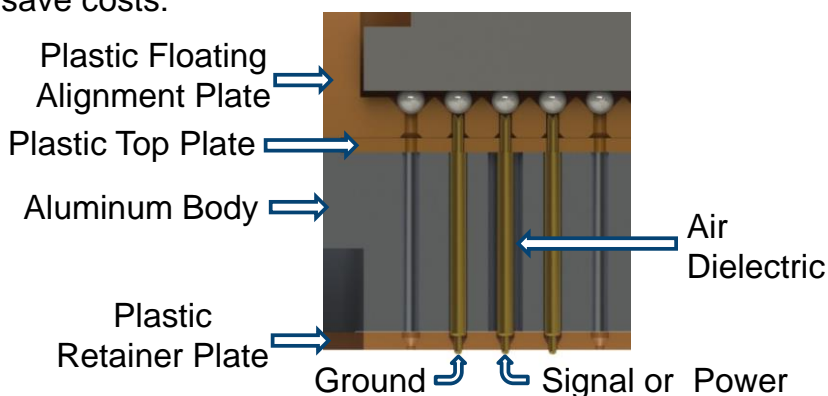
RF performance in contactors has traditionally focused on Bandwidth (Insertion Loss) with impedance matching (Return Loss) being a secondary consideration and little concern about crosstalk



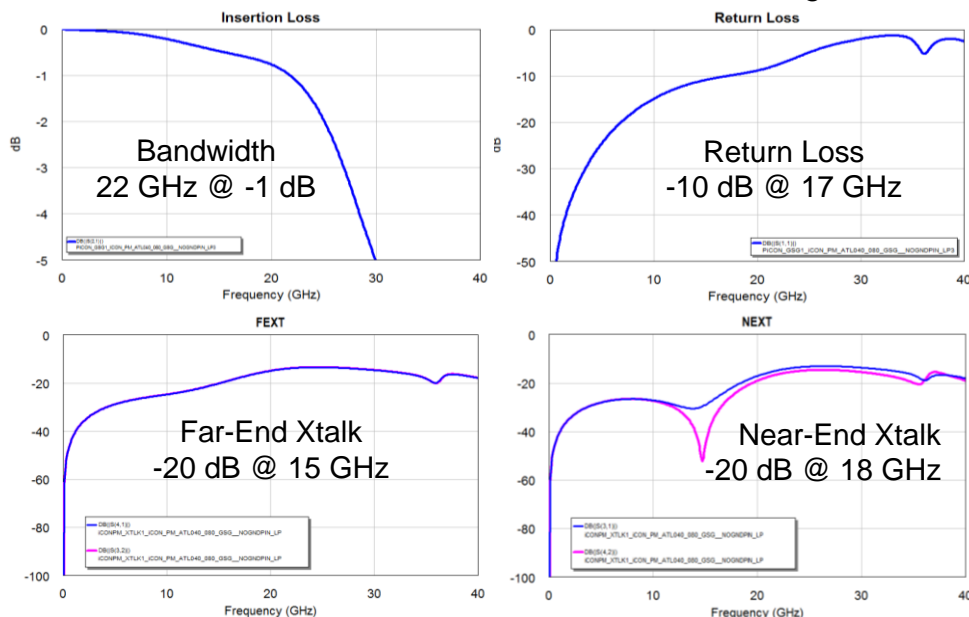
GSG Performance of Typical, Non-Coaxial Contactor

## Coaxial Contacting

Coaxial contacting can improve bandwidth (insertion loss) even when return loss is unaffected. The coaxial design improves isolation. Isolation is an increasingly important RF parameter, as more high-speed inputs and outputs are included in device designs with no grounds between them. Some contactor designs provide partial coaxial technology to save costs:



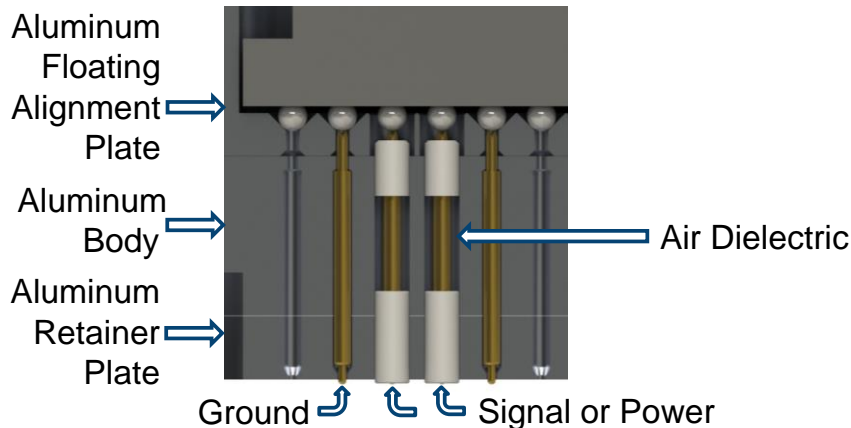
The performance is improved over non-coaxial designs:



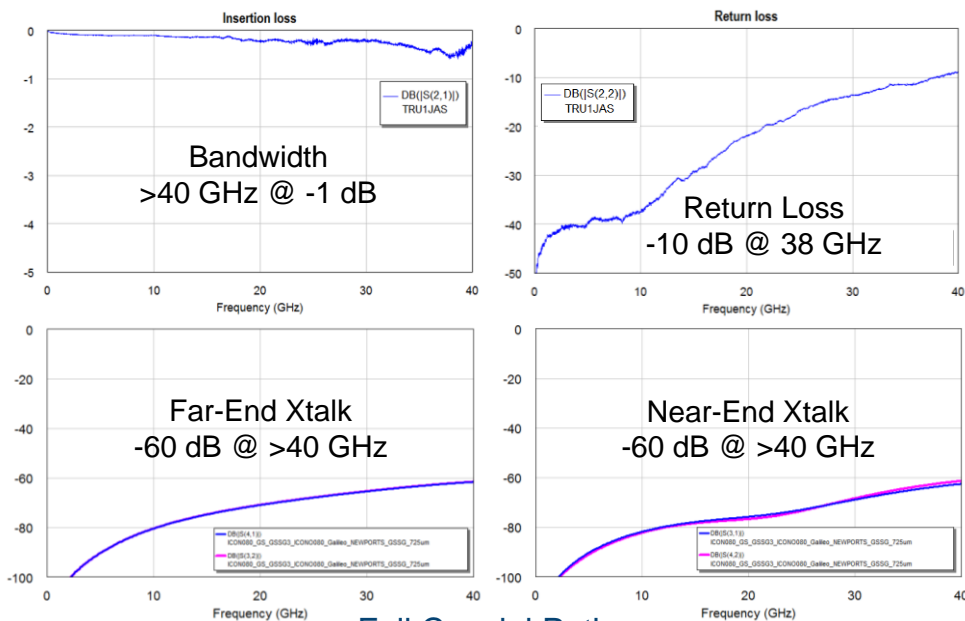
GSG Performance of Partial Coaxial Contactor

## Coaxial Contacting

To take full advantage of the coaxial path through the contactor, the ground shield must extend from as close to the board as possible to the DUT contact points.



The ICON design includes an all-aluminum body, floating alignment plate, and retainer plate for excellent performance: Bandwidth, Return Loss, Isolation (as well as thermal properties and rigidity)



Full Coaxial Path:

Excellent RF Performance Independent of Ground Configuration