

Compliance Grounding

The Mechanical Importance of Grounding

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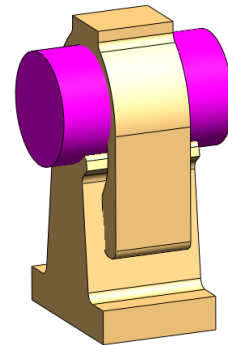
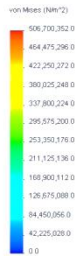
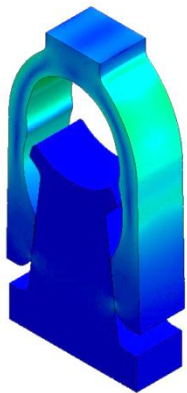
Challenges of having non compliant grounding

- Cracked die due to excessive force from handler
- Deep imprint/scratches on device pad
- High solder migration to contact surface of the ground block
- The whole ground block has to be discarded when high yield loss
- High cleaning and maintenance required

Innovation-driven solution

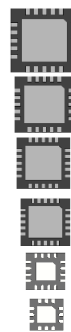
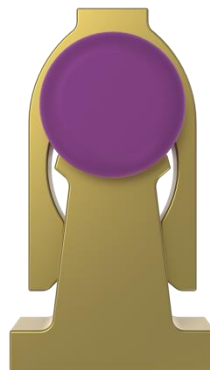
It is very important to keep the ground interconnection very rigid, actuating, coplanar, short, penetrating and mostly engagement of contacts fully to each sliding element. Many of the integrated chips in the market with a size of 2x2, 2x3, 3x3, 1.8x2.6 , 3.2x1.8, 1.75x2.8mm have many less choices to have a good interconnecting system with consistent contact resistance and performance. Bell contact provide solution for the smaller packages that need a good electrical contact with a maximum area of electrical connectivity, less gram force, coplanarity

Bell Contact Mechanical Analysis

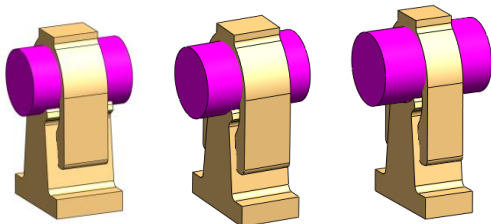


Two guiding jaws has been designed to 100% engagement of the element to each other .

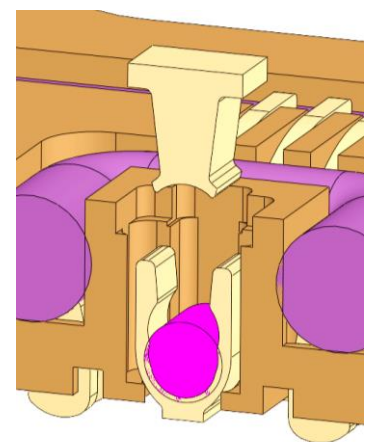
Wider contact area for better signal integrity heat dissipation



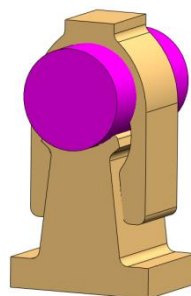
Various package sizes



Various sizes of Bell pins for packages as small as 2x2, 2x3, 3x3, 1.8x2.6 , 3.2x1.8, 1.75x2.8.etc



Easy assembly and maintenance



Single round elastomer for better penetration force and coplanarity.

Bell Contact Mechanical Advantages



The above picture shows the actual pins run endurance cycle of 1kk without any deformation or wearing of the contact elements.

Mechanical Specifications

Pin Uncompressed Height (mm)	1.50
Pin Compliance (mm)	0.10
Gram Force Per Pin (grams)	25~30
Number of Insertion – Elastomer	≥ 400K
Number of Insertion – Pin (Matte Tin)	≥ 400K
Socket Material	TORLON® 5030
Pin Material	BeCu-Ni-Au

Core values of JF grounding solution

- ✓ Enhance constriction resistance (micro-contacts)
- ✓ Self-consistent in engagement system
- ✓ Adequate penetration to oxide layer for better contact (especially for matte tin devices)
- ✓ Compliant grounding allow soft device resting on the contactor.

Conclusion:

Cracked dies due to excessive force from handler is a front end issue in the test industry and providing a compliance grounding which acts like a cushion to device during testing prevents it from cracking/rejects etc. Challenges of having actuating grounding for small packages are solved with bell contact