

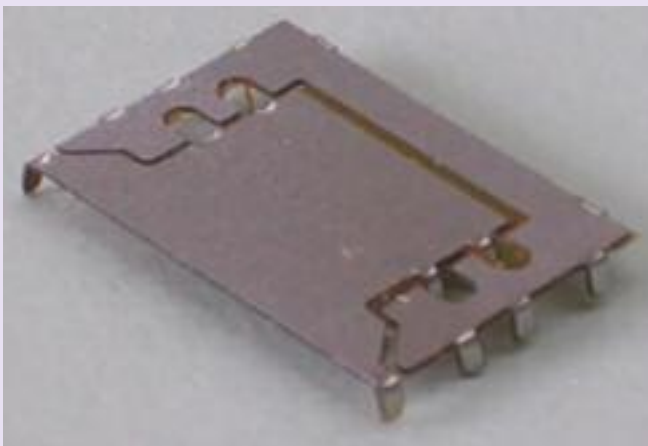
# UTF Connectors

*“DKN Research Develops the Industry’s Thinnest Connector for High Density Flexible Substrates”*

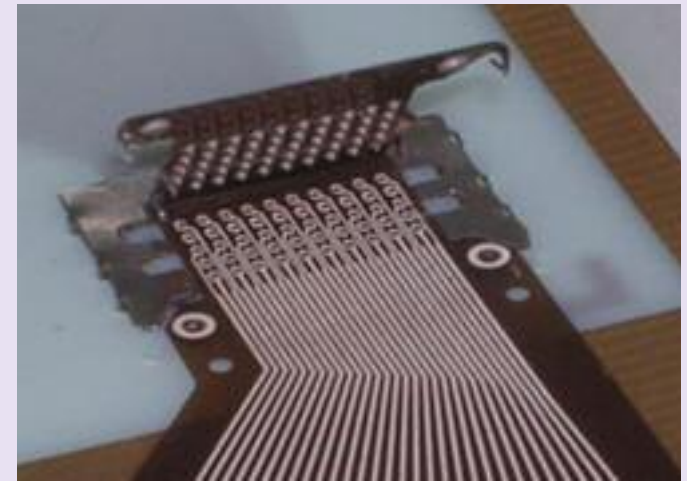
The industry’s thinnest UTF connector for high density flexible substrates is available for the next generation of portable electronic devices. This new design concept will assist in the design for smaller and lighter electronic devices as consumer demand continues on this direction. Micro bump arrays formed on a thin substrate can realize high density and connecting high-pin-count within a limited space. The advantages of this connecting system compared to traditional connection systems for flexible substrates are listed below:

- ▶ **Mounted height is less than 0.3mm**
- ▶ **It is possible to connect with more than 60 multi-electrode parts with array connection**
- ▶ **The flexible substrate pitch is less than 0.3mm**
- ▶ **The connector is removable**
- ▶ **Custom designs are available and easily configured**
- ▶ **The flexible substrate needs no special process**

The new concept model of UTF Connector has arrayed micro bumps inside a thin cover substrate that is hinged to the frame allowing it to precisely align with the flexible



substrate, and securely connect with a PCB or electronic component. A hook type mechanism was also added to a thin metal plate cover to provide uniform pressure on the back of the bump array; the connector can be mechanically locked with a high level of reliability onto the guide holes of a rigid PCB. This locking mechanism can be easily unlocked, making the high density flexible

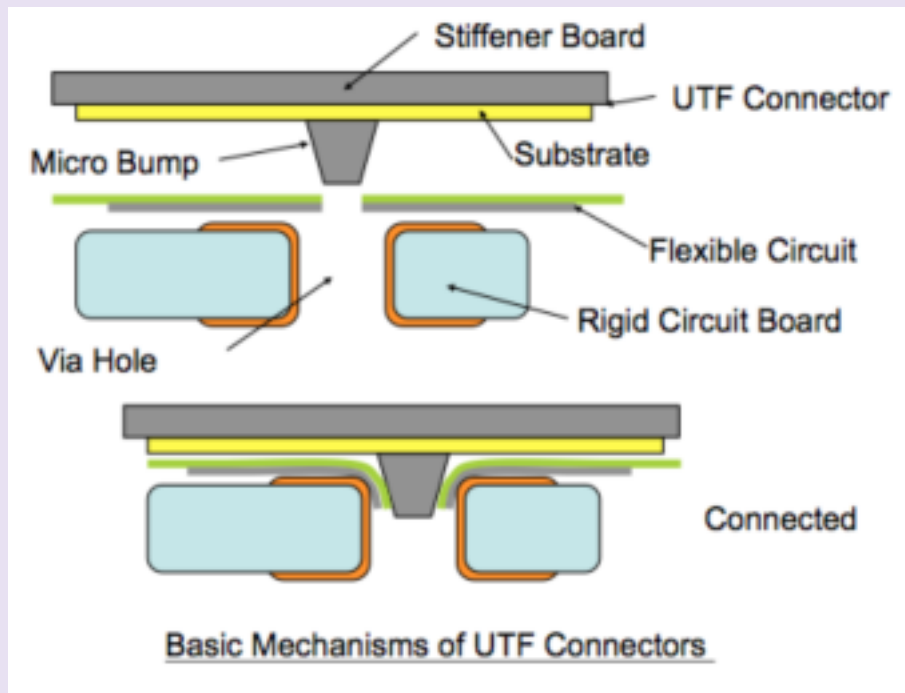


substrate detachable as often as needed. In other scenarios, several bumps and hooks can be attached to the frame side for alignment and fixed mount applications. The concept model is applicable for SMT soldering, Adhesive fixed or No soldering /mechanically fixed. The fixing method for each custom design during production is determined by selecting a suitable structure.

When a high density flexible substrate is connected to a rigid PCB using the UTF Connector series, the mounted height from the PCB surface is less than 0.3mm. It is less than half of the standard thin connection structures, and almost the same as the smallest chip components.

Micro bumps for the connection are arrayed on UTF

Connectors, making larger bump pitches compared to the circuit density on the flexible substrate. This results in an easier mounting process and still maintains a high reliability in the connection. For example, with a 5x10 bump array with a 0.8mm

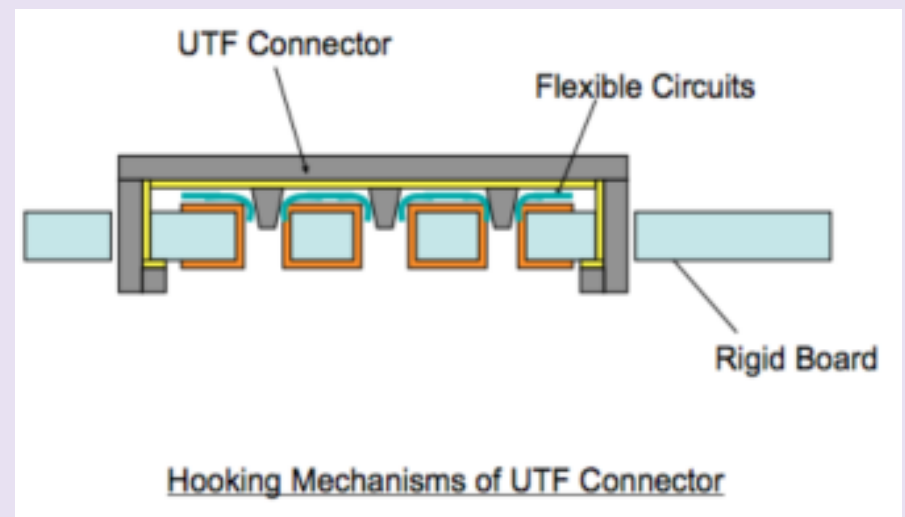


bump pitch, it is possible to make a 50 pin /0.16mm pitch high density flexible substrate connection in an area as small as 7mm x 11mm. It is even possible to make the pitch of the micro bump array less than 0.5mm. Now, a pitch that is less than 0.1mm on a high density flexible substrate connection can be achieved.

Since there is no need to use expensive molds in manufacturing UTF connectors, it is easy to revise its design for mass production. The number of custom design choices for each client is

endless. Several evaluation tests on prototypes for possible optimization are currently underway amongst flexible substrate manufacturing companies and mounting companies.

The UTF connector is a custom designed product for customer specific applications. DKN Research provides engineering and design service for both UTF Connectors and substrates according to customers' requests, and can provide concept model samples along with substrates (US \$249.00 per set) for customers in the U.S., Europe and Asia except Japan. Detailed information is provided by requests. DKN Research will respond to all inquiries and questions about their new connection technologies.



**UTF connector will be custom design which follows your request. Please visit below websites for more details**

**DKN Research  
Hirai Seimitsu Kogyo Corp.  
NY Industries Ltd.**

**([www.dknresearch.com](http://www.dknresearch.com))  
([www.hirai.jp](http://www.hirai.jp))  
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