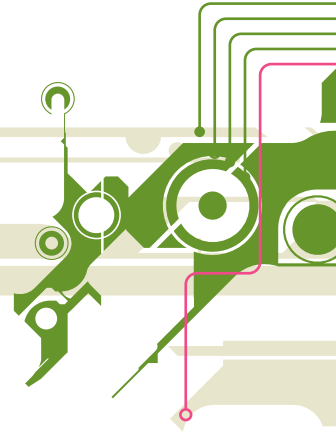


Flat Display Connections for High Speed transmission: LVDS & UHS



FDC 100® is a 100 ohm shielded Flat Cable Assembly, designed for connecting HD and ultra high definition flat displays.

The FDC 100® is the connection between the motherboard to the display on larger HD television displays (LCD LED, plasma and LCD monitors).



FDC 100® UHS - ZIF VERSION

Advantages

- Connector with a simple connection system: no need to have an extra metal link between the PCB connector and the cable shield.
- Foldable to make installation easier.
- Small size.
- High flexibility.
- 100 Ω differential impedance.

UHS cables are compatible with the V-by-One® HS protocol



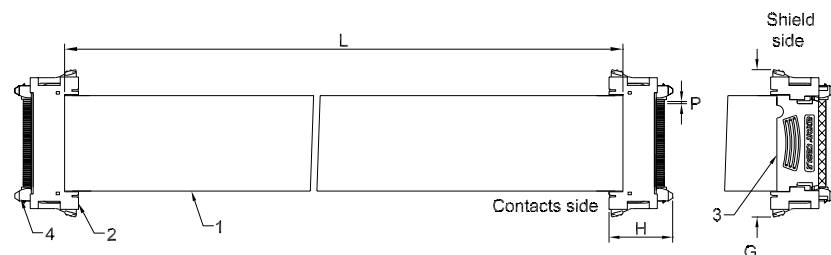
General characteristics

- Made with a shielded flat cable only or a shielded flat cable connected with an innovative connector designed by AXON'.
- 21, 31, 41 and 51 way 0.50 mm pitch shielded flat cable with gold plated conductor ends, terminated with connectors compatible with the board-mount FI-R connectors.
- Compatible with Molex and FH41 Hirose connectors.

General drawing

FDC 100® - 0.50 mm pitch

Connector compatible with FI-R PCB mounted connector.



FDC 100® with FI-R connectors

Dimensions

Items	Materials and Finishes	
1	FFC	PET, copper, contact, gold plating
2	Connector – Housing	AXON'connector mating to FI-R
3	Connector – Cover	
4	Clip	

Items	Specifications			
Number of conductors N	21	31	41	51
Pitch P	0.50 +/- 0.05 mm			
Length L	L +/- 5 mm			
Connector height H	14.95 mm			
Connector width G	25.30 mm	30.30 mm	35.30 mm	40.30 mm

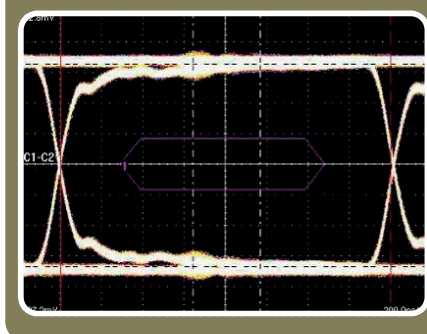
Electrical properties for cable

Contact resistance	< 40 milliohms max
Insulation resistance M Ω .m min resistance	10 at 200 V DC conductor to conductor
Dielectric test (V AC -min)	200 VAC RMS (for 1 minute) Dielectric test (V AC min)
Operating voltage	30 VAC max.
Impedance	100 +/- 10 ohms
Operating temperature	-40°C to +80°C
Humidity resistance	48H – 85°C / 95% humidity
Vibration resistance	OK (Acc 4g/ shock resistance 6g 10 ms)
Interconnection with FI-R connectors.	20 mating cycles: no change of electrical parameters.

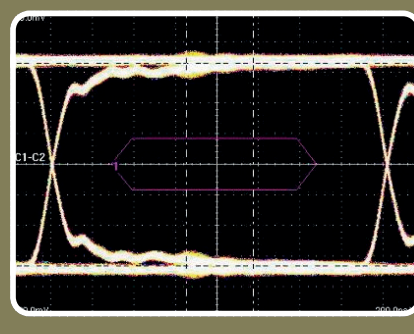
Eye pattern FDC 100® UHS (for 700 mm length cables)

At 620 Mb/s (FI-R)

Without fold

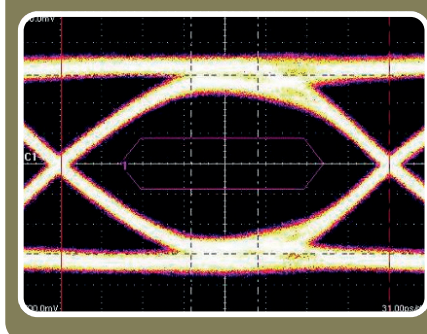


With 10 folds on the cable

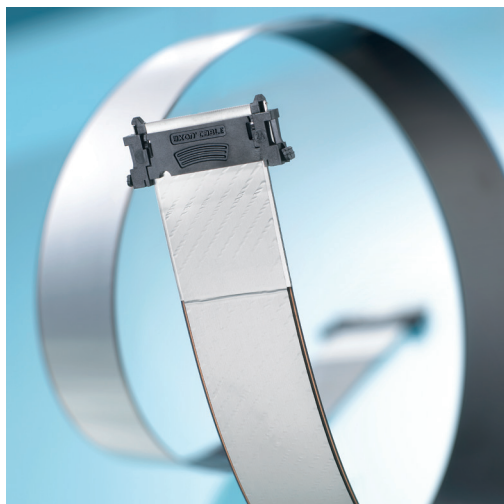
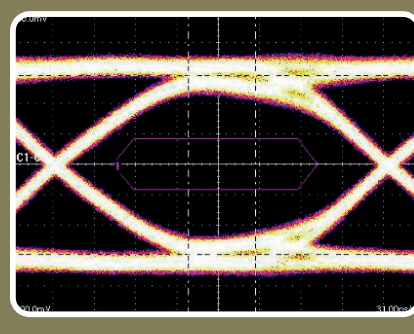


At 4 Gb/s (FI-R)

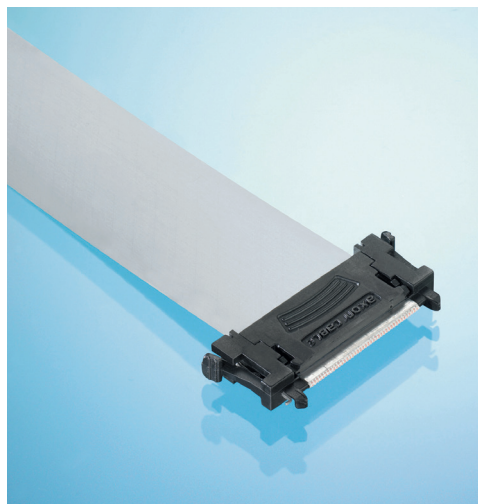
Without fold



With 10 folds on the cable



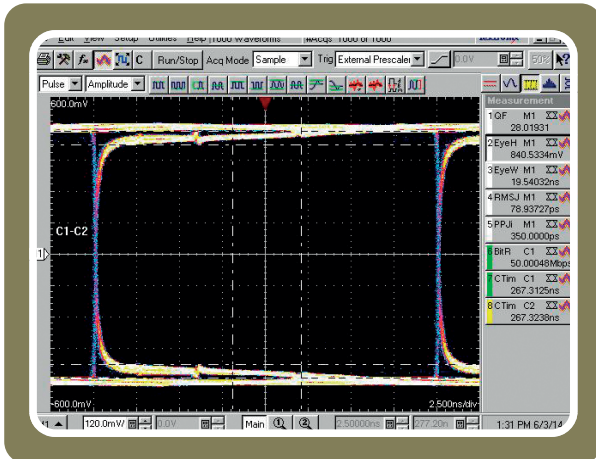
FDC 100® - UHS



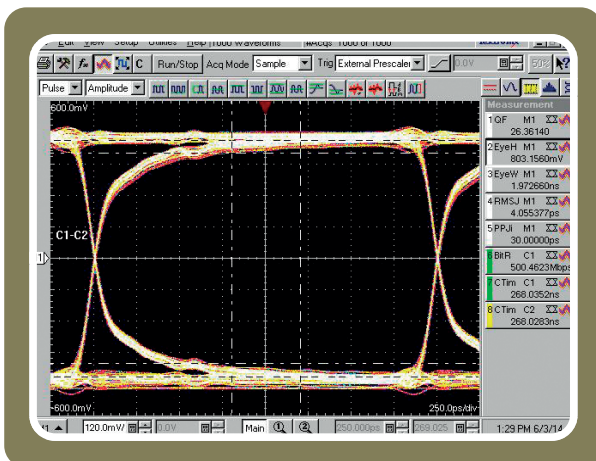
FDC 100® - UHS

Eye pattern FDC 100® LVDS (for 500 mm length cables)

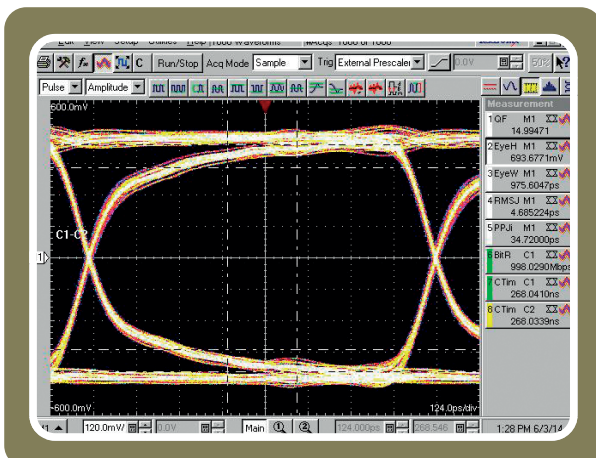
At 50 Mbit/s



At 500 Mbit/s



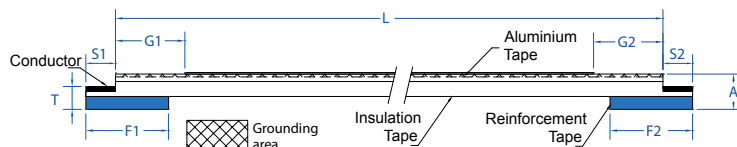
At 1000 Mbit/s



FDC100® LVDS

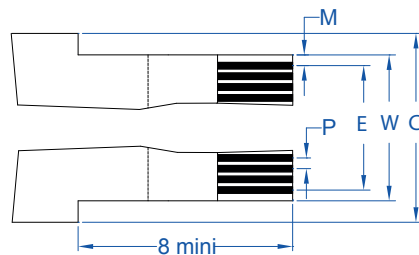
FDC 100® for ZIF connectors

Molex 502231 - Hirose FH41,
Molex 501786 - Molex 501864



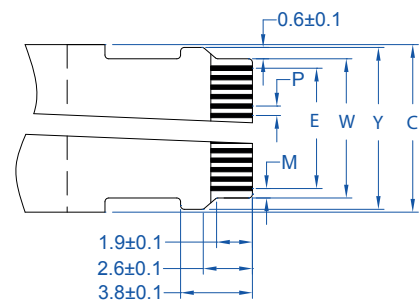
Pitch: P	0.50 ± 0.05 mm
End thickness: T	0.30 ± 0.05 mm
Thickness grounding Area: A	0.50 ± 0.05 mm
Insulated length: L	45 to 60 ± 2 mm
	61 to 100 ± 3 mm
	101 to 200 ± 4 mm
	201 to 1500 ± 5 mm

Version for Molex 502231



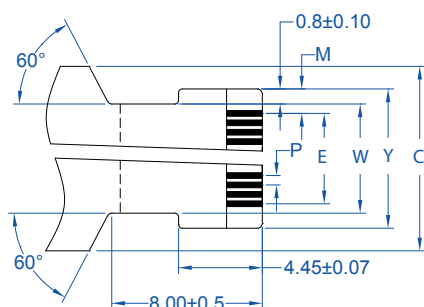
Pitch: P	0.50 ± 0.05 mm
Span: E	(N-1)*0.50 ± 0.05 mm
Width: W	(N+1)*0.50 ± 0.07 mm
Width: C	(N+5)*0.50 ± 0.15 mm
Margin: M	0.5 ± 0.08 mm
Strip length: S1/S2	2.2 ± 0.5 mm
Grounding length: G1/G2	6 ± 2.0 mm
Reinforcement length: F1/F2	7 ± 1.5 mm

Version for Hirose FH41



Pitch : P	0.50 ± 0.05
Span: E	(N-1)*0.50 ± 0.05
Width: W	(N+1)*0.50 ± 0.07
Width: C	(N+5)*0.50 ± 0.15
Margin: M	0.5 ± 0.08
Punching: Y	(N+1)*0.50+1.2 ± 0.10
Strip length: S1/S2	2.1 ± 0.5
Grounding length: G1/G2	6 ± 2.0
Reinforcement length: F1/F2	8 ± 1.5

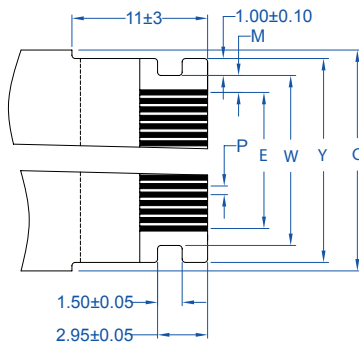
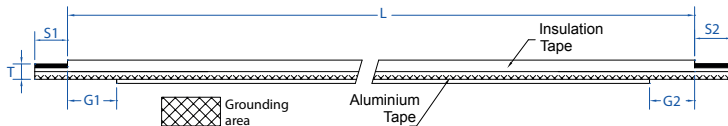
Version for Molex 501786 / 501864



Pitch : P	0.50 ± 0.05
Span: E	(N-1)*0.50 ± 0.06
Width: W	(N+1)*0.50 ± 0.05
Width: C	(N+9)*0.50 ± 0.2
Margin: M	1.3 ± 0.06
Punching: Y	(N+1)*0.50+1.6 ± 0.04
Strip length: S1/S2	1.9 ± 0.5
Grounding length: G1/G2	6 ± 2.0
Reinforcement length: F1/F2	7.7 ± 1.5

FDC 100® for ZIF connectors

Version for Molex 503908



Pitch : P	0.50 ± 0.05
End thickness: T	0.30 ± 0.05
Insulated length: L	45 to 60 ± 2
	61 to 100 ± 3
	101 to 200 ± 4
	201 to 1500 ± 5

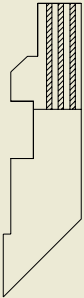
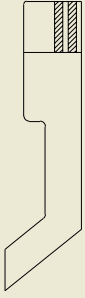
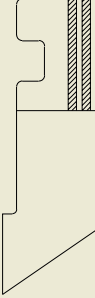
Pitch : P	0.50 ± 0.05
Span: E	(N-1)*0.50 ± 0.05
Width: W	(N+3)*0.50 ± 0.05
Width: C	(N+9)*0.50 ± 0.15
Margin: M	2.0 ± 0.08
Punching: Y	(N+7)*0.50 ± 0.04
Strip length: S1/S2	4.0 ± 0.5
Grounding length: G1/G2	6 ± 2.0

Other specific shapes for connectors with locking systems available on request.

Electrical properties

Insulation resistance	10 Mohm.m min (200 VDC)
Impedance	100 +/- 10 ohms
Dielectric withstanding voltage conductor to shield	200 VAC RMS (for 1 minute)
Operating voltage	30 VAC max
Operating temperature	-40°C to +80°C
Humidity resistance	48H -85°C / 95% humidity

Special designs

		501786 501864	503908	
Pitch: P (mm)	0.50	0.50	0.50	0.50
FFC Drawing				

Identification code

FDC100 41 A 450 A -

LVDS: -
UHS: **V**

FI-R/FI-R connector: **A**
ZIF Molex 502231: **B**
Hirose FH41: **C**
Molex 501786, 501864: **D**
Molex 503908: **E**

Length
(mm)

Processing form: Type A

Number of conductors

FI-R: 21, 31, 41, 51
502231: 15, 24, 33
FH41: 15, 20, 28, 31, 40, 50, 68
501786, 501864: 30, 50, 80
503908 : 41, 51

Flat Display Cable

Flat Display Connections for High Speed (LVDS): FDC 100® Flexible version

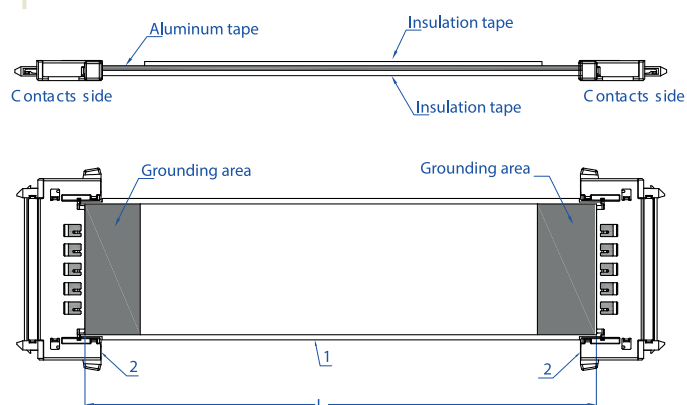
Compared to a standard LVDS design, the flexible version of the FDC 100® provides better insulation, greater flexibility and easier integration into the customer's equipment.

1) FDC 100® with FI-R connectors

Processing forms

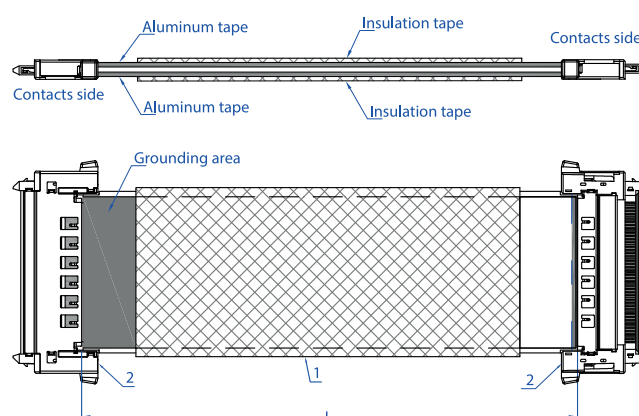
Type A

Contact area on same side.



Type D

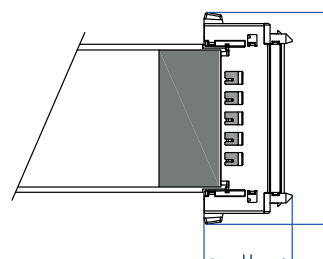
Contact area on opposite side.



Dimensions

Items	Materials and Finishes	
1	FFC	PET, copper, contact, gold plating
2	Connector – Housing	Connector mating to FI-R

Items	Specifications	
Number of conductors N	41	51
Pitch P	0.50 +/- 0.05 mm	
Length L	L +/- 5 mm	
Connector height H	15.20 mm	
Connector width G	35.00 mm	40.0 mm



Electrical properties for cable

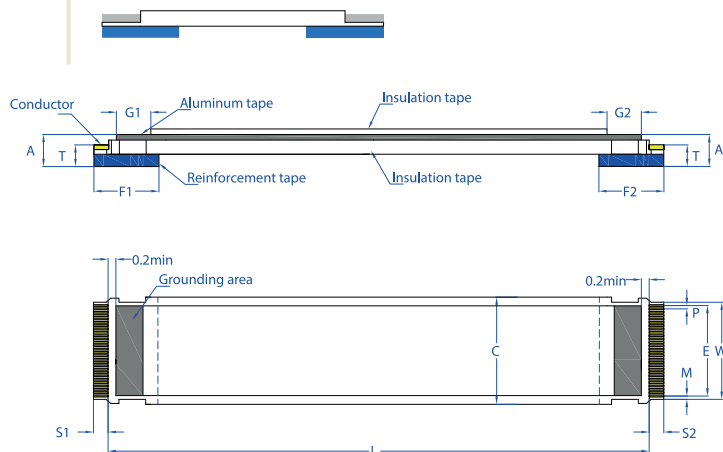
Contact resistance	< 40 milliohms max
Insulation resistance M Ω .m min resistance	10 at 200 V DC conductor to conductor
Dielectric test (V AC -min)	200 VAC RMS (for 1 minute) Dielectric test (V AC min)
Operating voltage	60 VAC max.
Impedance	100 +/- 10 ohms
Operating temperature	-40°C to +80°C
Humidity resistance	48H – 85°C / 95% humidity
Vibration resistance	OK (Acc 4g/ shock resistance 6g 10 ms)
Interconnection with FI-R connectors.	20 mating cycles: no change of electrical parameters.

II) FDC 100® with ZIF connectors

Processing forms

Type A

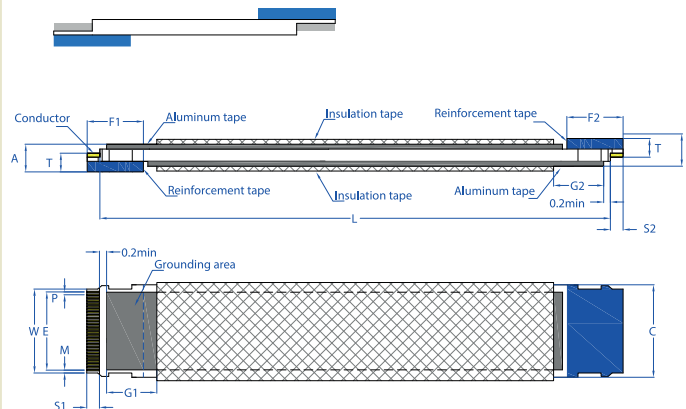
Reinforcements at both ends, on the same side.



Pitch: P	0.50 ± 0.05 mm
End thickness: T	0.30 ± 0.05 mm
Thickness grounding Area: A	0.50 ± 0.05 mm
Insulated length: L	45 to 60 ± 2 mm
	61 to 100 ± 3 mm
	101 to 200 ± 4 mm
	201 to 900 ± 5 mm

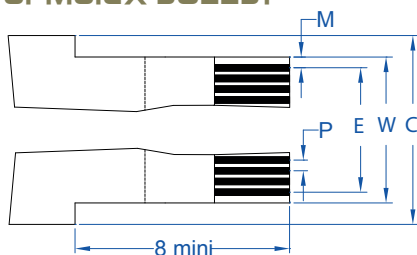
Type D

Reinforcements at both ends, on opposing side.



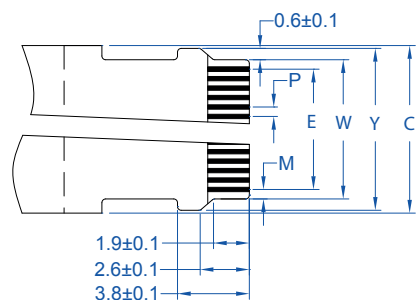
Pitch: P	0.50 ± 0.05 mm
End thickness: T	0.30 ± 0.05 mm
Thickness grounding Area: A	0.50 ± 0.05 mm
Insulated length: L	45 to 60 ± 2 mm
	61 to 100 ± 3 mm
	101 to 200 ± 4 mm
	201 to 500 ± 5 mm

Version for Molex 502231



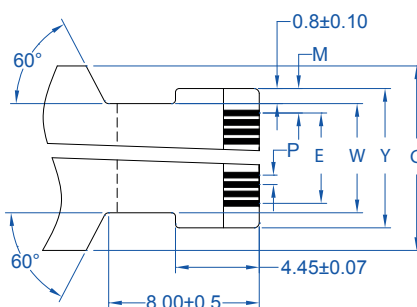
Pitch: P	0.50 ± 0.05 mm
Span: E	(N-1)*0.50 ± 0.05 mm
Width: W	(N+1)*0.50 ± 0.07 mm
Width: C	(N+5)*0.50 ± 0.15 mm
Margin: M	0.5 ± 0.08 mm
Strip length: S1/S2	2.2 ± 0.5 mm
Grounding length: G1/G2	6 ± 2.0 mm
Reinforcement length: F1/F2	7 ± 1.5 mm

Version for Hirose FH41 / FH48



Pitch : P	0.50 ± 0.05
Span: E	(N-1)*0.50 ± 0.05
Width: W	(N+1)*0.50 ± 0.07
Width: C	(N+5)*0.50 ± 0.15
Margin: M	0.5 ± 0.08
Punching: Y	(N+1)*0.50+1.2 ± 0.10
Strip length: S1/S2	2.2 ± 0.5
Grounding length: G1/G2	6 ± 2.0
Reinforcement length: F1/F2	7 ± 1.5

Version for Molex 501786 / 501864



Pitch : P	0.50 ± 0.05
Span: E	(N-1)*0.50 ± 0.06
Width: W	(N+1)*0.50 ± 0.05
Width: C	(N+9)*0.50 ± 0.2
Margin: M	1.3 ± 0.06
Punching: Y	(N+1)*0.50+1.6 ± 0.04
Strip length: S1/S2	1.9 ± 0.5
Grounding length: G1/G2	6 ± 2.0
Reinforcement length: F1/F2	7.7 ± 1.5

Other specific shapes for connectors with locking systems available on request.

Electrical properties

Insulation resistance	10 Mohm.m min (200 VDC)
Impedance	100 +/- 10 ohms
Dielectric withstanding voltage conductor to shield	200 VAC RMS (for 1 minute)
Operating voltage	60 VAC max
Operating temperature	-40°C to +80°C
Humidity resistance	48H -85°C / 95% humidity

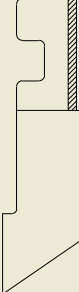


0.05 MM FDC 100® FLEXIBLE LVDS



0.5 MM FDC 100® FLEXIBLE LVDS

Special designs

		501786 501864	503908	
Pitch: P (mm)	0.50	0.50	0.50	0.50
FFC Drawing				

Identification code

FDC 100F	41	A	450	A	-	
						LVDS: -
						FI-R/FI-R connector: A ZIF Molex 502231: B Hirose FH41: C Molex 501786, 501864: D Molex 503908: E
						Length (mm)
						Processing form: Type A or D
						Number of conductors FI-R: 41, 51 502231: 15, 24, 33 FH41: 15, 20, 28, 31, 40, 50, 68 501786, 501864: 30, 50, 80 503908 : 41, 51
						Flat Display Cable Flexible version



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