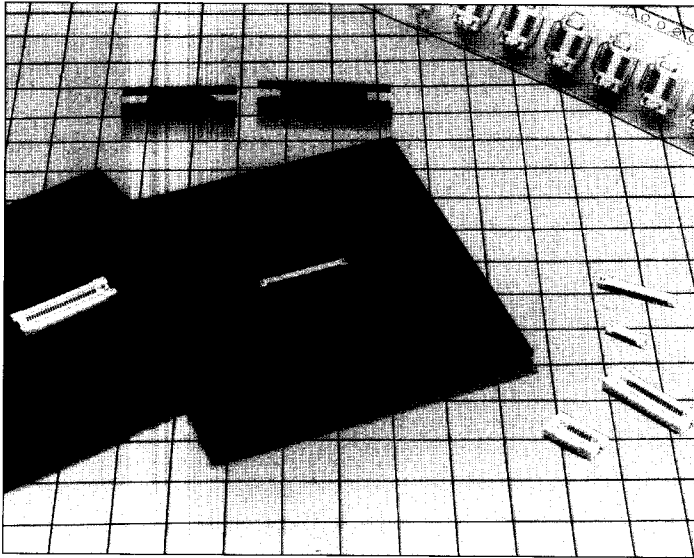


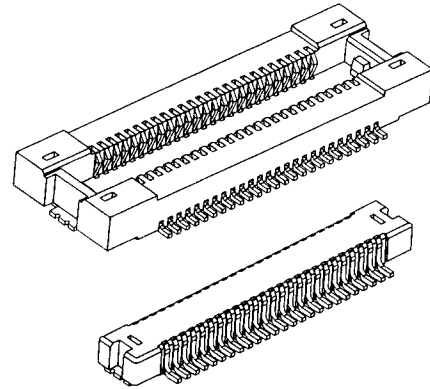
NEW

Board-To-Board Connectors For 0.5mm Pitch SMT

DF16 Series



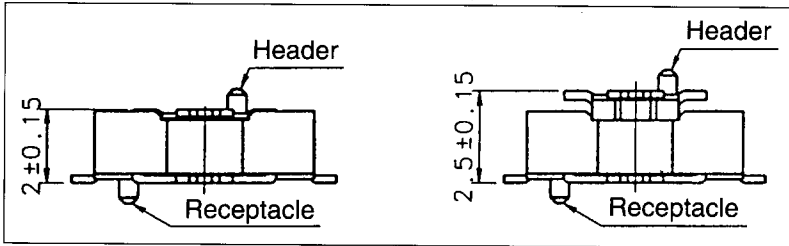
Automatic installation-compliant
Absorptive plane for vacuum pick and place equipment



■ Features

1. Fine Pitch, Lower Profile

In addition to a 0.5mm fine pitch, lower profiles of both 2mm and 2.5mm board-to-board spacing are available.



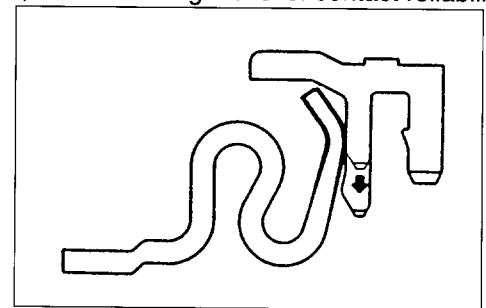
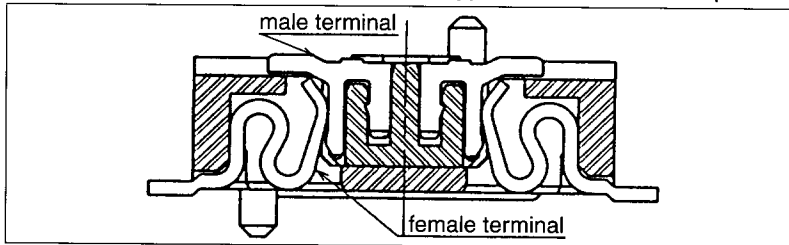
(Note.1) Stacking height does not include the thickness of soldering paste.

The receptacle, DF16#- *DS-0.5V, is common to both combinations.

Header part name	Board-to-board dimensions
DF16 # (2.0)- *DP-0.5V	2.0mm
DF16 # (2.5)- *DP-0.5V	2.5mm

2. High contact reliability:

The ample spring force of the bellows type male contact, low profile as it is, achieves a high level of contact reliability.



3. Audible Locking feature:

An audible click is heard when the connectors achieve the fully mated condition

4. Solder type, metal reinforcements:

Metal reinforcements help reduce the solder joint stresses which occur with insertion of FPC cable.

5. Automatic installation-compliant:

The connectors have absorptive surfaces, which together with embossed packaging enable automatic installation. Also available are product options without guide posts and without metal reinforcement fittings.

■ Applications

Portable remote terminals, PC cards, LCDs(Liquid Crystal Display), etc.

■Product Specifications

Ratings	Rated Current	0.3A	Applicable temp.range	-35~85°C (Note.1)	Storage temp. range	-10~60°C (Note.2) (Note.3)
	Rated Voltage	AC50V	Applicable humidity range	40~80%	Storage Humidity Range	40~70% (Note.2)

Description	Specifications	Requirements	
1. Insulation resistance	500MΩ or more	Should be measured at DC 100V.	
2. Voltage resistance	No flashover/dielectric breakdown	Should be powered at AC 150V for 1 minute.	
3. Contact resistance	50mΩ or less	Measured at 100mA.	
4. Vibration resistance	No instantaneous electric disconnection of 1 μs or more	Frequency 10~55Hz, one-sided Amplitude 0.75mm, 3 directions for 2 hours, respectively	
5. Humidity resistance	Contact resistance: 50mΩ or less Insulation resistance: 250MΩ or more	Leave under the condition of 40±2± in temperature and of 90-95% in humidity for 96 hours.	
6. Temperature cycle	Contact resistance: 50mΩ or less Insulation resistance: 500MΩ or more	(-55°C: 30 minutes → 5~35°C: 10 minutes → 85°C: 30 minutes → 5~35°C: max. 10 minutes) 5 cycles	
7. Durability-mating cycles	Contact resistance: 50mΩ or less	50 times	
8. Heat resistance of soldering	No fusion of resin section affecting performance	SMT type	Reflow: at Recommended temp. profile
			manual soldering: Temperature of soldering iron: 300°C 3 sec.

(Note.1) Includes temperature rising at power-on.

(Note.2) Where storage means the status of long-term preservation for unused parts before being installed in boards.

For deactivated state after installation in boards, applicable temperature/humidity ranges are applied.

(Note.3) Storage temperature range in embossed packing specifications will be -10~50°C.

(Note.4) Above-stated specifications are typical of this series. For respective formal contract, please refer to "Delivery Specifications".

■Material Quality

Product	Parts	Material	Processing	UL Standard
Receptacle	Insulator	nylon resin	white beige (natural)	UL94V-0
	Terminal	phosphor bronze	gold plating	
	Metal fittings	brass	solder plating	
Header	Insulator	nylon resin	white beige (natural)	UL94V-0
	Terminal	brass	gold plating	
	Metal fittings	brass	solder plating	

■Product Number Configuration

This is available for you to determine the product specifications from its format. When ordering, please select any one among all formats shown in page 3-8 of this catalog.

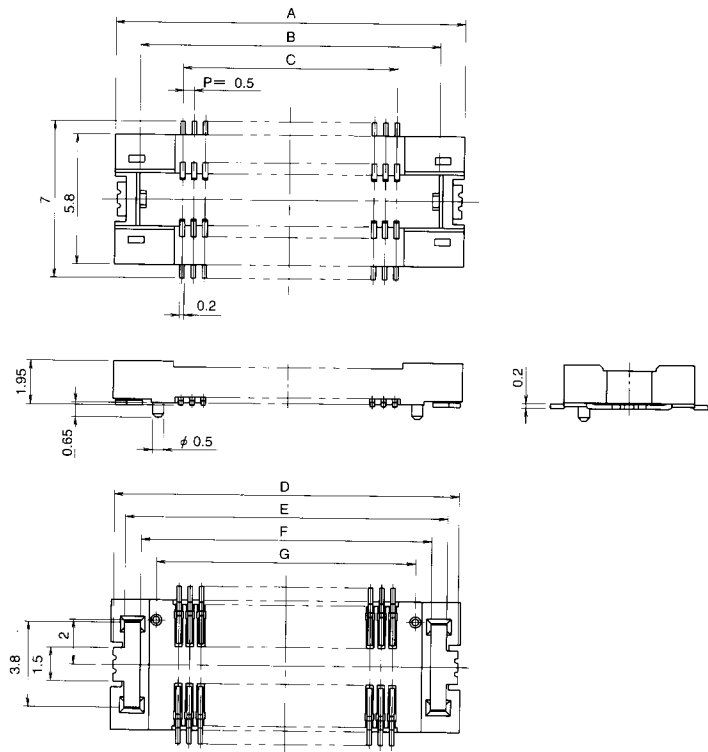
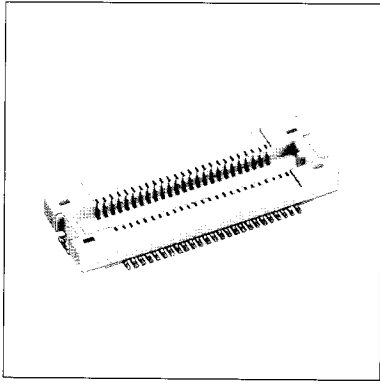
●Receptacle/Header

DF **16** **#** **(※ ※)** - ***** **DS** - **0.5** **V** **(* , *)**
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Series name: DF	④ Product height Receptacle: none Header: 2.0, 2.5	⑦ Contact pitch 0.5mm															
② Series No.: 16		⑧ Terminal shape V : Straight SMT															
③ Shape sign <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Sign</th> <th>Metal fittings</th> <th>Guide post</th> </tr> </thead> <tbody> <tr> <td>None</td> <td>YES</td> <td>YES</td> </tr> <tr> <td>A</td> <td>NO</td> <td>YES</td> </tr> <tr> <td>B</td> <td>YES</td> <td>NO</td> </tr> <tr> <td>C</td> <td>NO</td> <td>NO</td> </tr> </tbody> </table>	Sign	Metal fittings	Guide post	None	YES	YES	A	NO	YES	B	YES	NO	C	NO	NO	⑤ Number of positions 20, 30, 40, 50, 60, (80) (Note.1)	⑨ Packaging (51): Gold plating, embossed packaging (50): Gold plating, magazine packaging
	Sign	Metal fittings	Guide post														
	None	YES	YES														
	A	NO	YES														
B	YES	NO															
C	NO	NO															
	⑥ Connector type DS : Double Low Receptacle DP : Double Low Header																

(Note.1) For the 80 position type, only the 2.0mm board spacing option is available.

■ Receptacles [with metal reinforcements]



【Spec. No.】 — * *, (* . *)
 (50):Gold plating magazine packing
 (51):Gold plating embossed packing

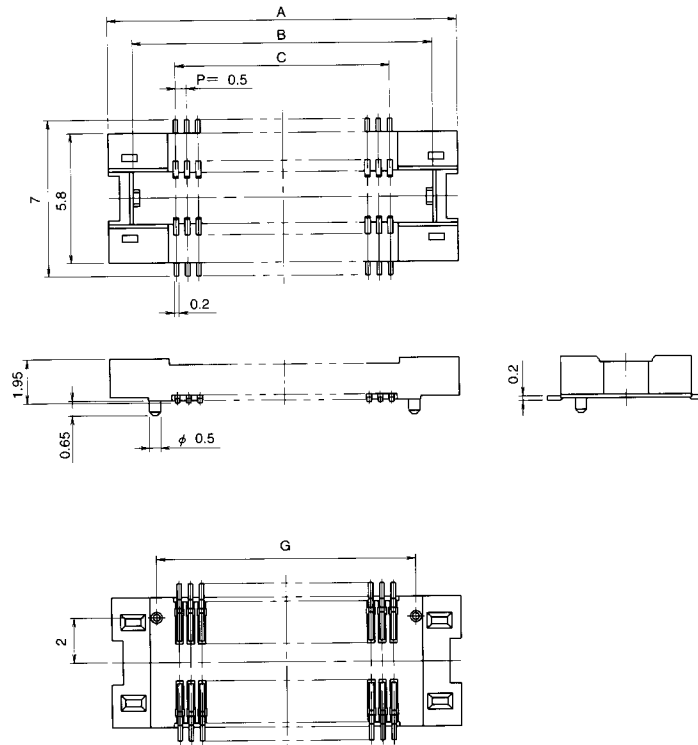
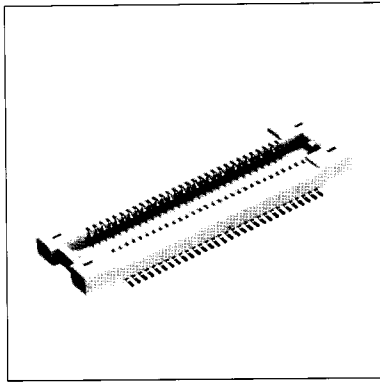
● Receptacle [with metal reinforcements and guide posts]

HRS No.	Parts No.	Number of positions	A	B	C	D	E	F	G	Magazine package quantity
CL679-0002-3- * *	DF16-20DS-0.5V(* *)	20	10.5	8.3	4.5	10.3	9.3	7.9	6.5	46
CL679-0003-6- * *	DF16-30DS-0.5V(* *)	30	13.0	10.8	7.0	12.8	11.8	10.4	9.0	37
CL679-0004-9- * *	DF16-40DS-0.5V(* *)	40	15.5	13.3	9.5	15.3	14.3	12.9	11.5	31
CL679-0005-1- * *	DF16-50DS-0.5V(* *)	50	18.0	15.8	12.0	17.8	16.8	15.4	14.0	27
CL679-0006-4- * *	DF16-60DS-0.5V(* *)	60	20.5	18.3	14.5	20.3	19.3	17.9	16.5	23
CL679-0008-0- * *	DF16-80DS-0.5V(* *)	80	25.5	23.3	19.5	25.3	24.3	22.9	21.5	19

● Receptacle [with metal reinforcements, no guide posts]

HRS No.	Parts No.	Number of positions	A	B	C	D	E	F	G	Magazine package quantity
CL679-0022-0- * *	DF16B-20DS-0.5V(* *)	20	10.5	8.3	4.5	10.3	9.3	7.9	—	46
CL679-0023-3- * *	DF16B-30DS-0.5V(* *)	30	13.0	10.8	7.0	12.8	11.8	10.4	—	37
CL679-0024-6- * *	DF16B-40DS-0.5V(* *)	40	15.5	13.3	9.5	15.3	14.3	12.9	—	31
CL679-0025-9- * *	DF16B-50DS-0.5V(* *)	50	18.0	15.8	12.0	17.8	16.8	15.4	—	27
CL679-0026-1- * *	DF16B-60DS-0.5V(* *)	60	20.5	18.3	14.5	20.3	19.3	17.9	—	23
CL679-0028-7- * *	DF16B-80DS-0.5V(* *)	80	25.5	23.3	19.5	25.3	24.3	22.9	—	19

■ Receptacles [without metal reinforcements]



【Spec. No.】 — **, (* . *)
 (50):Gold plating magazine packing
 (51):Gold plating embossed packing

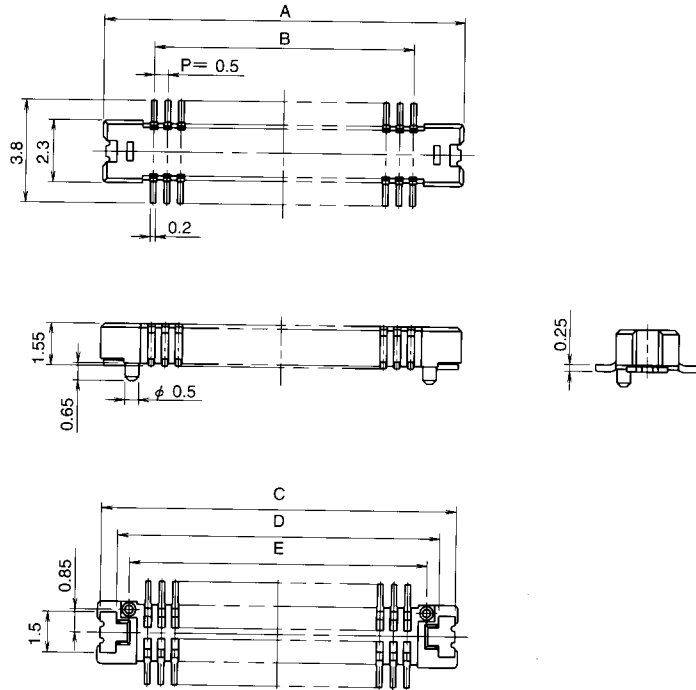
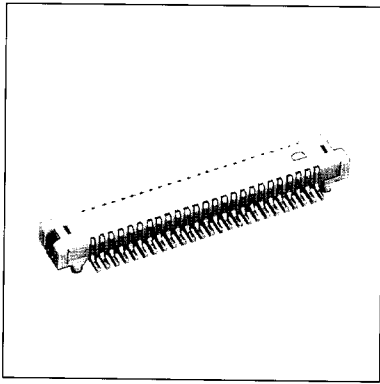
● Receptacle [without metal reinforcements, with guide posts]

HRS No.	Parts No.	Number of positions	A	B	C	G	Magazine package quantity
CL679-0012-7- **	DF16A-20DS-0.5V(**)	20	10.5	8.3	4.5	6.5	46
CL679-0013-0- **	DF16A-30DS-0.5V(**)	30	13.0	10.8	7.0	9.0	37
CL679-0014-2- **	DF16A-40DS-0.5V(**)	40	15.5	13.3	9.5	11.5	31
CL679-0015-5- **	DF16A-50DS-0.5V(**)	50	18.0	15.8	12.0	14.0	27
CL679-0016-8- **	DF16A-60DS-0.5V(**)	60	20.5	18.3	14.5	16.5	23
CL679-0018-3- **	DF16A-80DS-0.5V(**)	80	25.5	23.3	19.5	21.5	19

● Receptacle [without metal reinforcements, no guide posts]

HRS No.	Parts No.	Number of positions	A	B	C	G	Magazine package quantity
CL679-0032-4- **	DF16C-20DS-0.5V(**)	20	10.5	8.3	4.5	—	46
CL679-0033-7- **	DF16C-30DS-0.5V(**)	30	13.0	10.8	7.0	—	37
CL679-0034-0- **	DF16C-40DS-0.5V(**)	40	15.5	13.3	9.5	—	31
CL679-0035-2- **	DF16C-50DS-0.5V(**)	50	18.0	15.8	12.0	—	27
CL679-0036-5- **	DF16C-60DS-0.5V(**)	60	20.5	18.3	14.5	—	23
CL679-0038-0- **	DF16C-80DS-0.5V(**)	80	25.5	23.3	19.5	—	19

■2mm Header Between Boards [with metal reinforcements]



【Spec. No.】 — * *, (* . *)

(50):Gold plating, magazine packaging

(51):Gold plating, embossed packaging

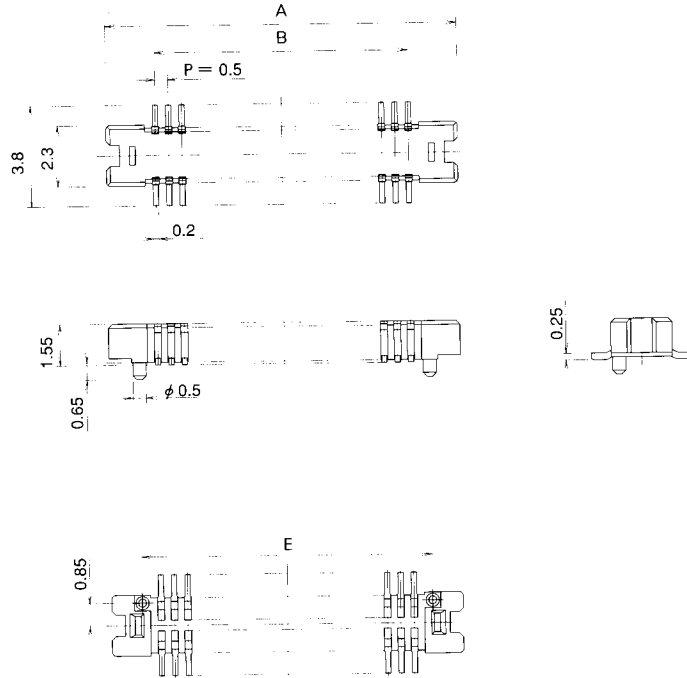
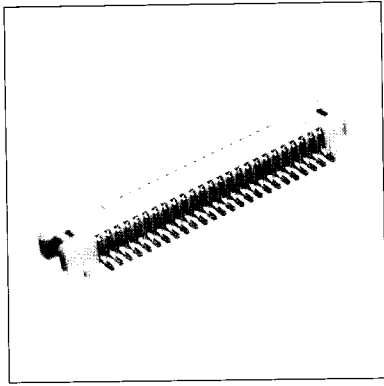
●2mm Header Product Between Boards [with metal reinforcements and guide posts]

HRS No.	Parts No.	Number of positions	A	B	C	D	E	Magazine package quantity
CL679-0042-8- * *	DF16(2.0)-20DP-0.5V(* *)	20	8.2	4.5	8.0	6.8	5.9	59
CL679-0043-0- * *	DF16(2.0)-30DP-0.5V(* *)	30	10.7	7.0	10.5	9.3	8.4	45
CL679-0044-3- * *	DF16(2.0)-40DP-0.5V(* *)	40	13.2	9.5	13.0	11.8	10.9	37
CL679-0045-6- * *	DF16(2.0)-50DP-0.5V(* *)	50	15.7	12.0	15.5	14.3	13.4	31
CL679-0046-9- * *	DF16(2.0)-60DP-0.5V(* *)	60	18.2	14.5	18.0	16.8	15.9	26
CL679-0048-4- * *	DF16(2.0)-80DP-0.5V(* *)	80	23.2	19.5	23.0	21.8	20.9	21

●2mm Header Product Between Boards [with metal reinforcements, no guide posts]

HRS No.	Parts No.	Number of poles	A	B	C	D	E	Magazine package quantity
CL679-0062-5- * *	DF16B(2.0)-20DP-0.5V(* *)	20	8.2	4.5	8.0	6.8	—	59
CL679-0063-8- * *	DF16B(2.0)-30DP-0.5V(* *)	30	10.7	7.0	10.5	9.3	—	45
CL679-0064-0- * *	DF16B(2.0)-40DP-0.5V(* *)	40	13.2	9.5	13.0	11.8	—	37
CL679-0065-3- * *	DF16B(2.0)-50DP-0.5V(* *)	50	15.7	12.0	15.5	14.3	—	31
CL679-0066-6- * *	DF16B(2.0)-60DP-0.5V(* *)	60	18.2	14.5	18.0	16.8	—	26
CL679-0068-1- * *	DF16B(2.0)-80DP-0.5V(* *)	80	23.2	19.5	23.0	21.8	—	21

■2mm Header Between Boards [without metal reinforcements]



【Spec. No.】 — **, (*.*)

(50):Gold plating, magazine packaging

(51):Gold plating, embossed packaging

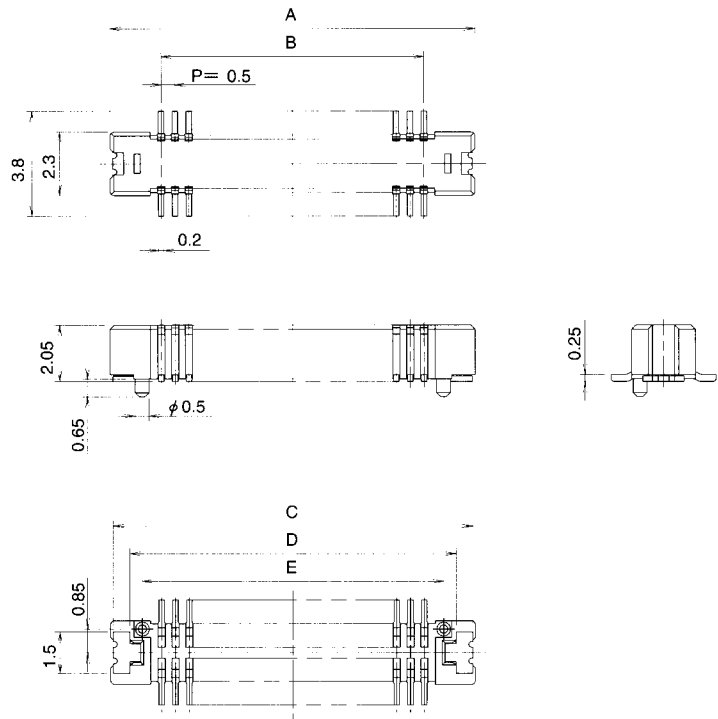
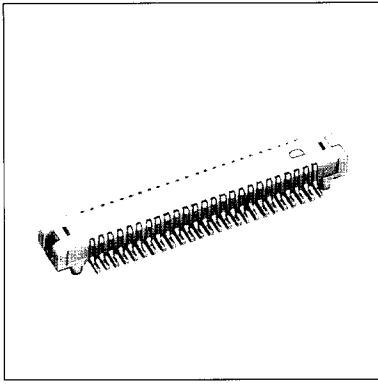
●2mm Header Product Between Boards [without metal reinforcements, with guide posts]

HRS No.	Parts No.	Number of positions	A	B	E	Magazine package quantity
CL679-0052-1- **	DF16A (2.0) -20DP-0.5V (**)	20	8.2	4.5	5.9	59
CL679-0053-4- **	DF16A (2.0) -30DP-0.5V (**)	30	10.7	7.0	8.4	45
CL679-0054-7- **	DF16A (2.0) -40DP-0.5V (**)	40	13.2	9.5	10.9	37
CL679-0055-0- **	DF16A (2.0) -50DP-0.5V (**)	50	15.7	12.0	13.4	31
CL679-0056-3- **	DF16A (2.0) -60DP-0.5V (**)	60	18.2	14.5	15.9	26
CL679-0058-8- **	DF16A (2.0) -80DP-0.5V (**)	80	23.2	19.5	20.9	21

●2mm Header Product Between Boards [without metal reinforcements, no guide posts]

HRS No.	Parts No.	Number of positions	A	B	E	Magazine package quantity
CL679-0072-9- **	DF16C (2.0) -20DP-0.5V (**)	20	8.2	4.5	—	59
CL679-0073-1- **	DF16C (2.0) -30DP-0.5V (**)	30	10.7	7.0	—	45
CL679-0074-4- **	DF16C (2.0) -40DP-0.5V (**)	40	13.2	9.5	—	37
CL679-0075-7- **	DF16C (2.0) -50DP-0.5V (**)	50	15.7	12.0	—	31
CL679-0076-0- **	DF16C (2.0) -60DP-0.5V (**)	60	18.2	14.5	—	26
CL679-0078-5- **	DF16C (2.0) -80DP-0.5V (**)	80	23.2	19.5	—	21

■2.5mm Header Between Boards [with metal reinforcements]



【Spec. No.】 — * *, (* . *)

(50):Gold plating, magazine packaging

(51):Gold plating, embossed packaging

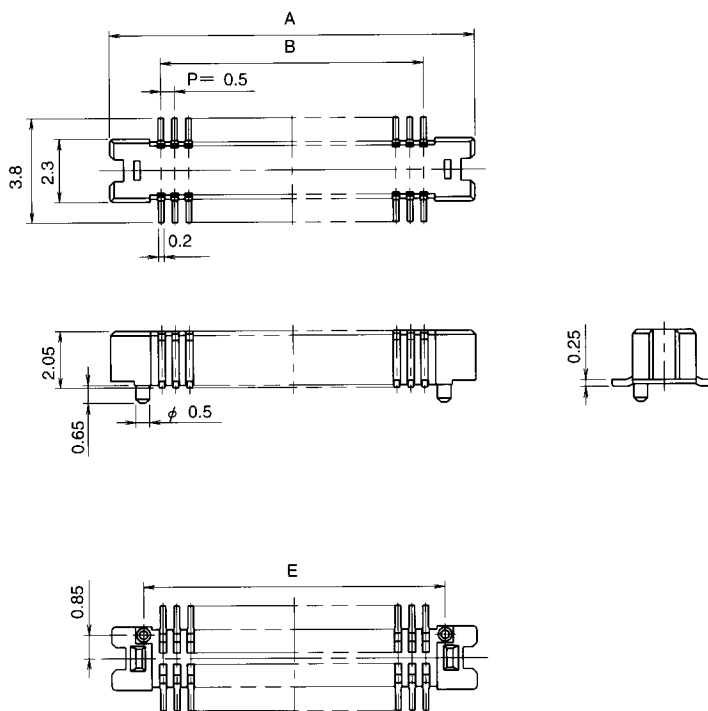
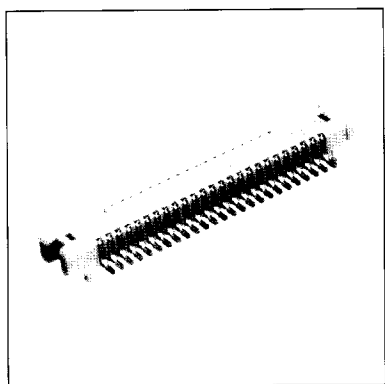
●2.5mm Header Product Between Boards [with metal reinforcements and guide posts]

HRS No.	Parts No.	Number of positions	A	B	C	D	E	Magazine package quantity
CL679-0082-2- * *	DF16(2.5)-20DP-0.5V(* *)	20	8.2	4.5	8.0	6.8	5.9	59
CL679-0083-5- * *	DF16(2.5)-30DP-0.5V(* *)	30	10.7	7.0	10.5	9.3	8.4	45
CL679-0084-8- * *	DF16(2.5)-40DP-0.5V(* *)	40	13.2	9.5	13.0	11.8	10.9	37
CL679-0085-0- * *	DF16(2.5)-50DP-0.5V(* *)	50	15.7	12.0	15.5	14.3	13.4	31
CL679-0086-3- * *	DF16(2.5)-60DP-0.5V(* *)	60	18.2	14.5	18.0	16.8	15.9	26

●2.5mm Header Product Between Boards [with metal reinforcements, no guide posts]

HRS No.	Parts No.	Number of positions	A	B	C	D	E	Magazine package quantity
CL679-0102-8- * *	DF16B(2.5)-20DP-0.5V(* *)	20	8.2	4.5	8.0	6.8	—	59
CL679-0103-0- * *	DF16B(2.5)-30DP-0.5V(* *)	30	10.7	7.0	10.5	9.3	—	45
CL679-0104-3- * *	DF16B(2.5)-40DP-0.5V(* *)	40	13.2	9.5	13.0	11.8	—	37
CL679-0105-6- * *	DF16B(2.5)-50DP-0.5V(* *)	50	15.7	12.0	15.5	14.3	—	31
CL679-0106-9- * *	DF16B(2.5)-60DP-0.5V(* *)	60	18.2	14.5	18.0	16.8	—	26

■2.5mm Header Between Boards [without metal reinforcements]



【Spec. No.】 — **, (* . *)

(50) : Gold plating, magazine packaging

(51) : Gold plating, embossed packaging

●2.5mm Header Product Between Boards [without metal reinforcements, with guide posts]

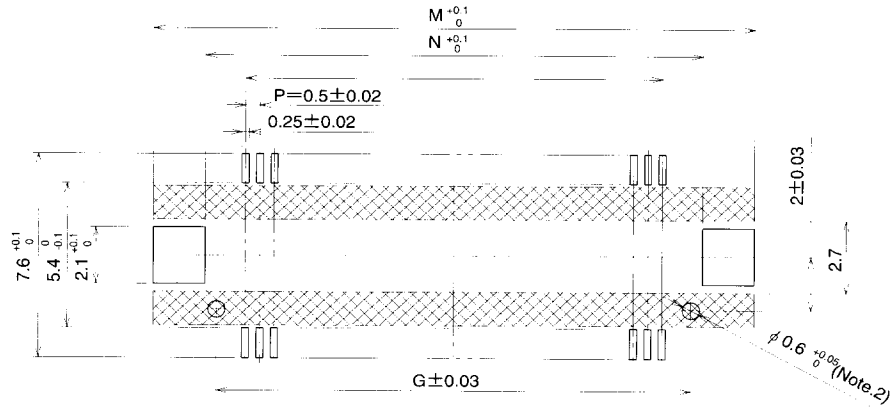
HRS No.	Parts No.	Number of positions	A	B	E	Magazine package quantity
CL679-0092-6- **	DF16A(2.5)-20DP-0.5V(**)	20	8.2	4.5	5.9	59
CL679-0093-9- **	DF16A(2.5)-30DP-0.5V(**)	30	10.7	7.0	8.4	45
CL679-0094-1- **	DF16A(2.5)-40DP-0.5V(**)	40	13.2	9.5	10.9	37
CL679-0095-4- **	DF16A(2.5)-50DP-0.5V(**)	50	15.7	12.0	13.4	31
CL679-0096-7- **	DF16A(2.5)-60DP-0.5V(**)	60	18.2	14.5	15.9	26


●2.5mm Header Product Between Boards [without metal reinforcements, no guide posts]

HRS No.	Parts No.	Number of positions	A	B	E	Magazine package quantity
CL679-0112-1- **	DF16C(2.5)-20DP-0.5V(**)	20	8.2	4.5	—	59
CL679-0113-4- **	DF16C(2.5)-30DP-0.5V(**)	30	10.7	7.0	—	45
CL679-0114-7- **	DF16C(2.5)-40DP-0.5V(**)	40	13.2	9.5	—	37
CL679-0115-0- **	DF16C(2.5)-50DP-0.5V(**)	50	15.7	12.0	—	31
CL679-0116-2- **	DF16C(2.5)-60DP-0.5V(**)	60	18.2	14.5	—	26

■ Recommended Board Pattern Diagram

● Receptacle

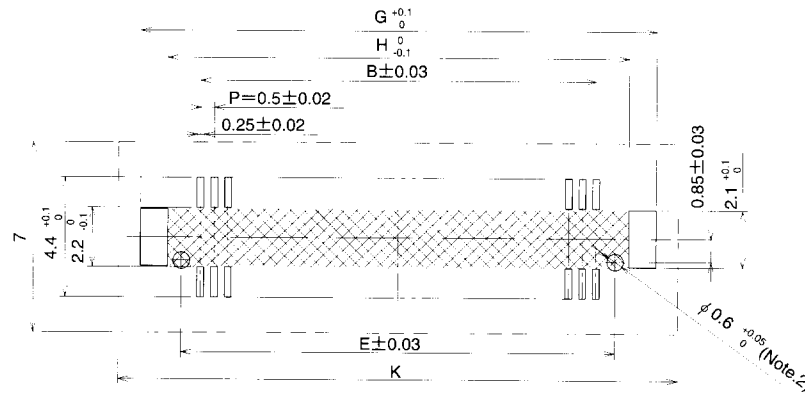



(Note.1) When a part marked with  has a Pattern but no resist on it, take care to prevent the connector from touching it.

(Note.2) In the case of no guide post, holes for guide posts, as shown in the figure above, are not necessary.

Number of positions	C	G	M	N
20	4.5	6.5	10.9	7.3
30	7.0	9.0	13.4	9.8
40	9.5	11.5	15.9	12.3
50	12.0	14.0	18.4	14.8
60	14.5	16.5	20.9	17.3
80	19.5	21.5	25.9	22.3

● Header (Products Of 2.0/2.5mm In Board-To-Board Dimensions)



(Note.1) When a part marked with  has a Pattern but no resist on it, take care to prevent the connector from touching it.

(Note.2) In the case of no guide post, holes for guide post as shown in the figure above is not necessary.

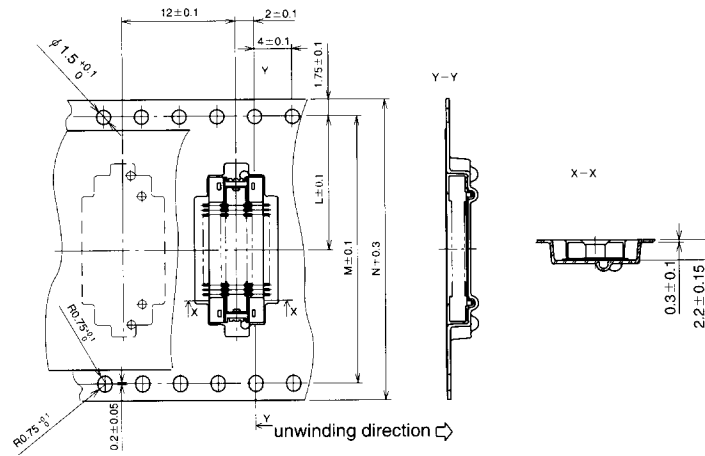
(Note.3) Do not install any parts within a range of dashed lines section, otherwise it may not be fitted with its mate connector.

(Note.4) DF 16#(2.5)-※DP-0.5V has no 80-position type.

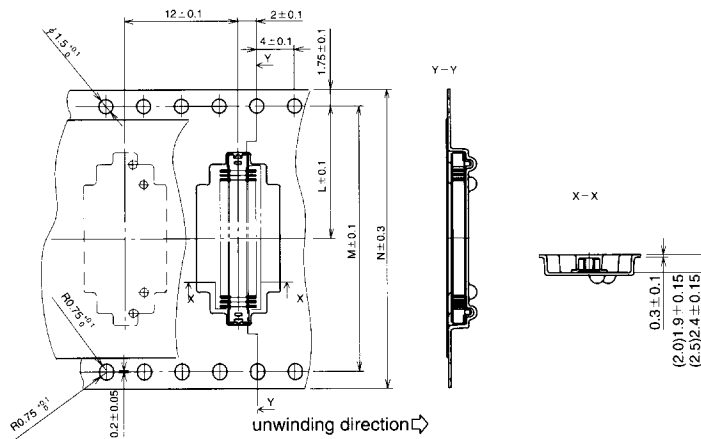
Number of positions	B	E	G	H	K
20	4.5	5.9	8.9	6.9	10.5
30	7.0	8.4	11.4	9.4	13.0
40	9.5	10.9	13.9	11.9	15.5
50	12.0	13.4	16.4	14.4	18.0
60	14.5	15.9	18.9	16.9	20.5
80	19.5	20.9	23.9	21.9	25.5

■ Embossed Carrier Tape Dimensions Diagram (JIS-C-0806-dependent)

● Receptacle



● Header



Parts name	N	M	L	Q
DF16 # -20DS-0.5V	24.0	—	11.5	24.4
DF16 # -30DS-0.5V	24.0	—	11.5	24.4
DF16 # -40DS-0.5V	32.0	28.4	14.2	32.4
DF16 # -50DS-0.5V	32.0	28.4	14.2	32.4
DF16 # -60DS-0.5V	32.0	28.4	14.2	32.4
DF16 # -80DS-0.5V	44.0	40.4	20.2	44.4
DF16 # (*.*)-20DP-0.5V	16.0	—	7.5	16.4
DF16 # (*.*)-30DP-0.5V	24.0	—	11.5	24.4
DF16 # (*.*)-40DP-0.5V	24.0	—	11.5	24.4
DF16 # (*.*)-50DP-0.5V	24.0	—	11.5	24.4
DF16 # (*.*)-60DP-0.5V	32.0	28.4	14.2	32.4
DF16 # (*.*)-80DP-0.5V	44.0	40.4	20.2	44.4

(Note.1) Box-shape of emboss itself may vary depending on the number of positions.

(Note.2) The lower side feed hole does not exist in an emboss of N=32mm or less.

◆Precautions In Use

<p>1. Recommended temperature profile</p>	<p>(Note.1) Allowable up to 2 times on the same condition. However, it must be normal temperature between first and second time.</p> <p>(Note.2) Temperature represents the board surface temperature of connector lead section.</p>
<p>2. Recommended manual soldering requisites</p>	<p>Soldering iron temperature : $290 \pm 10^\circ\text{C}$ Soldering time period : less than 2 sec.</p>
<p>3. Recommended screen thickness</p>	<p>0.15mm</p>
<p>4. Warp of boards</p>	<p>On the basis of both connector ends, Max 0.2mm at the center of that connector</p>
<p>5. Cleaning requisites</p>	<p>Please refer to 「 guide to use of nylon connectors」 .</p>
<p>6. Cautions</p>	<ul style="list-style-type: none"> ■ Be careful not to touch headers with naked hands because their terminal-exposed structures may cause poor contact or electrostatic-caused element corruption. ■ Be careful that plugging/unplugging without installation in boards can introduce corruption, terminal deformation, etc. ■ Avoid supporting boards only by connectors, take other measures to fix boards. ■ Be careful that excessive pinch plugging/unplugging may also cause corruption. ■ In manual soldering, do not apply flux, which will occur flux rise of connectors. ■ The mold of this product may somewhat vary in hue depending on manufacturing lot, which does not affect performance.