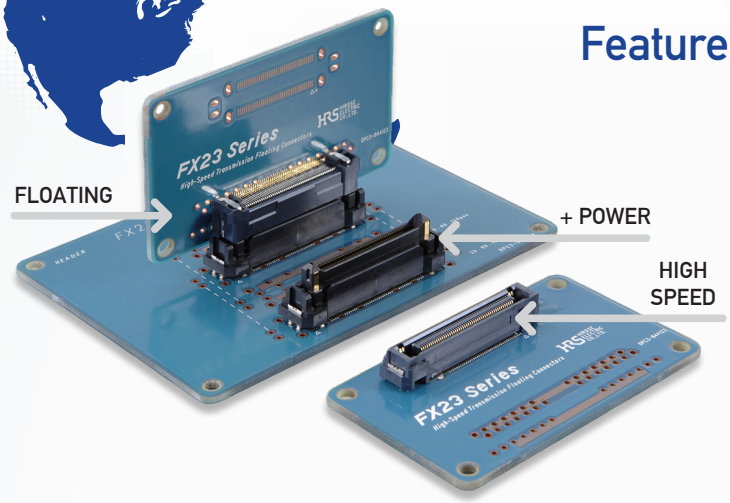
NEW PRODUCT
from **HIROSE ELECTRIC USA**

FX23/FX23L Series

Board-to-Board Connector



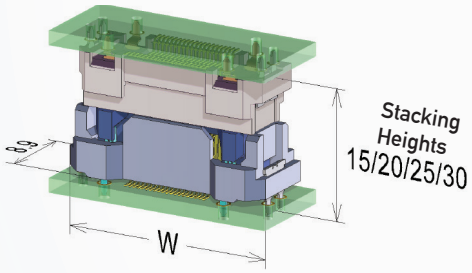
Features:

- ± 0.6 mm max. floating in XY directions allows for precise alignment when using multiple board-to-board connectors on one assembly
- High speed transmission up to 8 Gbps reduces bitrate errors
- 2 power pins on each side of the connector housing (3 Amps/pin) eliminates the need to route power through multiple signal contacts
- Signal terminal rated up to 0.5 Amp/pin
- Stacking heights for parallel connection:15 to 30mm, for right angle: 15.9 to 20.9mm allows for design flexibility
- Accepts conformal coating at SMT leads to protect contacts in harsh environments
- Low-profile parallel connection (Stacking Height: 8mm, 10mm, 12mm) for use in thin assemblies
- Excellent mating alignment with large guide posts prevents contact damage

Variations - Vertical & Right Angle

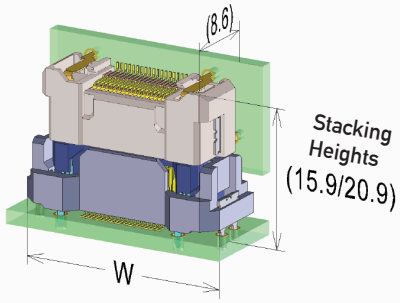
Parallel PCB Configuration

Header + Straight Receptacle
(FX23-xxP-0.5SV + FX23-xxS-0.5SV)



Right-Angle PCB Configuration

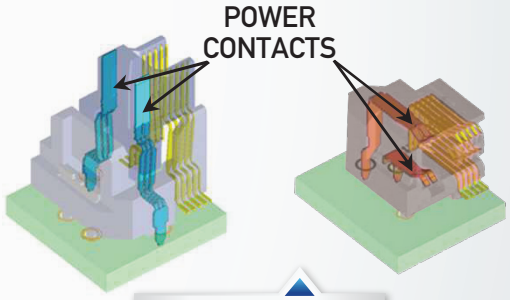
Header + Right Angle Receptacle
(FX23-xxP-0.5SV + FX23-xxS-0.5SH)



DIMENSIONS IN MM						
Number of Pos.	20	40	60	80	100	120
W (mm)	18.7	23.7	28.7	33.7	38.7	43.7

Space-Saving

- Power/Signal Hybrid Contacts



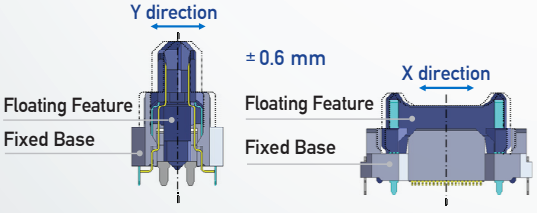
CURRENT CAPACITY:
3 AMPS/PIN

If 12 Amps are carried by signal contacts,
12A/0.5A= 24 pos.
(Rated current of signal contact)
24 signal contacts
are required for current-carrying.

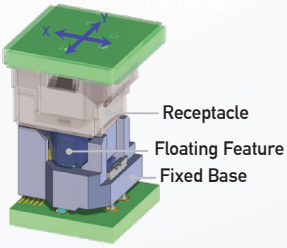
Floating with High Speed

± 0.6 mm max. Floating in XY Directions

Header Floating Structure



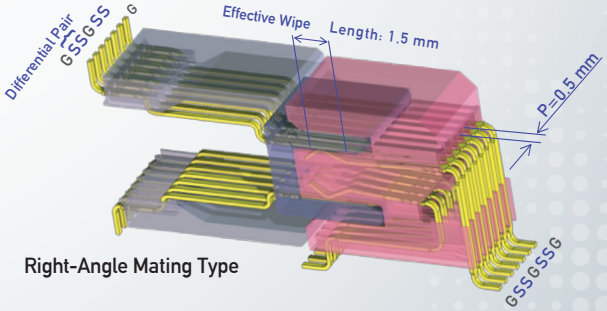
Mated State



Parallel Type

Supports High-Speed Transmission

1. Ground contacts between adjacent differential pair reduces crosstalk



Right-Angle Mating Type

HIROSE ELECTRIC U.S.A.

2300 Warrenville Rd., Suite 150, Downers Grove, IL 60515 • T: 630-282-6700 • www.hirose.com

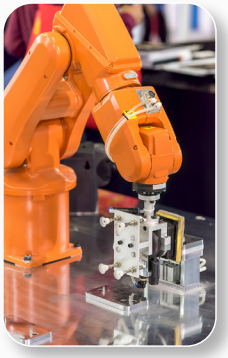
Applications

Medical Equipment

Servers

Multi-Function Printers

Automotive Navigation



Servo Motors
Servo Amps

Base Station Transceivers

Broadcasting Equipment

POS Terminals

PLC

FX23/FX23L Competitive Advantages

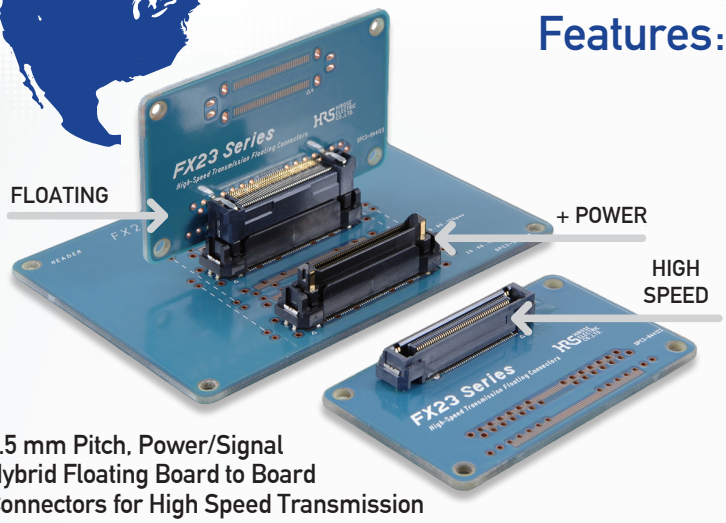
Feature	Hirose	Competition
Float Range	0.6mm in X axis and Y axis	0.5mm in X axis and Y axis
High Speed transmission	8 Gbps	5 Gbps max.
Signal contacts	20 -120	100, 30-80, 40-120
Power Contacts	4	0
Current capacity	Power 3A / Signal 0.5A hybrid	Signal 0.5A only
Mating heights	8mm to 30mm	10mm - 19mm
Mating Guide feature	Yes	Unknown
Plug Depth	7.6mm	9.7mm, 10.84mm, 11.6mm

Number of pos.: 20, 40, 60, 80, 100, 120 pos. + 4 power contacts (includes products under development)
RoHS compliant

DATA SHEET *from* HIROSE ELECTRIC USA

FX23/FX23L Series

Board-to-Board Connector



0.5 mm Pitch, Power/Signal Hybrid Floating Board to Board Connectors for High Speed Transmission

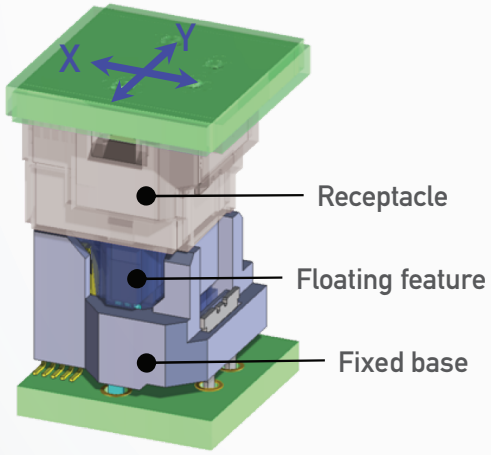
Features:

- ± 0.6 mm max. floating in XY directions allows for precise alignment when using multiple board-to-board connectors on one assembly
- High speed transmission up to 8 Gbps reduces bitrate errors
- 2 power pins on each side of the connector housing (3 Amps/pin) eliminates the need to route power through multiple signal contacts
- Signal terminal rated up to 0.5 Amp/pin
- Stacking heights for parallel connection:15 to 30mm, for right angle: 15.9 to 20.9mm allows for design flexibility
- Accepts conformal coating at SMT leads to protect contacts in harsh environments
- Low-profile parallel connection (Stacking Height: 8mm, 10mm, 12mm) for use in thin assemblies
- Excellent mating alignment with large guide posts prevents contact damage

Floating Design

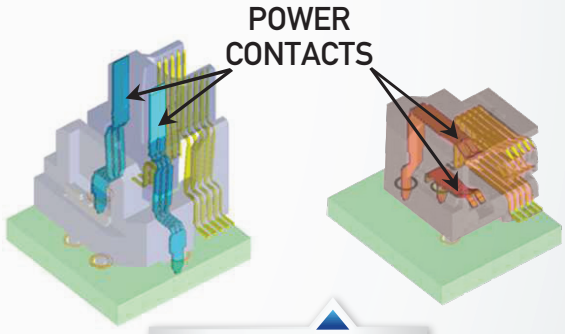
- Facilitates Multiple Mounting

XY directions: ± 0.6 mm



Space-Saving

- Power/Signal Hybrid Contacts



CURRENT CAPACITY: 3 AMPS/PIN

If 12 Amps are carried by signal contacts,

12A/0.5A= 24 pos.

(Rated current of signal contact)

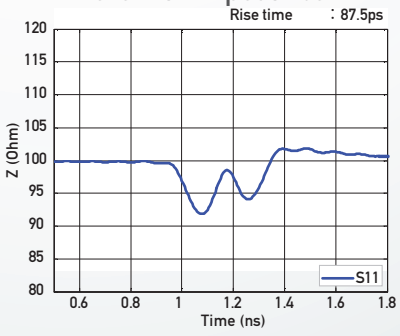
24 signal contacts

are required for current-carrying.

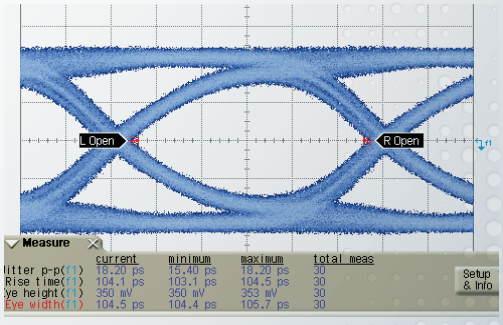
Characteristic Impedance: 100 Ω± 10 %

- Stacking Height 15mm Type (100 ps, 10/90 %)

Differential Impedance



Eye Diagram (8 Gbps)



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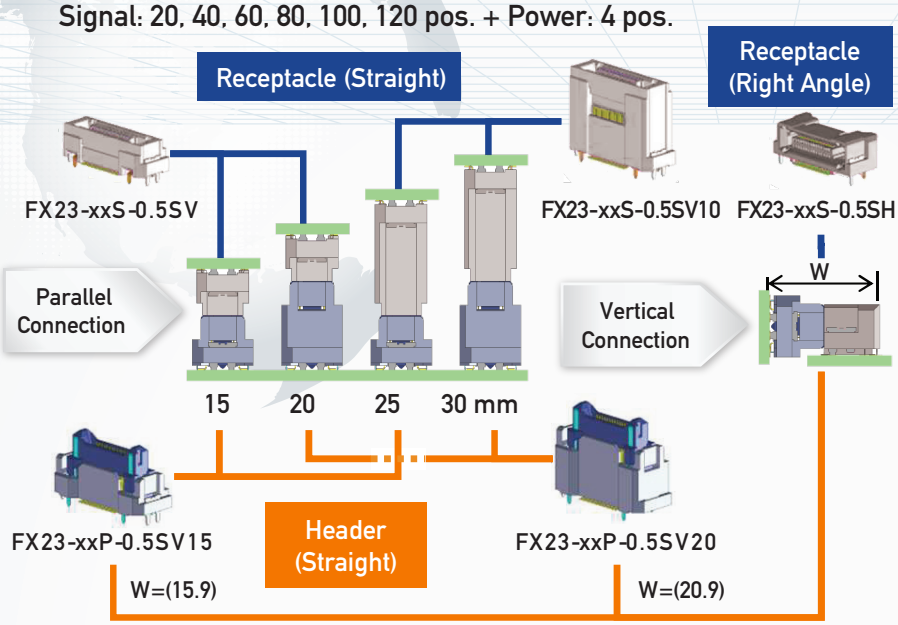
Varieties

Number of Pos.

Signal: 20, 40, 60, 80, 100, 120 pos. + Power: 4 pos.



Part Number System

Straight Header

FX23 - 60 P - 0.5 SV 15
① ②③ ④ ⑤ ⑥

Straight Receptacle

FX23 - 60 S - 0.5 SV 10
① ②③ ④ ⑤ ⑥

Right Angle Receptacle

FX23 - 60 S - 0.5 SH
① ②③ ④ ⑤

① Series name
② Number of contacts
③ Connector type:
P: Header type
S: Receptacle type
④ Contact pitch
⑤ Product type:
SV: Vertical
SH: Right angle type
⑥ Product height designation:
Mating height [mm] =
Numerical value on the header side +
Numerical value on the receptacle side

Specifications

MATERIAL AND FINISH

Item	Material	Finish
Housing	Polyamide/LCP	Black/ UL94V-0
Contact	Copper alloy	Contact area: Gold plating over Nickel under plating Solder area: Gold plating over Nickel under plating
Power Contact	Copper alloy	Contact area: Gold plating over Nickel under plating Solder area: Pure Tin Plating over Nickel under plating
Metal Post	Brass	Pure Tin Plating over Nickel under plating

PERFORMANCE CHARACTERISTICS

Operating Temperature Range	-55 °C to +85 °C (includes temperature rise caused by current flow)
Rated Current	Signal Contact: 0.5 Amp Power Contact: 3 Amps
Rated Voltage	50 V AC
Insulation Resistance	100 M Ω Min. (100 V DC)
Withstanding Voltage	150V AC for 1 minute
Contact Resistance	Signal Contact: 70 m Ω max. Power Contact: 30 m Ω max.
Mating Cycles	100 times

Number of pos.: 20, 40, 60, 80, 100, 120 pos. + 4 power contacts (includes products under development)
RoHS compliant

For additional information please go to https://www.hirose.com/product/en/products/FX23/

HIROSE ELECTRIC U.S.A.

News Release

FOR IMMEDIATE RELEASE
March 28, 2016

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FX23 Series board-to-board connector provides fast transmission speed with ± 0.6mm maximum floating in XY directions…

HIROSE'S HYBRID CONNECTOR COMBINES FLOATING CONTACT ALIGNMENT WITH HIGH SPEED TRANSMISSION

CHICAGO, ILLINOIS — March 28, 2016 — Hirose, a leader in the development of innovative connector solutions, has developed a hybrid power and signal board-to-board connector that features high-speed transmission capability up to 8 Gbps and a highly reliable floating contact mechanism that simplifies assembly. The FX23 Series is designed for a wide range of high-speed applications including medical devices, office imaging equipment, measurement equipment, industrial computer systems, automotive navigation and audio systems, broadcast equipment, base station transceivers, industrial machinery and more.

A member of Hirose's FunctionMAX family of high-speed board-to-board connectors, the 0.5 mm pitch FX23 Series connector supports high-speed applications with a specialized contact structure that utilizes a ground contact between adjacent differential pairs to reduce crosstalk. In addition, this contact structure provides superior impedance matching, even with short rise times.

The connector's floating design offers a degree of play between the contacts during mating, allowing the board-to-board connector to absorb alignment errors up to ± 0.6mm in X and Y axis directions. By self-centering in both the X and Y directions, the floating structure eliminates mechanical stress at the SMT

leads. This unique floating contact structure is particularly convenient when mating multiple connectors on the same printed circuit board, saving significant assembly time and costs.

The hybrid power and signal connector has two built-in power contacts located on each side of the FX23 connector housing that provide a power rating of 3 Amps per pin. The hybrid structure also reduces the number of pins required, saving space. Available in right angle and parallel versions, the FX23 Series is offered in 20, 40, 60, 80, 100 and 120 positions.

"The FX23 Series' floating feature ensures correct and safe mating, reduces the stress on mounted parts, decreases solder cracking, and enhances reliability," said Rick van Weezel, Vice-President of Sales and Marketing for Hirose Electric USA. "Combining this feature with high transmission rates provides a highly functional solution for demanding applications."

The FX23 Series connector uses a single metal post that allows mounting to the top and bottom sides of the PCB, as standard double metal posts interfere with mounting on both sides. Pin-in-hole intrusive reflow can be applied and reduces the manual soldering process of the metal posts. In addition, the FX23 Series can accept coating agents.

For additional information about the FX23 Series hybrid power and signal, board-to-board connector, please visit: www.hiroseusa.com.

ABOUT HIROSE ELECTRIC

Hirose Electric Co., Ltd. is a leading global supplier of innovative interconnects, with sales of over $1 billion to customers worldwide. Hirose employs advanced engineering services, superior customer support and worldwide manufacturing capabilities to provide value-based connector solutions for various industries including: industrial, telecommunication, consumer electronics, computer and automotive. More information can be found on Hirose Electric's corporate website at www.hirose.com.