

# FPC Test Connector Benefits

## 1. Superior RF Performance

Our unique structure, using interposer technology, provides an advantage for high frequency applications.

- <-0.5dB @ 40GHz bandwidth
- Signal travels only 12MIL, not mm

## 2. Maintenance and Feasibility

Compare to conventional probe pin solutions, our interposer technology eases the time and effort required for maintenance.

- One piece interposer replaces entire contact array
- Simple mounting structure make maintenance easy

## 3. Fine Pitch / Multi-contacts Capability

- 0.3mm pitch capable
- 100 contacts capable

## 4. Cost Effectiveness

Compared to the "per pin" pricing system of a traditional pin, the one piece structure of the interposer makes it a cost effective solution no matter how fine the pitch, or how many contacts are required.

## 5. Reliability

Even simple one piece structure, the technology achieves reliability up to 500K cycles with stable contact resistance.

## 6. Design Flexibility

Each FPC connector will be semi-custom designed to best fit with customers' requirements.

- FPC / Cable guide will be designed to fit customers FPC and/or cables
- 2 types of connector ends are available as standard
  - FRC connector mountable type – SCCA Series
  - FFC connector mountable type – SCCB Series
  - \*Other connector type, custom solution provided
- 3 different Main bodies are available
  - 29mm / 39mm / 49mm
- From 0.3mm pitch to 1.0mm pitch, pattern, flexible design capability

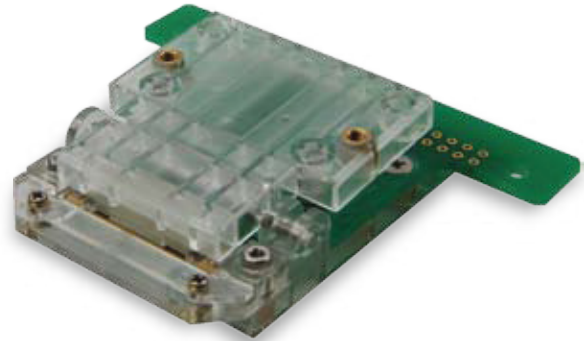
# FPC Test Connector

In electronic devices, such as cell phones and digital cameras, flexible printed circuit boards are often used to make an electrical connection between boards and modules in place of cables. Traditionally, connectors have been used to test the electrical properties of these components, in order to identify the need for any design or manufacturing modifications, however, because of durability issues, connectors have a very short life. SANYU proudly introduces the latest FPC Test Connector system using interposer technology (Elastech™).

By using this interposer technology (Elastech™), our test connector achieves excellent durability, reliability and high frequency characteristics, in addition to easy maintenance and high operability.



0.3 mm pitch 51 contacts



0.5 mm pitch 27 contacts

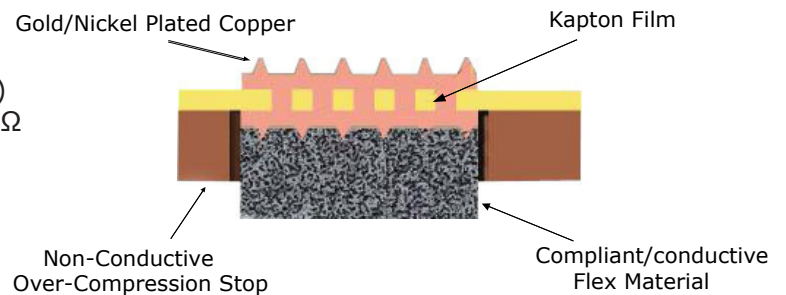
## Features

- ◆ Pitches as low as 0.2 mm center to center. Mixed pitch is also available.
- ◆ Mechanical life is more than 500,000 cycles.
- ◆ Laser ablated contact surface creates great contact stability that also improves reliability.
- ◆ The rectangular contact design provides for enough contact margin for FPC pole inserts in an anteroposterior direction.
- ◆ Interposers (Elastech™) are low inductance.
- ◆ Low maintenance replacement.
- ◆ Short electrical contact length (0.3mm) is ideal for high frequency components. (By creating stripline with connecting boards, high-frequency range measurements are achievable. Additionally, coaxial flat cable is also available for connector wiring.)

## General Specification

- ◆ Electrical power rating Max. 30W
- ◆ Max. Current rating 1.5A
- ◆ Max. Voltage rating 50V (AC/DC)
- ◆ Withstand voltage AC 250V/1 min.
- ◆ Insulation resistance Min. 100MΩ (250V)
- ◆ Contact resistance Max. Less than 100mΩ (contact area)
- ◆ Operating temperature 0-65°C

### Thin Film Interposer Cross-Sectional View



## Use application

A jig connector is used to produce an electrical connection for evaluation and inspection of flexible printed board utilized circuits, modules and units.

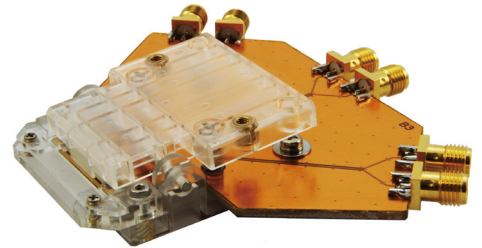
- ◆ Operation function test for the imaging and motor units in digital video cameras and digital cameras
- ◆ Operation function test for pickup and motor units in HDD, FDD and MOD
- ◆ Operation function test for pickup and motor units in CD and DVD
- ◆ LCD module operation check
- ◆ Also suitable for many electronic devices and parts, such as cameras, audio-video equipments, and automotive components.

## High frequency applicable FPC test connector

Due to the faster signal on current circuit boards, flexible boards, which transmit signal, are also becoming high frequency compatible.

Our high frequency applicable FPC test connectors are made to take advantage of the Interposer's (Elastech™) thin feature.

\* High frequency FPC test connector will be designed to customer specifications, please ask your sales contact for more details.



Differential signal measurement FPC test connector (Example)

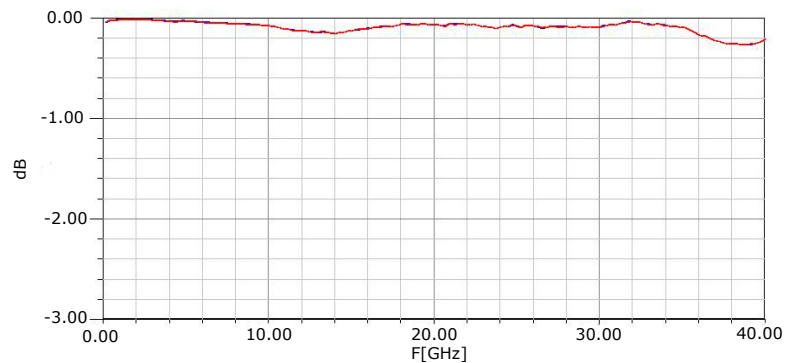
## Interposer (Elastech™) high frequency characteristics

Representative example of high frequency characteristics

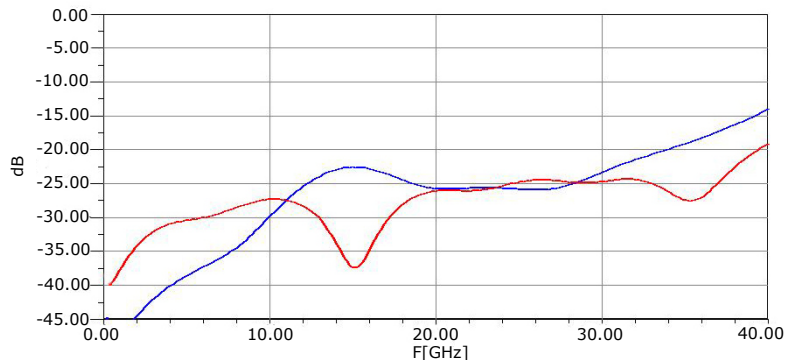
Measurement condition

Alignment: G-S-G 0.5 mm pitch, measurement data includes fixture.

Elastech™  
INSERTION LOSS(S21/S12)  
0.19GHz to 40GHz  
0.5mm Pitch/G-S-G Configuration

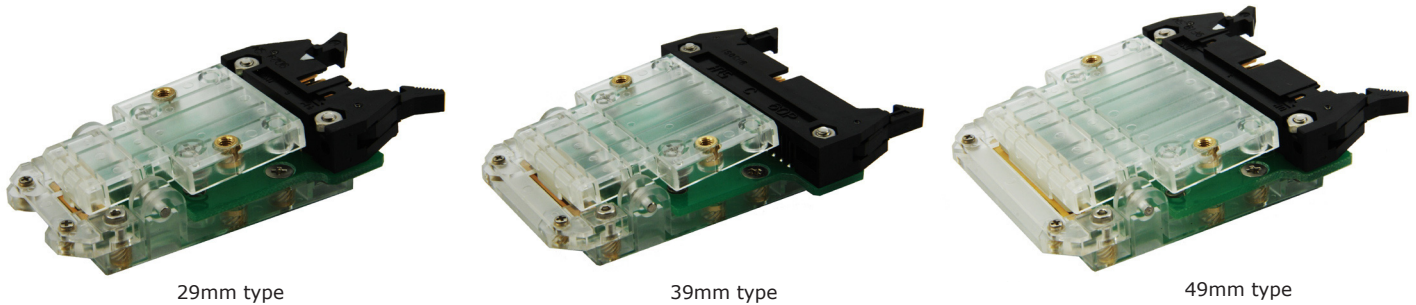


Elastech™  
RETURN LOSS(S11/S22)  
0.19GHz to 40GHz  
0.5mm Pitch/G-S-G Configuration



# SCCA Series (FRC connector mountable type)

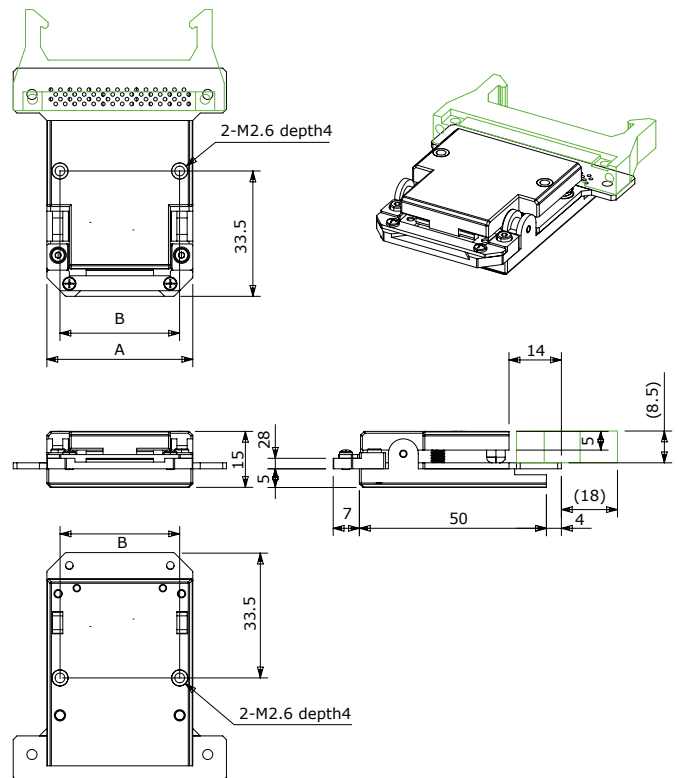
- ◆ FRC connector mountable type
- ◆ 0.3 mm mixed pitch and 1.0 mm in-line alignment pitches are available as standard
- ◆ 3 standard housing sizes are available depending upon pin count requirement
- ◆ Guide will be customized for each customer's FPC



\*Irregular alignment and high frequency applicable products are also available. Please consult with your sales representative.

## Clip width and pitch

Clip width	Pitch and Poles	Dimensions (mm)
29 mm width	0.3 mm pitch ~ 29 poles 0.4 mm pitch ~ 22 poles 0.5 mm pitch ~ 19 poles 0.8 mm pitch ~ 10 poles	A:29 B:22
39 mm width	0.3 mm pitch ~ 59 poles 0.4 mm pitch ~ 48 poles 0.5 mm pitch ~ 37 poles 0.8 mm pitch ~ 24 poles 1.0 mm pitch ~ 18 poles	A:39 B:32
49 mm width	0.3 mm pitch ~ 95 poles 0.4 mm pitch ~ 74 poles 0.5 mm pitch ~ 59 poles 0.8 mm pitch ~ 36 poles 1.0 mm pitch ~ 28 poles	A:49 B:42

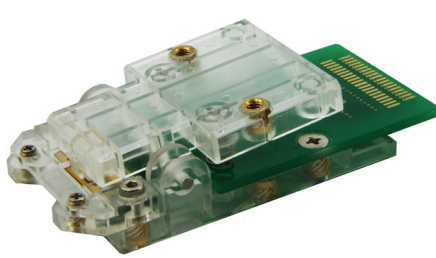


- \*A: Housing width
- \*B: Mounting screw hole pitch dimension
- \*Mounting screw M2.6 depth 4 mm or less
- \*Recommended connector HIF6, HIF3BA series (Hirose product)

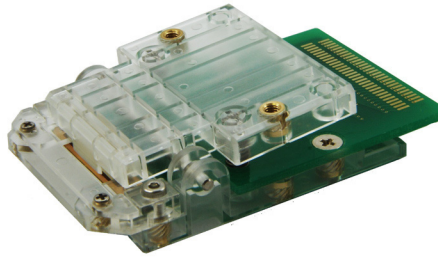
< All dimensions are mm >

# SCCB Series (FFC connector mountable type)

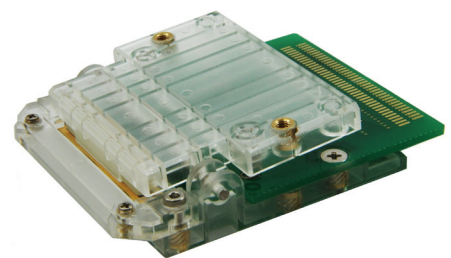
- ◆ Available to Flexible wiring by discrete wire soldering and flexible connector mounting
- ◆ 0.3 mm mixed pitch and 1.0 mm in-line alignment pitches are available as standard
- ◆ 3 standard housing sizes are available depending upon pin count requirement
- ◆ Guide will be customized for each customer's FPC.



29mm type



39mm type

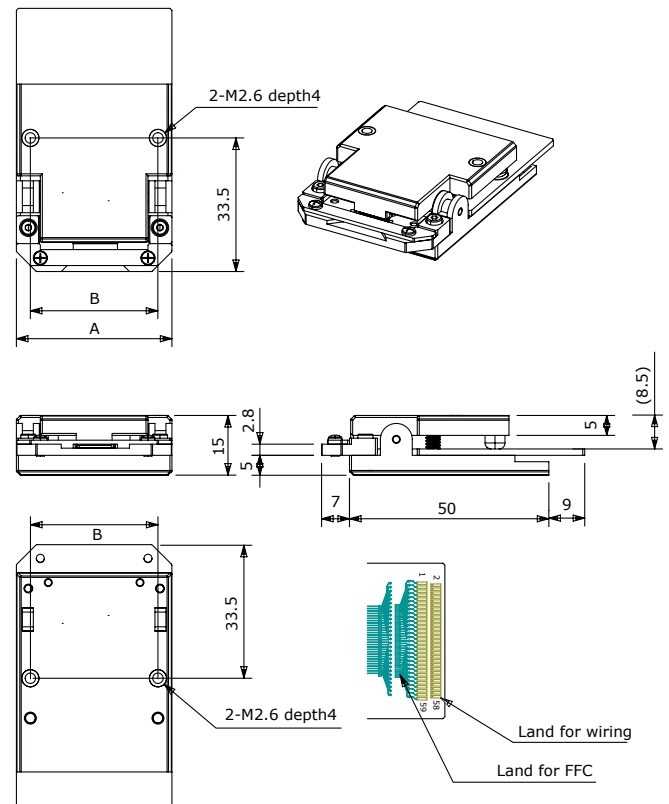


49mm type

\*Irregular alignment and high frequency applicable products are also available.  
Please consult with your sales representative.

## Clip width and pitch

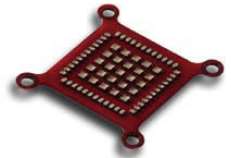
Clip width	Pitch and Poles	Dimensions (mm)
29 mm width	0.3 mm pitch ~ 29 poles 0.4 mm pitch ~ 22 poles 0.5 mm pitch ~ 19 poles 0.8 mm pitch ~ 10 poles	A:29 B:22
39 mm width	0.3 mm pitch ~ 59 poles 0.4 mm pitch ~ 48 poles 0.5 mm pitch ~ 37 poles 0.8 mm pitch ~ 24 poles 1.0 mm pitch ~ 18 poles	A:39 B:32
49 mm width	0.3 mm pitch ~ 90 poles 0.4 mm pitch ~ 74 poles 0.5 mm pitch ~ 59 poles 0.8 mm pitch ~ 34 poles 1.0 mm pitch ~ 30 poles	A:49 B:42



- \*A: Housing width
- \*B: Mounting screw hole pitch dimension
- \*Mounting screw M2.6 depth 4 mm or less
- \*Recommended connector FH23 series (Hirose product)

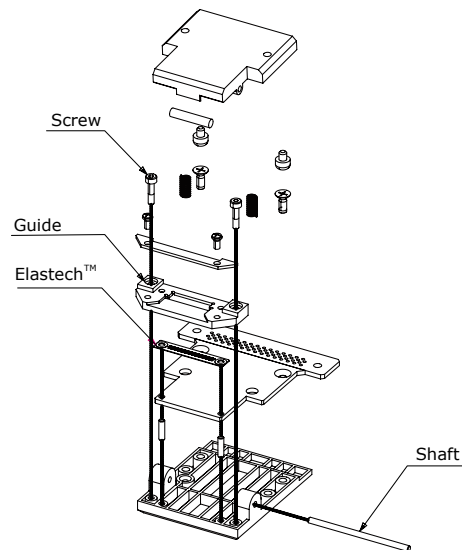
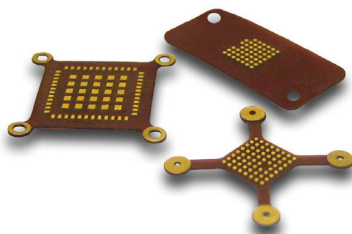
< All dimensions are mm >

# Elastech™ Interposer system FPC test connector structural drawing



- ◆ Guide will be processed in accordance with each customer's FPC.
- ◆ The guide is removable as needed
- ◆ This product is invertible by attaching the guide in reverse

- \* Low maintenance
- \* Simple replacement, just remove a shaft and guide screws



## Other applications using Elastech™ Interposer

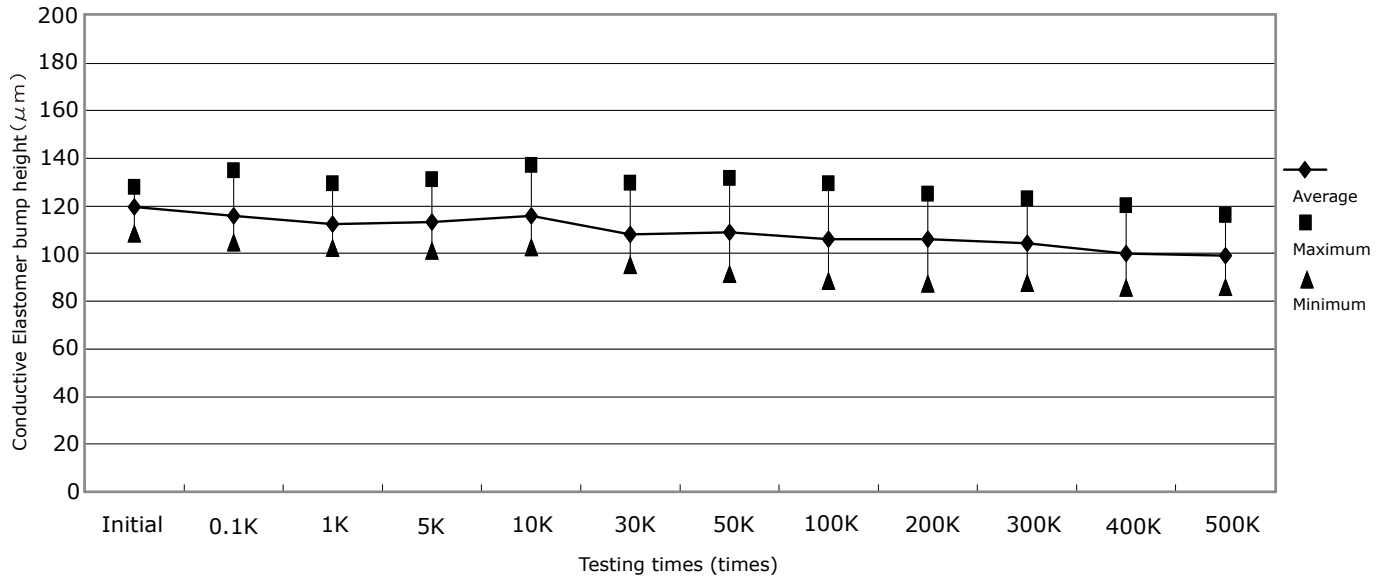
### Device Test Socket for Characterization

- ◆ Unlike regular FPC based interconnects, Elastech™ is a high frequency contactor . Silver particle elastomer is specially adhered to the contact on the PCB side, against FPC (kapton) based interconnect in order to handle larger devices and BGA packages.
- ◆ Contact on the device side is gold plated (nickel / copper). Laser machined aspirates break through the oxide film to provide stability and durability.
- ◆ Silver particle elastomer, which adopted the excessive pressure preventive system, minimizes disturbance resistance caused by excessive particle diffusion.
- ◆ Laser machined bumps on the Elastech™ via holes and contacts make it highly controllable.
- ◆ It is produced in the same production process as FPC that allows laser micro fabrication. Accordingly, it is available down to 0.3 mm pitch minimum.
- ◆ Single product can contain multiple pitches and contact sizes.
- ◆ Contact resistance less than 50mΩ
- ◆ Current capacity: Max.5A/contact
- ◆ High frequency characteristics: -1dB@40GHz
- ◆ Self-inductance: 0.11nH
- ◆ Mutual-inductance: 0.015nH
- ◆ Mutual-capacitance: 0.028pH
- ◆ Typical contact force 15 - 25gf/pin
- ◆ Contact Compliance: Approximately 0.076mm

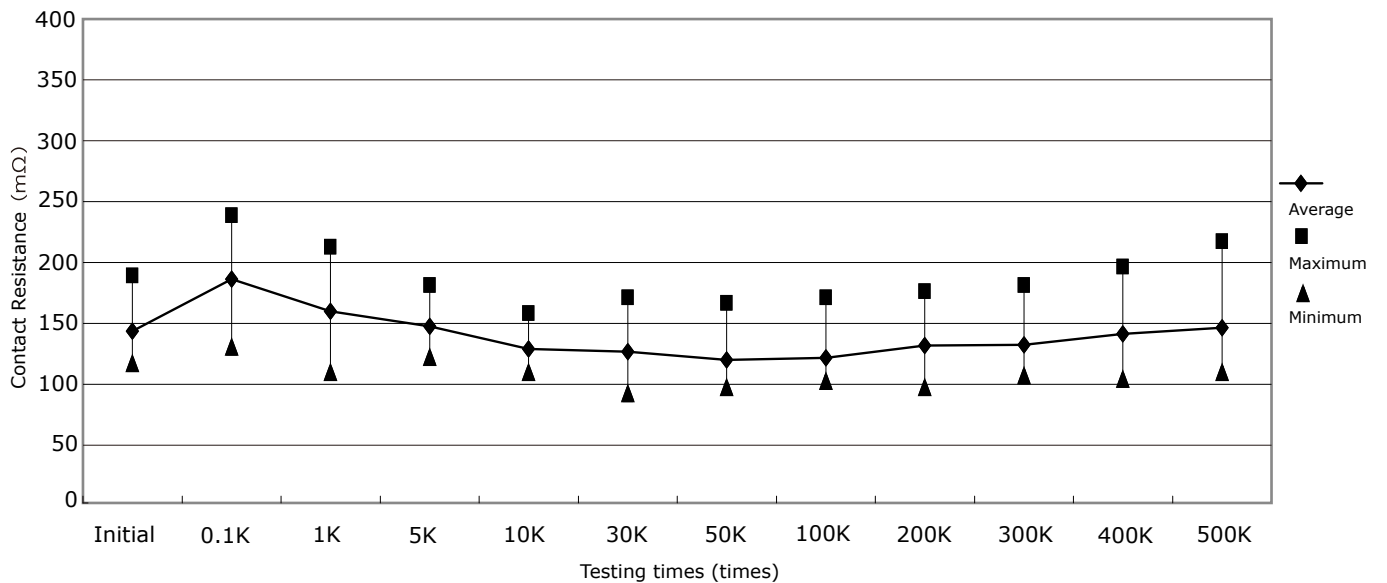


# Interposer (Elastech™) characteristics

## Stroke



## Contact resistance



\* Stroke is the bottom side height that measured optically.

\* Contact resistance was measured with 2 points folded back. Consequently, it includes the resistance of the contacts area on the base board side (2 places) and on the gold bumps side (2 places), as well as the measuring jig.

## NOTE