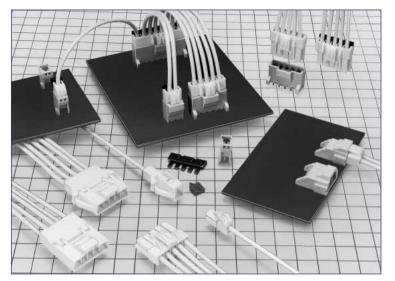
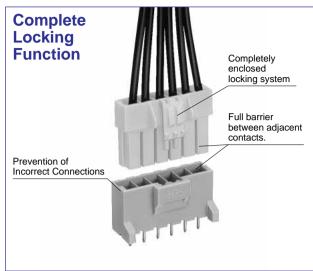
3.96 mm Pitch Miniature Connectors for Internal Power Supplies (UL,C-UL and TÜV Listed)

DF7 Series





Features

1. Complete Locking Function

Reliable interior lock protects mated connectors from accidental disconnection.

2. Increased Contact Retention of Crimped Contacts and Prevention of Incomplete Insertion

Separate contact retainer increases the contact retention, assures and visually confirms the complete contact insertion.

3. Molded-in Contact Retention Tabs

Handling of terminated contacts during the assembly and termination is easier and avoids entangling of wires. since there are no protruding metal tabs.

4. Incorrect Insertion Prevention

Connectors are polarized to assure correct mating with corresponding parts.

5. Solder Crack Prevention

Glass reinforced resin is used in the pin header bodies to prevent solder cracks caused by the heat shrinkage.

6. Prevention of Incorrect Board Placement

Built-in locating posts assure correct connector placement and orientation on the board.(2-12 pos.)

7. Supports Sealing after Installation.

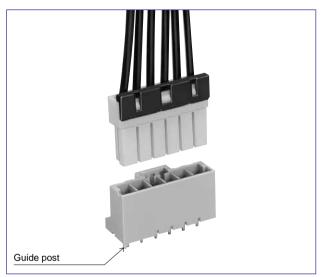
Sealing compound can be applied to the board installed connector for distance of 6 mm max. from the mounting surface (9 mm max. for single position).

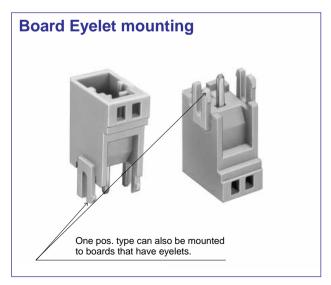
8.Cost Effective Tooling

The same crimping tools are used to terminate socket and pin contacts.

9. Prevention of Short Circuits between **Adjacent Contacts**

Each contact is completely surrounded by the insulator housing, electrically isolating it from adjacent contacts.





Continued.

10. 10 A maximum Current

Connector can carry current of 10 A per contact with #16 AWG conductor.Refer to page 3 for current ratings for multi-position connectors using other conductor sizes.

11. Color Variations

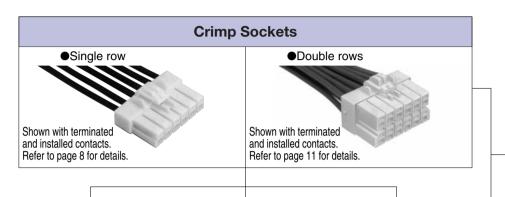
1 pos. is available in a standard 3 colors: natural, blue, and red.

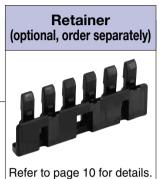
12. Supports Eyelets

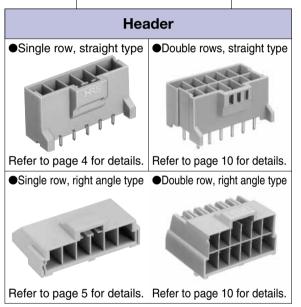
1 pos. can be mounted to boards which have eyelets attached.

Applications

Office equipment, power supplies for industrial, medical and instrumentation applications, variety of consumer electronic and electrical applications.









■Ordering information

Socket, Header

Contacts

0	Series name: DF7, DF7A	
2	Number of contacts: 1 to 12	
8	Connector type	
	S: Socket	
	DS: Double-row socket	
	P: Header	
	DP: Double-row Header	
	EP: In-line plug	
	RS/P: Retainer	
4	Contact pitch: 3.96mm(7.92 mm)	
6	Type of housing: header	
	C: Crimp housing	
	DSA: Straight header	
	DS: Right-angle header	
	Blank: Retainer	

6 Applicable Conductor 1618: AWG 16 to AWG 18 2022: AWG 20 to AWG 22 2426: AWG 24 to AWG 26 Packaging SCF: Socket contacts / Reel SC: Socket contacts / Bag PCF: Plug contacts / Reel PC: Plug contacts / Bag

■Product Specifications

		Row	No. of contacts	AWG16	AWG18	AWG20	AWG22		
		1	1~10	10A	7A	5A	4A	Operating temperature range	nge
			4	10A	9A	7A	6A	Operating humidity rang	e 20% to 80%
	Current rating		6	9A	8A	6A	5A		
		2	8	9A	8A	6A	5A	Storage temperature rai	nge -10℃to 60℃ (Note 2)
Ratings			10	8A	7A	5A	4A	Storage temperature rail Storage humidity range	
			12	8A	7A	5A	4A	- Storage numbers rang	40 % 10 70 % (11016 2)
		Specificatoin		AC 630V		UL/C-UL/TÜV File	No.and Recognition No		
	Voltage		UL/C-UL		AC 600V		UL :E5	2653	
	rating		- ."n (AC 600V(7.92mm pitch)			C-UL :E5	2653
		ΤÜV			AC 300V (3.96mm pitch)		TÜV :R9	750437	

Item	Specification	Condition
1. Contact resistance	Contact resistance(Initial value)	10 m ohms max. 20mV max., 1mA
2. Insulator resistance	1000 M ohms min.	500 V DC
3. Withstanding voltage	No flashover or Insulator breakdown	1500 V AC for 1 minute
Insertion-Extraction force (per contact)	0.3N min., 4.5N max.	Measured with a steel pin of 0.64 x 1.2 \pm 0.002 mm
5. Durability (mating/unmating)	30 cycles	Contact resistance of 20 m ohms max.
6. Vibration	No momentary disconnections of 1 μ s min.	Frequency 10 to 55 Hz, single amplitude of 0.75 mm, 3 axis, 2 hours
7. Shock	No electrical discontinuity of 1 μ s. min.	Acceleration of 490 m/s², 11 ms duration, sine half-wave waveform, 3 cycles in each of the 3 axis.
8. Humidity	Contact resistance 20 m ohms max.	Temperature $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$, 90% to 95% RH, 96 hours
9. Temperature cycle	Contact resistance of 20 m ohms max.	(-55°C: 30 minutes → 5 to 35°C: 5 minutes → 85°C: 30 minutes → 5 to 35°C: 5 minutes) for 5 cycles
10. Resistance to soldering heat	No deformation of the insulator parts affecting performance	Flow solder temperature 250°C, 10 seconds Manual soldering: Soldering iron temperature 300°C, 3 seconds

Note 1: Includes temperature rise caused by the current flow.

Note 2: The term "storage" refers to products stored for long period of time prior to mounting and use. Operating Temperature Range and Humidity range covers non- conducting condition of installed connectors in storage, shipment or during transportation.

■Materials

Product	Part	Material	Finish	Remarks
Sockets	Insulator	Polyamide	Color: White	UL94V-0
	Insulator	Polyamide	Color: Beige (Single row)	UL94V-0
Headers	insulator	(Glass reinforced)	Color: Grey (Double row)	0L94V-0
	Contact	High conductivity copper alloy	Tin plating (Note)	
In-line plug	plug Insulator Polyamide		Color: White	UL94V-0
Retainer	Insulator	Polyamide	Color: Black	UL94V-0
Crimp contacts	Contacts	High conductivity copper alloy	Tin plating (Note)	

Note: Hirose Electric's plating incorporates anti-whisking compounds.

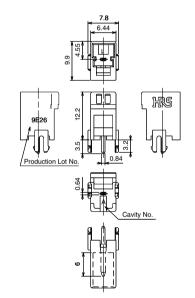
The product information in this catalog is for reference only. Please request the Engineering Drawing for the most current and accurate design information. All non-RoHS products have been discontinued, or will be discontinued soon. Please check the products status on the Hirose website RoHS search at www.hirose-connectors.com, or contact your Hirose sales representative.

■ Straight header





1 Pos.



Part Number	CL No.	Number of contacts	Α	В
DF7- 1P-3.96DSA	CL680-0133-1	1		
DF7- 2P-3.96DSA	CL680-0036-5	2	10.40	3.96
DF7- 3P-3.96DSA	CL680-0037-8	3	14.36	7.92
DF7- 4P-3.96DSA	CL680-0038-0	4	18.32	11.88
DF7- 5P-3.96DSA	CL680-0039-3	5	22.28	15.84
DF7- 6P-3.96DSA	CL680-0040-2	6	26.24	19.80
DF7- 7P-3.96DSA	CL680-0041-5	7	30.20	23.76
DF7- 8P-3.96DSA	CL680-0042-8	8	34.16	27.72
DF7- 9P-3.96DSA	CL680-0043-0	9	38.12	31.68
DF7-10P-3.96DSA	CL680-0044-3	10	42.08	35.64
DF7- 2P-7.92DSA	CL680-0108-4	2	14.36	7.92
DF7- 3P-7.92DSA	CL680-0109-7	3	22.28	15.84
DF7- 4P-7.92DSA	CL680-0110-6	4	30.20	23.76
DF7- 5P-7.92DSA	CL680-0111-9	5	38.12	31.68

Note 1) Bag packaging (100 pieces/bag). Order by number of bags. Note 2) The 2 pos. type does not have walls on both sides.

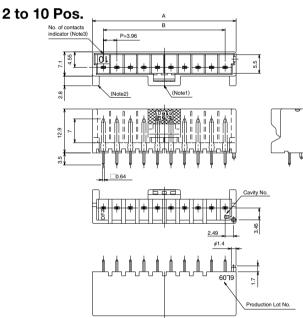
Note 3) DF7-2P-7.92DSA plug has #2 contact positions of DF7-3P-3.96DSA without contacts inserted and the number of pos. indication is 2.

Off 27 1.3253 plug has #2 condact positions of b77 37 39553 without contacts inserted and the number of pos. Indication is 2. (Mating receptacle: DF7#-3S-3-96C)

DF7-3P-7.92DSA plug has #2 and #4 contact positions of DF7-5P-3.96DSA without contacts inserted and the number of pos. Indication is 3. (Mating receptacle: DF7#-5S-3-96C)

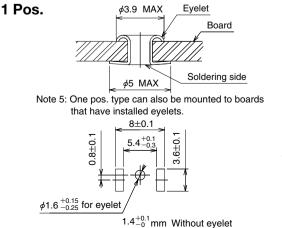
DF7-4P-7.92DSA plug has #2, #4 and #6 contact of DF7-7P-3.96DSA without contacts inserted and the number of pos. indication is 4. (Mating receptacle: DF7#-7S-3-96C)

DF7-5P-7-92DSA plug has #2, #4, #6 and #8 contact positions of DF7-9P-3.96DSA without contacts inserted and the number of pos. indication is 5. (Matting receptacle: DF7#-9S-3-96C)



lacktriangle PCB mounting pattern (Board thickness: 1.6 \pm 0.1)

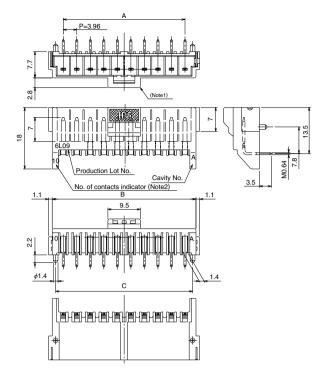
2 to 10 Pos.



P=3.96±0.05(7.92±0.05) 2.49±0.05 B±0.1

■ Right angle header





Part Number	CL No.	Number of contacts	Α	В	С	Quantity per tray
DF7- 2P-3.96DS(24)	CL680-0081-0-24	2	3.96	10.40	8.40	114
DF7- 3P-3.96DS(24)	CL680-0082-2-24	3	7.92	14.36	12.36	84
DF7- 4P-3.96DS(24)	CL680-0083-5-24	4	11.88	18.32	16.32	66
DF7- 5P-3.96DS(24)	CL680-0084-8-24	5	15.84	22.28	20.28	60
DF7- 6P-3.96DS(24)	CL680-0085-0-24	6	19.80	26.24	24.24	48
DF7- 7P-3.96DS(24)	CL680-0086-3-24	7	23.76	30.20	28.20	42
DF7- 8P-3.96DS(24)	CL680-0087-6-24	8	27.72	34.16	32.16	36
DF7- 9P-3.96DS(24)	CL680-0088-9-24	9	31.68	38.12	36.12	36
DF7-10P-3.96DS(24)	CL680-0089-1-24	10	35.64	42.08	40.08	30
DF7- 2P-7.92DS(24)	CL680-0124-0-24	2	7.92	14.36	12.36	84
DF7- 3P-7.92DS(24)	CL680-0125-3-24	3	15.84	22.28	20.28	60
DF7- 4P-7.92DS(24)	CL680-0126-6-24	4	23.76	30.20	28.20	42
DF7- 5P-7.92DS(24)	CL680-0127-9-24	5	31.68	38.12	36.12	36

Note 1) Tray packaging. Order by number of quantity in the tray.

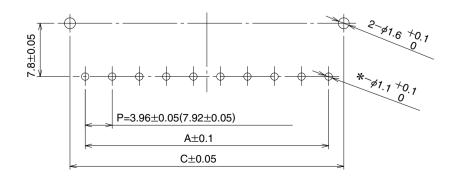
Note 2) DF7-2P-7.92DS plug has #2 contact positions of DF7-3P-3.96DS without contacts inserted and the number of pos. indication is 2.

(Mating receptacle: DF7#-3S-3-96C)
DF7-3P-7.92DS plug has #2 and #4 contact positions of DF7-5P-3.96DS without contacts inserted and the number of pos. indication is 3. (Mating receptacle: DF7#-5S-3-96C)

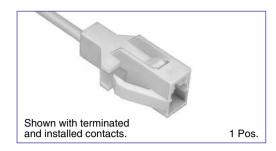
DF7-4P-7.92DS plug has #2, #4 and #6 contact of DF7-7P-3.96DS without contacts inserted and the number of pos. indication is 4. (Mating receptacle: DF7#-7S-3-96C)

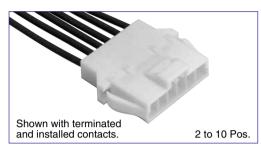
DF7-5P-7.92DS plug has #2, #4, #6 and #8 contact positions of DF7-9P-3.96DS without contacts inserted and the number of pos. indication is 5. (Mating receptacle: DF7#-9S-3-96C)

lacktriangle PCB mounting pattern (Board thickness: 1.6 \pm 0.1)



■ In-line plug (Panel lock type)

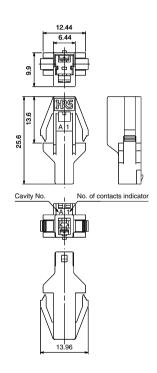




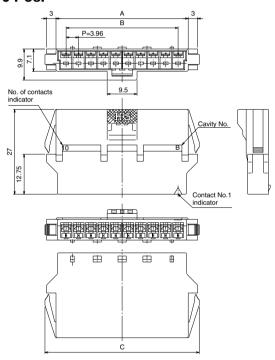
Part Number	CL No.	Number of contacts	Α	В	С
DF7- 1EP-3.96C	CL680-0134-4	1	6.44		13.96
DF7- 2EP-3.96C	CL680-0018-3	2	10.40	3.96	17.40
DF7- 3EP-3.96C	CL680-0019-6	3	14.36	7.92	21.36
DF7- 4EP-3.96C	CL680-0020-5	4	18.32	11.88	25.32
DF7- 5EP-3.96C	CL680-0021-8	5	22.28	15.84	29.28
DF7- 6EP-3.96C	CL680-0022-0	6	26.24	19.80	33.24
DF7- 7EP-3.96C	CL680-0023-3	7	30.20	23.76	37.20
DF7- 8EP-3.96C	CL680-0024-6	8	34.16	27.72	41.16
DF7- 9EP-3.96C	CL680-0025-9	9	38.12	31.68	45.12
DF7-10EP-3.96C	CL680-0026-1	10	42.08	35.64	49.08

Note1: Bag packaging (100 pieces/bag). Order by number of bags. Note2: Refer to page 10 for retainer.

1 Pos.

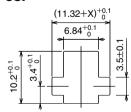


2 to 10 Pos.



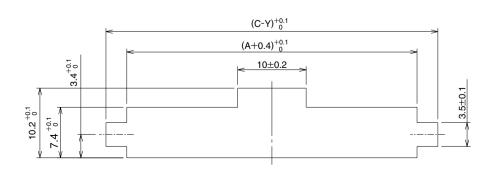
Panel Cutout



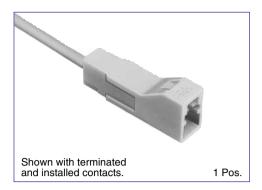


	Х	Υ
2.0	1.44	0.88
1.6	0.96	0.96
1.2	0.48	1.44
0.8	0	1.92

2 to 10 Pos.

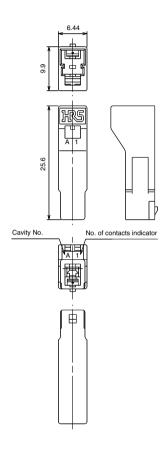


■ In-line Plug

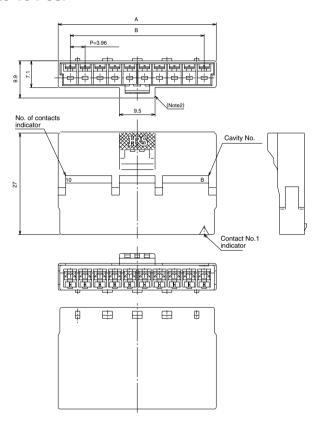




1 Pos.



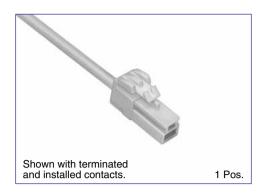
2 to 10 Pos.

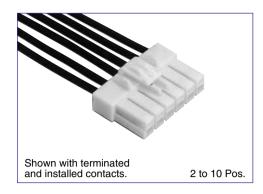


Part Number	CL No.	Number of contacts	Α	В
DF7A- 1EP-3.96C	CL680-0135-7	1	6.44	
DF7A- 2EP-3.96C	CL680-0072-9	2	10.40	3.96
DF7A- 3EP-3.96C	CL680-0073-1	3	14.36	7.92
DF7A- 4EP-3.96C	CL680-0074-4	4	18.32	11.88
DF7A- 5EP-3.96C	CL680-0075-7	5	22.28	15.84
DF7A- 6EP-3.96C	CL680-0076-0	6	26.24	19.80
DF7A- 7EP-3.96C	CL680-0077-2	7	30.20	23.76
DF7A- 8EP-3.96C	CL680-0078-5	8	34.16	27.72
DF7A- 9EP-3.96C	CL680-0079-8	9	38.12	31.68
DF7A-10EP-3.96C	CL680-0080-7	10	42.08	35.64

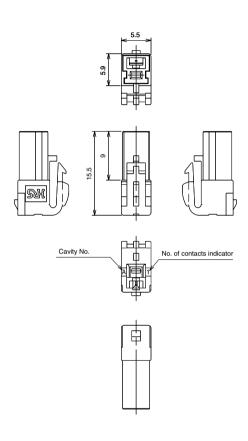
Note1: Bag packaging (100 pieces/bag). Order by number of bags. Note2: Refer to page 10 for retainer.

■ Crimp Sockets

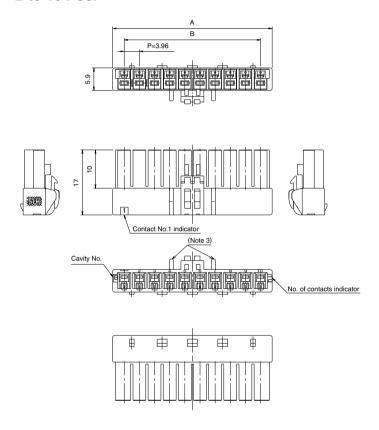




1 Pos.



2 to 10 Pos.



Part Number	CL No.	Number of contacts	Α	В
DF7- 1S-3.96C	CL680-0132-9	1	5.50	
DF7- 2S-3.96C	CL680-0009-2	2	10.00	3.96
DF7- 3S-3.96C	CL680-0010-1	3	13.96	7.92
DF7- 4S-3.96C	CL680-0011-4	4	17.92	11.88
DF7- 5S-3.96C	CL680-0012-7	5	21.88	15.84
DF7- 6S-3.96C	CL680-0013-0	6	25.84	19.80
DF7- 7S-3.96C	CL680-0014-2	7	29.80	23.76
DF7- 8S-3.96C	CL680-0015-5	8	33.76	27.72
DF7- 9S-3.96C	CL680-0016-8	9	37.72	31.68
DF7-10S-3.96C	CL680-0017-0	10	41.68	35.64

Note1: Bag packaging (100 pieces/bag). Order by number of bags.

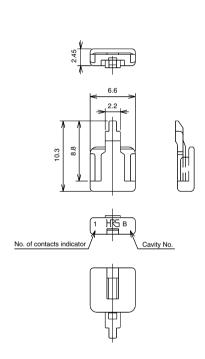
Note2: Refer to page 10 for retainer.

■ Retainer

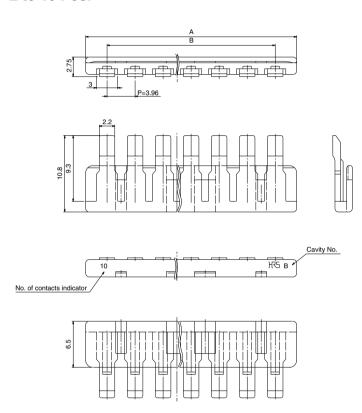




1 Pos.



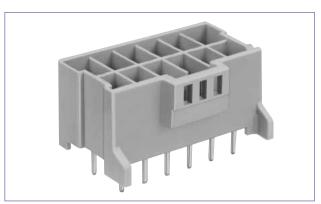
2 to 10 Pos.

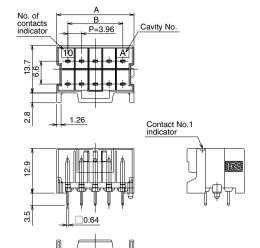


Part Number	CL No.	Number of contacts	Α	В
DF7- 1RS/P-3.96	CL680-0136-0	1		
DF7- 2RS/P-3.96	CL680-0027-4	2	10.00	3.96
DF7- 3RS/P-3.96	CL680-0028-7	3	13.96	7.92
DF7- 4RS/P-3.96	CL680-0029-0	4	17.92	11.88
DF7- 5RS/P-3.96	CL680-0030-9	5	21.88	15.84
DF7- 6RS/P-3.96	CL680-0031-1	6	25.84	19.80
DF7- 7RS/P-3.96	CL680-0032-4	7	29.80	23.76
DF7- 8RS/P-3.96	CL680-0033-7	8	33.76	27.72
DF7- 9RS/P-3.96	CL680-0034-0	9	37.72	31.68
DF7-10RS/P-3.96	CL680-0035-2	10	41.68	35.64

Note1: Bag packaging (100 pieces/bag). Order by number of bags. Note2: Retainer is common to sockets, in-line plug.

■ Double-row Straight Header

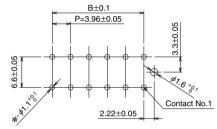




Part Number	CL No.	Number of contacts	Α	В	Quantity per tray
DF7- 4DP-3.96DSA(24)	CL680-0145-0-24	4	10.40	3.96	132
DF7- 6DP-3.96DSA(24)	CL680-0146-3-24	6	14.36	7.92	96
DF7- 8DP-3.96DSA(24)	CL680-0147-6-24	8	18.32	11.88	72
DF7-10DP-3.96DSA(24)	CL680-0148-9-24	10	22.28	15.84	60
DF7-12DP-3.96DSA(24)	CL680-0149-1-24	12	26.24	19.80	54

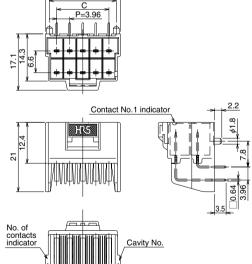
Note: Tray packaging. Order by number of trays quantity.





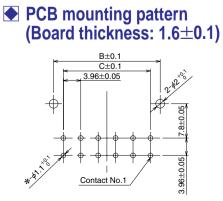
■ Double-row Right angle Header



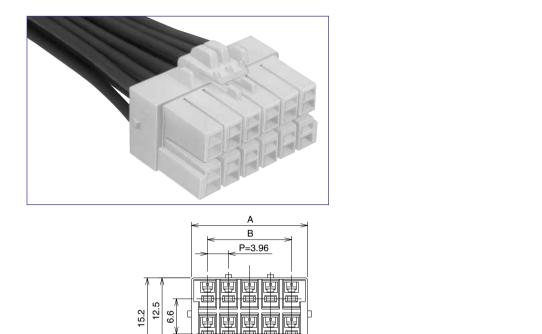


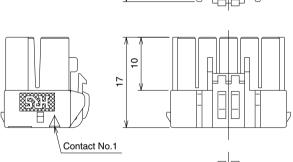
Part Number	CL No.	Number of contacts	Α	В	С	Quantity per tray
DF7- 4DP-3.96DS(24)	CL680-0150-0-24	4	10.40	8.40	3.96	88
DF7- 6DP-3.96DS(24)	CL680-0151-3-24	6	14.36	12.36	7.92	64
DF7- 8DP-3.96DS(24)	CL680-0152-6-24	8	18.32	16.32	11.88	48
DF7-10DP-3.96DS(24)	CL680-0153-9-24	10	22.28	20.28	15.84	40
DF7-12DP-3.96DS(24)	CL680-0154-1-24	12	26.24	24.24	19.80	36

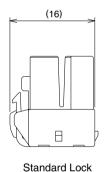
Note: Tray packaging. Order by number of trays quantity.

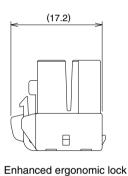


■ Double-row Socket

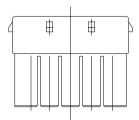








Cavity No. of contacts indicator



■ Standard lock

Part Number	CL No.	Number of contacts	Α	В	
DF7-4DS-3.96C		4	10.00	3.96	
DF7-6DS-3.96C	Reserved For	6	13.96	7.92	
DF7-8DS-3.96C	product	8	17.92	11.88	
DF7-10DS-3.96C	expansion	10	21.88	15.84	
DF7-12DS-3.96C		12	25.84	19.80	

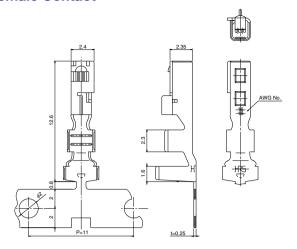
Note: Bag packaging (100 pieces/bag). Order by number of bags.

■ Enhanced ergonomic lock

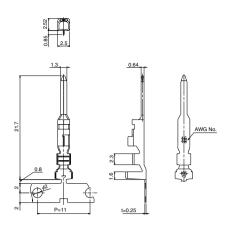
Part Number	CL No.	Number of contacts	А	В
DF7A-4DS-3.96C	CL680-0160-4	4	10.00	3.96
DF7A-6DS-3.96C	CL680-0161-7	6	13.96	7.92
DF7A-8DS-3.96C	CL680-0162-0	8	17.92	11.88
DF7A-10DS-3.96C	CL680-0163-2	10	21.88	15.84
DF7A-12DS-3.96C	CL680-0164-5	12	25.84	19.80

■ Crimp Contact

Female Contact



Male Contact



Part Number	CL No.	Packaging	Quantity	Finish
DF7-1618SCF	CL680-0001-0	Reel	3,000	
DF7-1618SC	CL680-0002-3	Bag	100	
DF7-2022SCF	CL680-0003-6	Reel	3,000	
DF7-2022SC	CL680-0004-9	Bag	100	Tin plating
DF7-1618PCF	CL680-0005-1	Reel	3,000	Till plating
DF7-1618PC	CL680-0006-4	Bag	100	
DF7-2022PCF	CL680-0007-7	Reel	3,000	
DF7-2022PC	CL680-0008-0	Bag	100	

Applicable cable (Tin plated annealed copper wire)

Wire size(Stranded wire conductor)	UL style	Jacket diameter	
AWG#16(26/0.254mm)	UL1007	2.1 to 2.5mm	
AWG#18(34/0.18mm)			
AWG#20(21/0.18mm)		1.6 to 1.9mm	
AWG#22(17/0.16mm)		1.0 to 1.911111	
AWG#16(26/0.254mm)	UL1015	2.9 to 3.2mm	
AWG#18(34/0.18mm)			
AWG#20(21/0.18mm)		2.4 to 2.7mm	
AWG#22(17/0.16mm)		2.4 10 2.7111111	

Note 1: Applicable wire with tin plated solid soft conductor. Note 2: When using other than the recommended wire, contact your nearest Hirose representative.

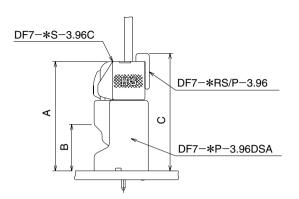
Note 3: Strip length: 3.0 to 3.8mm.

■ Tools

		·		
Туре		Part Number	CL No.	Applicable Contacts
	Press unit	CM-105	CL901-0005-4	
Automatic	Applicator	AP105-DF7-1618	CL901-4554-4	DF7-1618SCF/DF7-1618PCF
		AP105-DF7-2022	CL901-4553-1	DF7-2022SCF/DF7-2022PCF
Manual	Crimp tools	HT104/DF7-1618	CL550-0268-0	DF7-1618SC/DF7-1618PC
iviariual		HT104/DF7-2022	CL550-0269-3	DF7-2022SC/DF7-2022PC

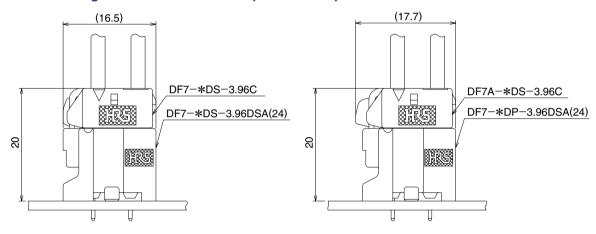
● Mating Dimensions

Socket to Straight Header Connection

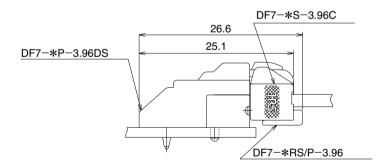


DF7-*S-3.96C				
	1 pos. 2 to 12 pos.			
Α	18.5	20.0		
В	9.0 8.5			
С	20.3	21.5		

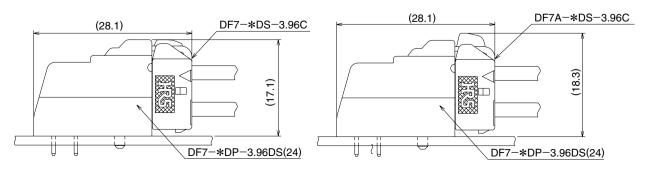
Socket to Straight Header Connection (Double-row)



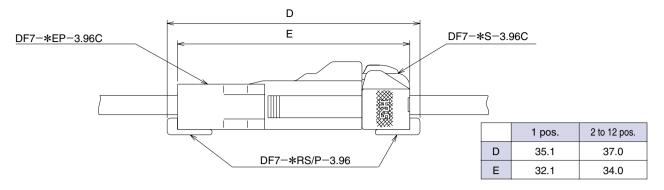
Socket to Right angle Header Connection



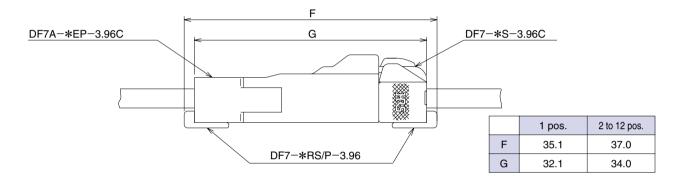
Socket to Right angle Header Connection (Double-row)



Socket to In-line Plug (Panel mount type) Connection



Socket to In-line Plug Connection

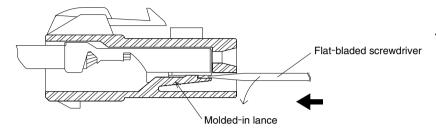


♦ Contact Extraction Procedure

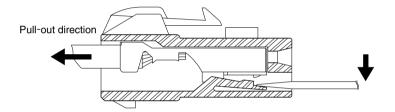
- Contact extraction tool: Flat-bladed screwdriver, 1.4 mm blade width
- Use with crimp Contacts: DF7-1618SC(F), DF7-2022SC(F), DF7-1618PC(F), DF7-2022PC(F)

■ Work Method

Housing Cross-Section



1. Refer to the drawing No. 1. Insert correct size screwdriver in the insulator against the molded-in lance. Deflect the lance as shown.



2. Assure that the lance is deflected to release the contact and pull- out wire with the terminated contact.

General Use Precautions

- Make sure that the lock is fully depressed before un-mating the connectors.
- Use correct size of the wires. Do NOT forcefully twist or deform wires, as this may affect the crimped contact connection.
- When the potting process is to be performed, please take into consideration the surface tension of the resin when filling.