



Introduction

Purpose

- To introduce the FH39 series connector.

Objective

- To explain features and benefits.

Content

- 14 pages

Learning time

- ** minutes

Welcome to Hirose's FH39 introduction Product Training Module. This training module will introduce Hirose's FH39 series and explain its features and benefits.

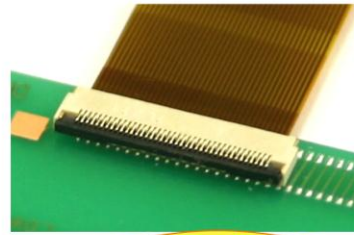


FH39 Series

0.3 mm pitch, 1.1 mm height, Top/Bottom contact, Back flip FPC connector

Features

1. Space saving with short mounting depth of 3.45mm
2. Easy mounting in double-sided SMT lead design: mounting pitch 0.6 mm
3. No upper/lower designation of FPC contact surface provides design flexibility
4. Reliable contact design using spring beam contacts on both top and bottom
5. Easy actuator lock with two step operation
6. High FPC retention force with back flip & unique contact structure
7. Board area under the connector is available for PCB patterning
8. Outer lead for visual inspection
9. Suitable for FPC with mating area thickness of 0.2 ± 0.03 mm



Mounting
depth
3.45 mm

[Industry standard thickness]

The FH39 Series is a ruggedized flex circuit connector for various applications including mobile phones, notebook computers, digital still and video cameras, PDAs and other small handheld devices. It features a contact pitch of 0.3mm, product height of 1.1mm as well as back flip actuator.

HRS

No upper/lower designation of FPC contact surface

◆ FH39 accepts both top and bottom surface contact FPCs.

Top contact surface

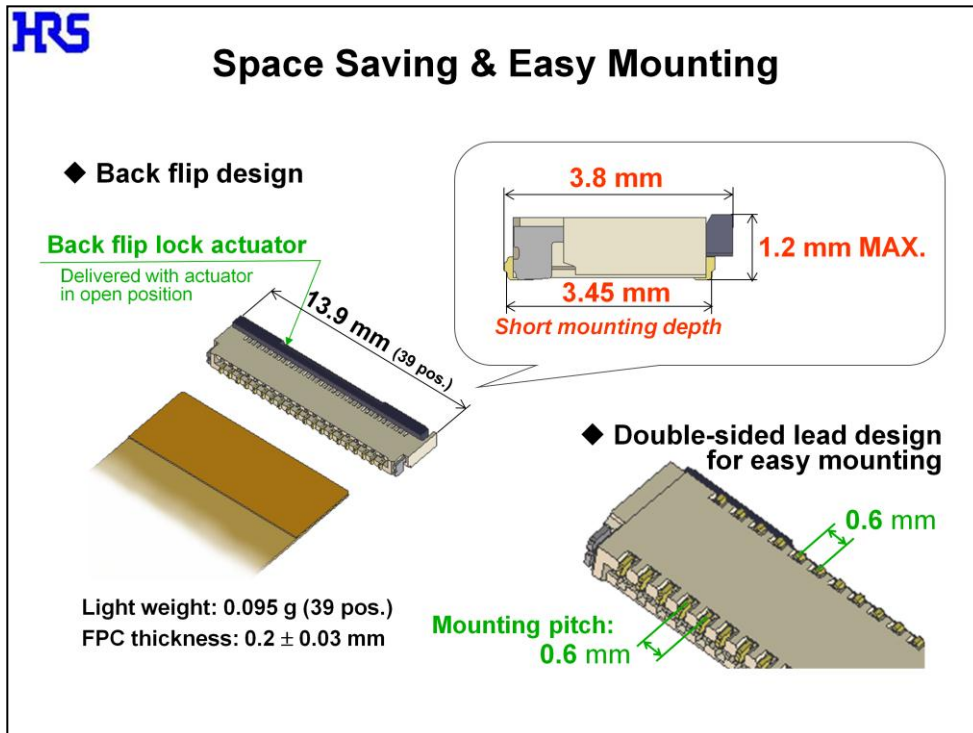
Bottom contact surface

Top surface FPC contact

Bottom surface FPC contact

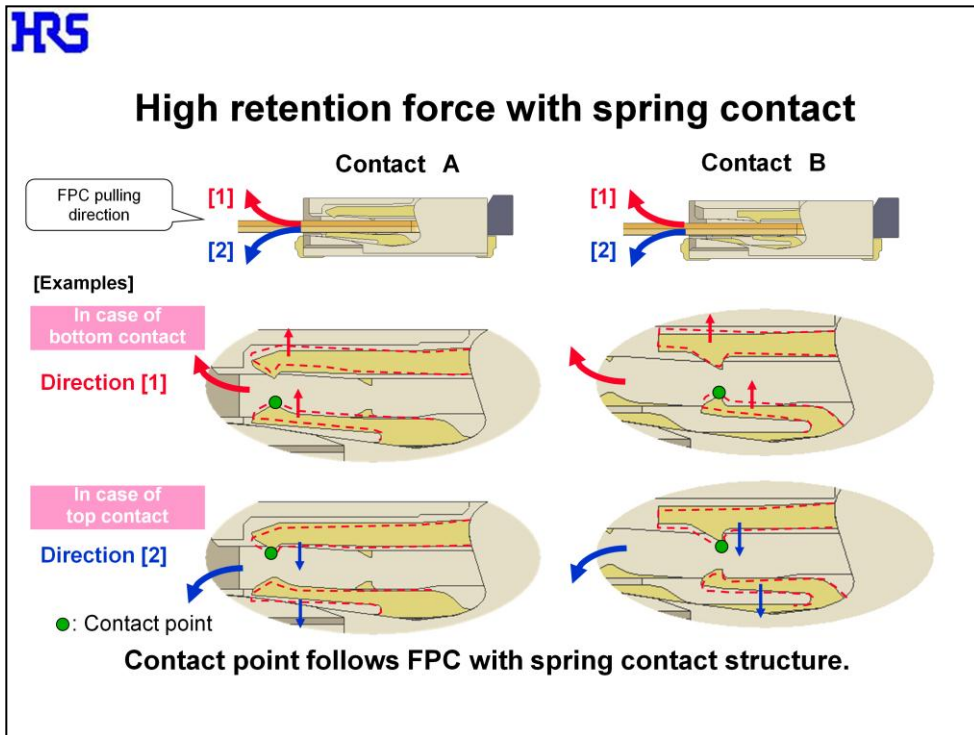
Flexible FPC layout

The “Both top and bottom contact” feature drastically increases flexibility in the customer’s product design such as component disposition and FPC handling. The product uses environment-conscious materials and complies with RoHS Directives.



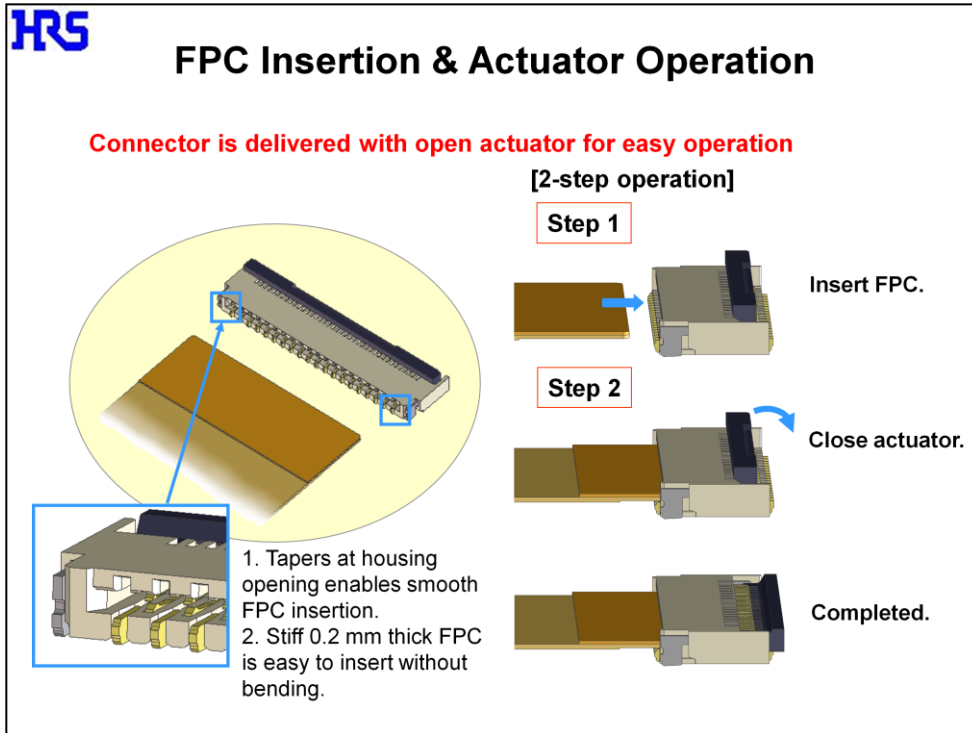
The FH39 is extremely small designed for a back-flip connector, with depth of 3.8mm and mounting depth of only 3.45mm . The actuator, also small, still remains easy to handle. Double-sided SMT lead design allows for easy mounting.

Conventional FPC/FFC connectors with one-side contact have less flexibility in customer's product design such as component disposition and FPC handling considerations. The FH39 series provides increased flexibility by the "both top and bottom contact" design.

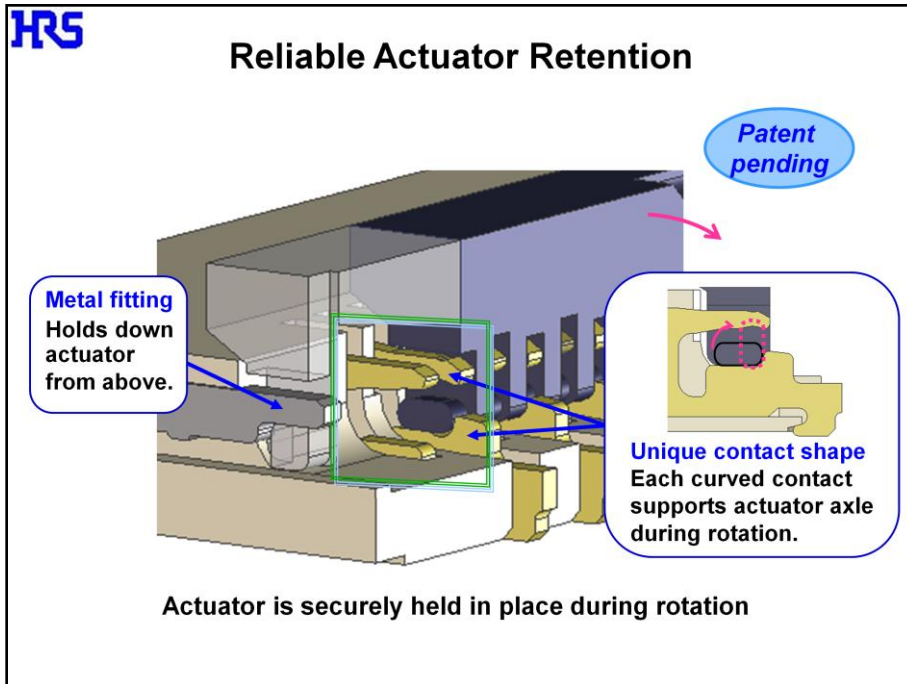


This slide shows contact structure of the FH39 series.

The FH39 realizes high contact reliability because of two features. First the flexible contact can move like a spring, allowing the contact point to follow the FPC, and second the FH39's flexible contact can firmly connect with the FPC despite of the thickness which can vary from point to point.



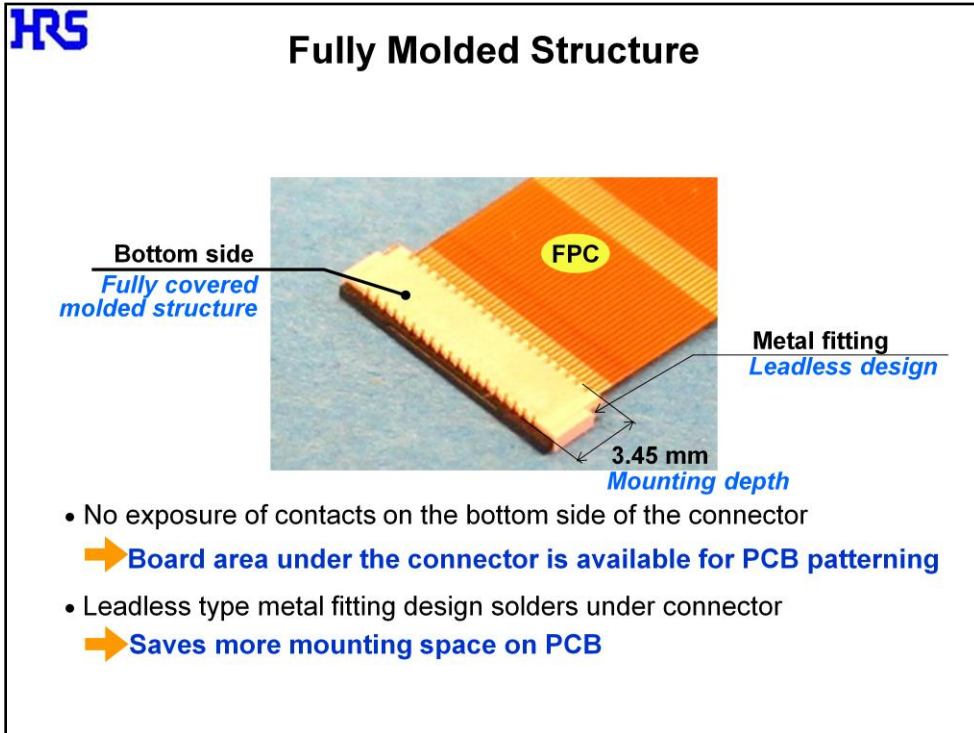
FH39 series connector has several user friendly features. The product is delivered with actuator open allowing for immediate FPC/FFC insertion. It also provides smooth FPC insertion by the entry chamfers at all sides of the FPC/FFC insertion slot, assuring correct insertion and positioning. The FPC used for FH39 series is 0.2 mm thick, which also provides easy FPC insertion without bending.



The FH39 actuator has a highly reliable structure for secure lock and actuator retention by being held securely in place during rotation.

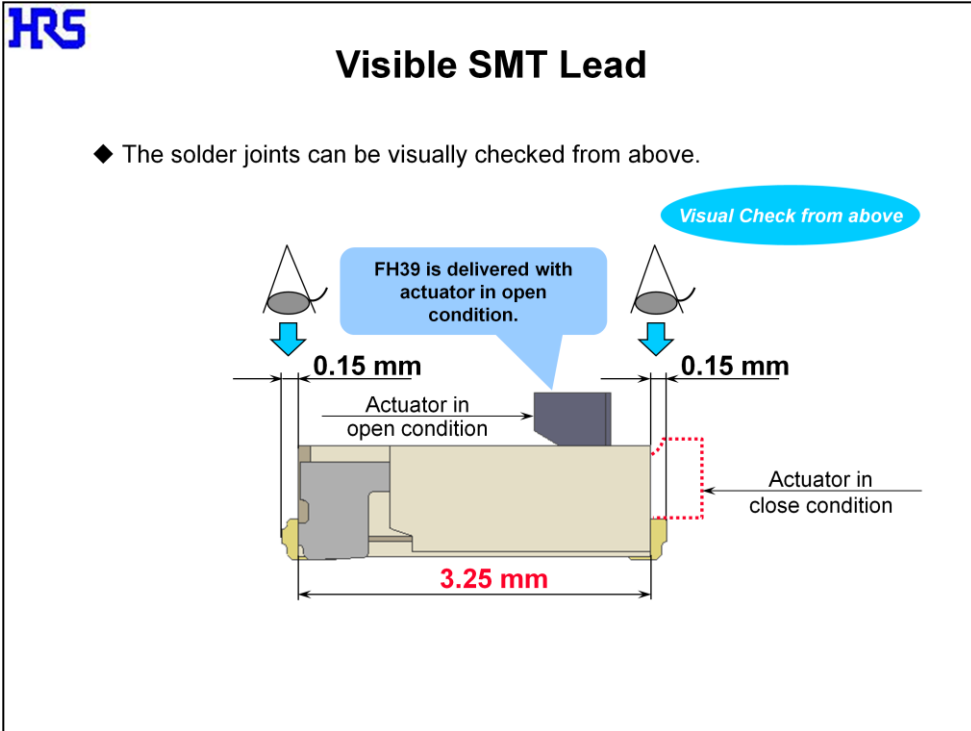
During rotation, the unique contact shape supports each curved contact actuator axle.

Metal fittings hold down the actuator from above, preventing fall out.

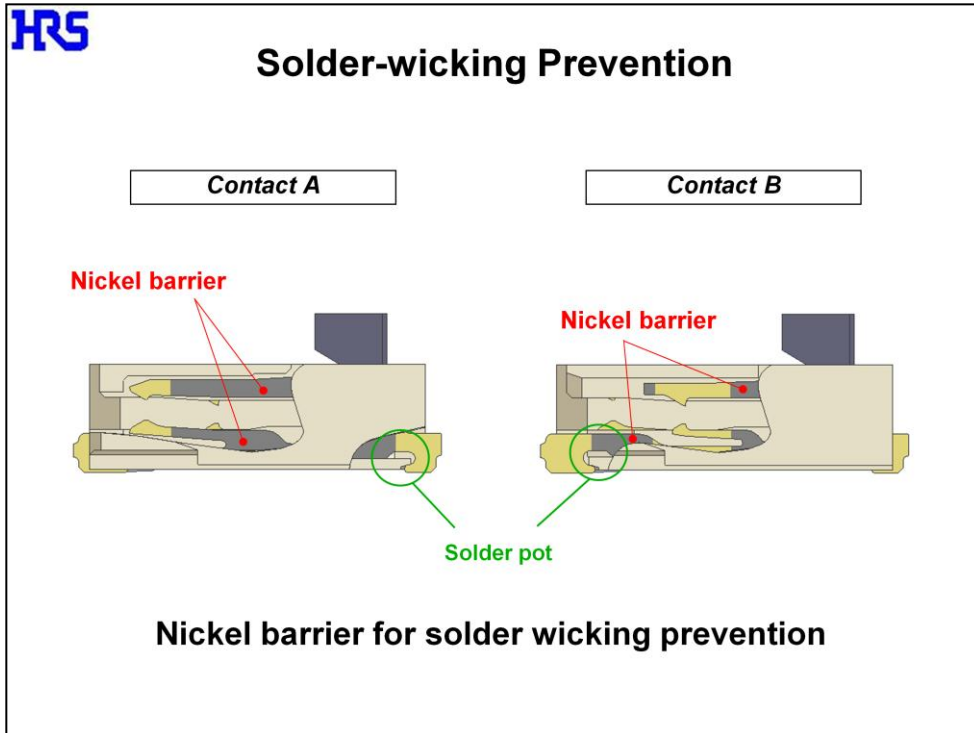


The FH39's contacts are fully covered by the housing so there is no exposure of contacts on the bottom side of the connector. This allows the board area under the connector to be available for PCB patterning.

The leadless type metal fitting design saves more mounting space on PCB



The FH39's solder joints can be checked by visual inspection from above, making inspection process easier.



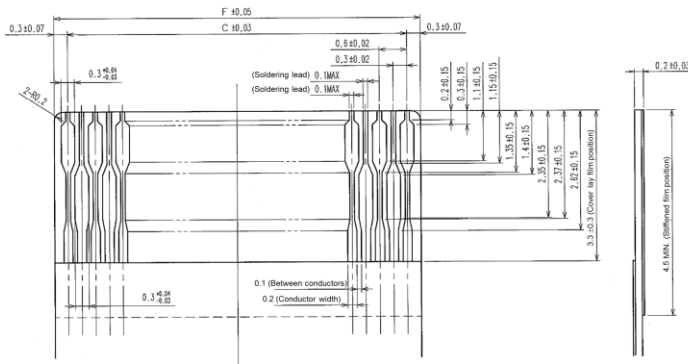
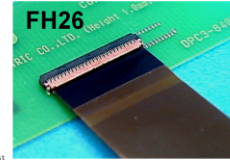
The nickel barrier and solder pot on the contacts prevent solder-wicking.



Recommended FPC Layout

FH39 has the same FPC pattern layout as FH26.

Facilitates mixed use of FH39 with FH26 connectors with the common FPC pattern

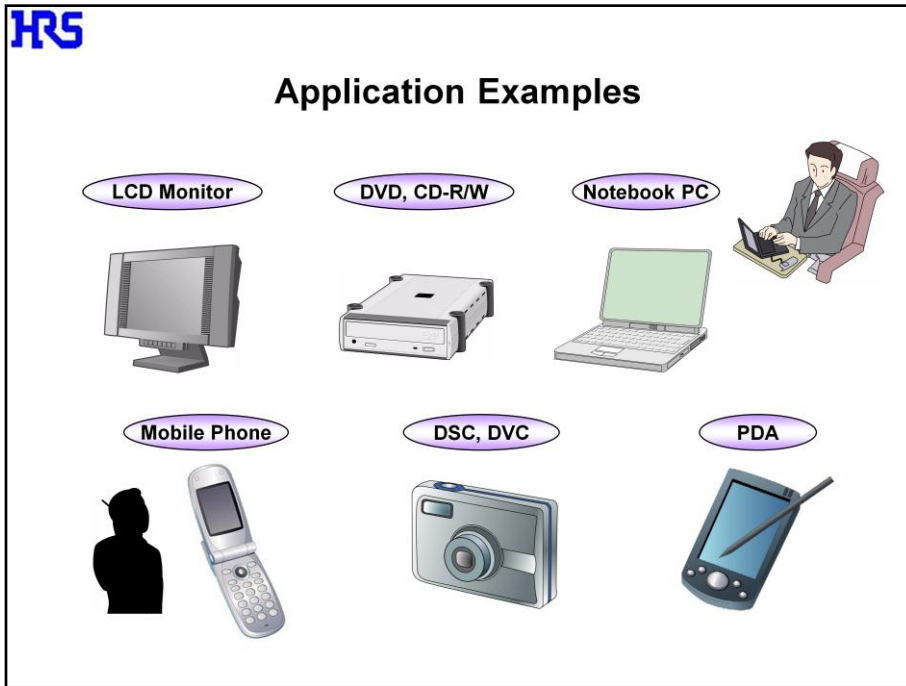


Dimension Example: 39 positions, Recommended metal mask thickness: 0.1 mm

(All dimensions in millimeters)

Front flip type
Bottom contact
Common FPC with FH39
 0.3 mm pitch
 0.6 mm mounting pitch
 3.2 mm depth
 1.0 mm height
 (FPC thickness: 0.2 mm)

This slide shows the recommended FPC layout.



The FH39 series has a broad range of applications such as mobile phones, notebook computers, DVD, CD-R/W, LCD monitors, digital still and video cameras, PDAs and other small handheld devices.



Specifications & Remarks

- Material and finish

Component	Material	Finish & Remarks
Housing	Heat-resistant resin	Beige / UL94V-0
Actuator	Heat-resistant resin	Black / UL94V-0
Contacts	Phosphor bronze	Contact and SMT lead area: Gold plated over Nickel under plating Other area: Nickel under plating
Metal Fittings	Phosphor bronze	Pure tin reflow plated over copper under plating

- Performance characteristics

Contact resistance*	100 mΩ max.
Withstanding voltage	AC 90 V for 1 minute
Insulation resistance	50 MΩ min. (DC100V)
Rated current	0.2 A
Rated voltage	AC/DC 30 V

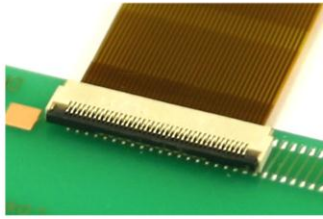
* includes FPC conductor resistance

- Suitable for FPC with mating area thickness of 0.2 ± 0.03 mm
[Industry standard thickness]
- Reflow temperature: 250 °C MAX

This chart shows the FH39 connector material and finish specifications available.



Module Summary



Hirose's FH39 series offer:

- Space-saving with short mounting depth
- No upper/lower designation of FPC contact surface provides design flexibility
- Environment-friendly design (RoHS compliant)

In summary, Hirose's FH39 series is a ruggedized flex circuit connector for various applications including mobile phones, notebook computers, digital still and video cameras, PDAs and other small handheld devices. It features both "top and bottom contact", which increases flexibility in customer's product design such as component placement and FPC handling.