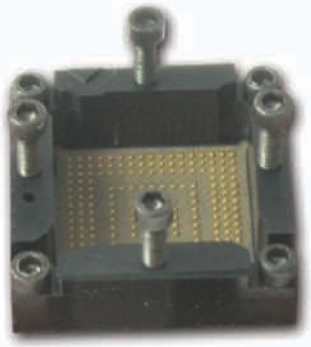
Ironwood ELECTRONICS



XG Interconnect User's Guide for (B2D) Board-to-DUT Applications

Introduction

Under normal operating conditions XG interconnects are expected to provide a balance of long life, contact resistance and compression force that is superior to its competitor's product offerings. The product is designed to provide less than 50 milli-ohms resistance at 0.002" compression with less than 25g of force per pin. This force spec is dependent on column design.

The following information provides a basic description of the product with recommendations for the handling, operation, and maintenance to achieve maximum performance.

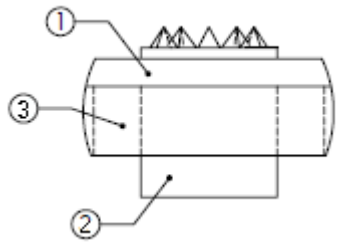
Construction for Board-to-DUT (B2D) Interconnects

The diagram below identifies the construction of the B2D. The interconnect is inserted between the Device Under Test (DUT) and the Test Board.

The interposer (1) is constructed of Kapton® with gold plated pads. Sharp asperates are formed on the top side pads in order to break through any oxidation on the DUT and improve contact resistance.

The elastomer comprised of conductive particles in a silicone matrix (2) is placed directly onto the bottom side pads which helps to improve the amount of force required for full compression.

An over-compression stop (3) is added to prevent the elastomer from becoming over compressed.



Life Expectancy

Under recommended operating conditions the XG interconnect is expected to last for approximately 100k compression cycles.

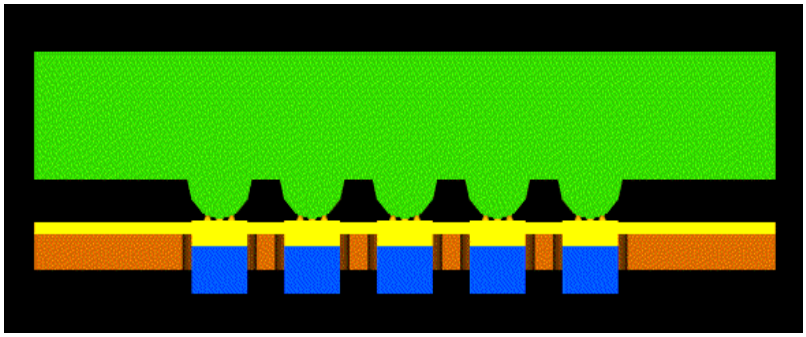
Multiple factors affect the life expectancy of the XG unit. Some common examples are: testing environment, test conditions, finishes (solder, gold, etc.) touching the contact points, excess contact force, etc.

The life expectancy is greatly reduced when the elastomer flex columns are over compressed. The recommended amount of compression is addressed in the

Operation section of this guideline. *Interconnects that have been over compressed will not be considered as cause for rejection.*

Operation

The illustration below is a sectional view of an interconnect just before compression. This is the point where the compression stroke starts. The stroke is fully completed, actuated, when the flex column returns to the uncompressed state after contact.



The stroke is the total distance of contact from the first measurement of resistance. This is typically 0.003" to 0.006". The XG is highly customizable and can be configured to address different requirements.

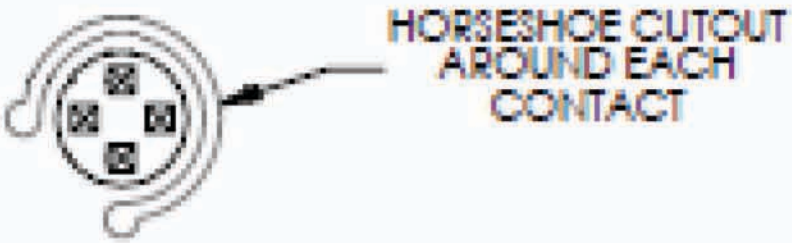
The table below indicates the maximum stroke before over compression in relation to the elastomer column height and compression stop thickness.

Standard Flex Column Height vs. Stop Height

Column Height	Over Compression Stop Height	Maximum Stroke Before Overcompression
9 mil	5 mil	4 mil
9 mil	6 mil	3 mil
12 mil	7 mil	5 mil
15 mil	9 mil	6 mil
19 mil	11 mil	7 mil
28 mil	15 mil	13 mil

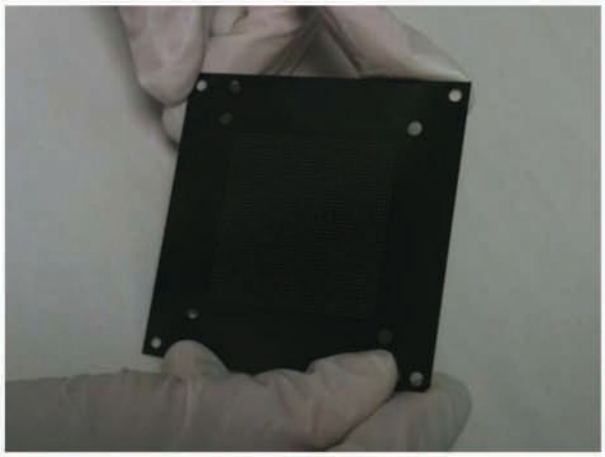
Differences in compressive resistance from edge-to-center or edge-to-edge is typically caused from co-planarity issues from the test equipment, socket, test board, the Device Under Test, or the XG interconnect itself. It may be necessary to install shims in the appropriate areas to allow for even compression.

To minimize potential challenges associated with co-planarity, “Horseshoe” shape reliefs can be cut in the interposer as the design permits. The illustration below depicts a relief cut.

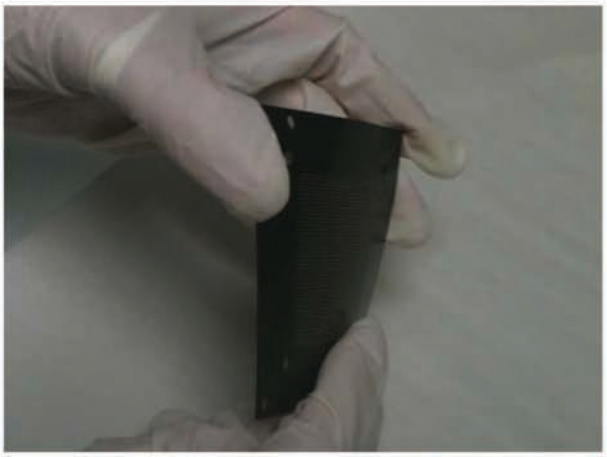


Handling

It is recommended to wear powder free latex gloves when handling the interposer. This will prevent oils and skin particles from contaminating the part. Always handle the interposer by the edges taking care not to touch the elastomer columns or aspirated pads. Be certain not to flex the part as this causes stress with potential for damage. See photos below showing correct and incorrect handling techniques.



Correct- holding part by edges



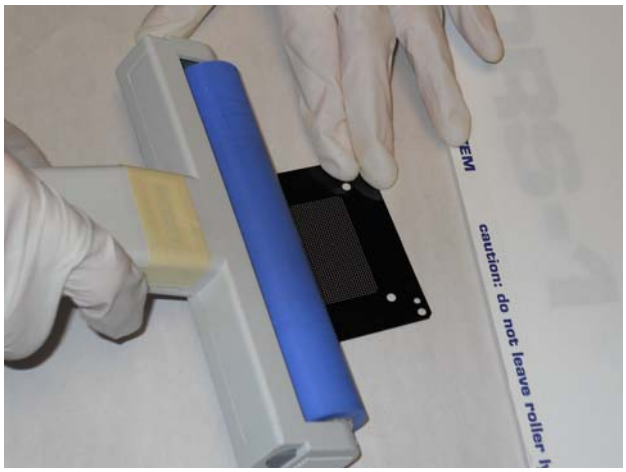
Incorrect- flexed part and touching contacts

Foreign Material Removal

To minimize foreign material, (fibers, dust or debris) on the part surface, first remove the interposer from the ESD safe package in an ionized field environment to minimize the

amount of static. Using the handling techniques described above, lay the interposer down flat on a clean work surface.

To remove foreign material on the part surface, use a hand tacky roller as shown in the photo below. First, prepare the roller by wiping it on a clean sheet of tacky paper. Then secure a corner of the interposer and make just one pass covering the surface area. Flip the part, and repeat this procedure.



Removal of Foreign Matter

Source for tacky rollers and sheets:
Systems Division, Inc. (SDI)
21 Morgan
Irvine, California 92618-2005 U.S.A.
Phone: 1 (949) 583-1001

Cleaning of Elastomer Columns

To clean the elastomer columns, use the same procedure as removal of foreign material as listed above (tacky roller). The cleaning frequency will depend on each customer testing setup and environment.

Cleaning of Aspirates

To maintain optimum performance, clean the aspirates by wiping the tips using a MIPOX WA6000 type probe card cleaning sheet (a less abrasive cloth). The frequency of cleaning will depend upon period of use along with testing set-up and environment factors.

Link for cleaning cloths: http://www.mipox.co.jp/en/products/2a_tape/probe_cleaning_sheet.html