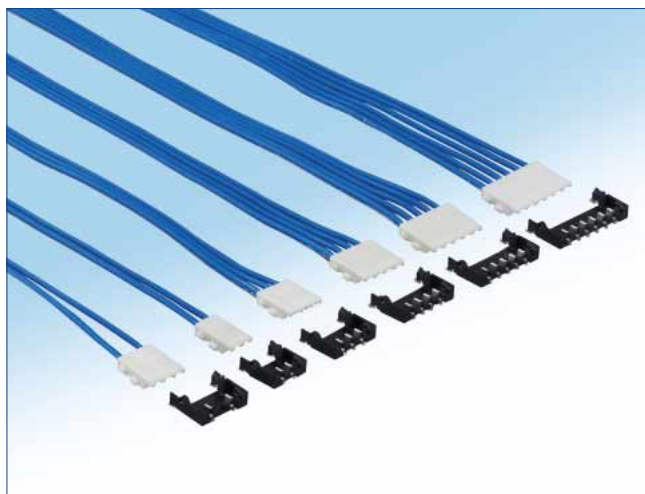


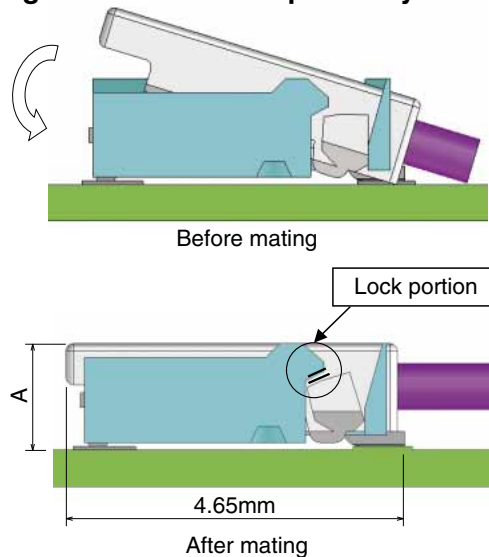
# Low Profile "Swing-Lock" Board to Wire Connector for Power

DF57 Series

(Compliant with UL, C-UL standards)



## Swing-Lock Structure explanatory drawing



Mating Height A : DF57H 1.4mm  
DF57AH 1.6mm

Fig.1

## Features

### 1.Reinforced lock structure with swing lock

A swing-lock structure, featuring our own unique connection method, reinforces the lock structure of the electric cable side, with a structure resistant to tough electric cable routing and disengagement of cables under load.

In addition, the connection surface has a guide insertion to facilitate insertability (patented)

### 2.Header lock improves plug retention

When connecting, the header connector secures the molded-lance. Play of molded lance is prevented for added strength. (patented)

### 3.Highly reliable contact structure

Despite the low-profile design, with a stacking height of 1.4mm, an effective mating length of 0.42mm is achieved. The structure features two-point contact terminal geometry with high contact reliability.

### 4.Insert guide key prevents misalignment

Insert guide key guides the crimp socket to the correct mating position and prevents misalignment, which improves mating operation and prevents possible connector breakage with incorrect mating.

### 5.Solder wicking prevention

The integral molding eliminates any gap between the terminals and case to prevent solder wicking.

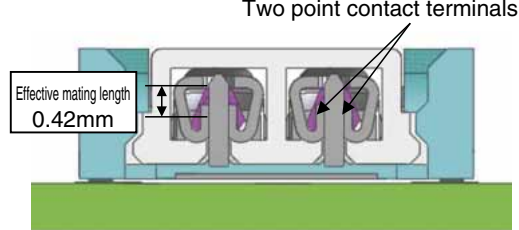
### 6.Case disengagement prevention

Reinforcing hardware (metal fittings) are integrated in the molding, which help prevent the case from disengaging with the terminals due to tough electric cable routing and load.

### 7.Cost effective

Terminals and metal fittings are collectively integrated into the molding to reduce assembly cost.

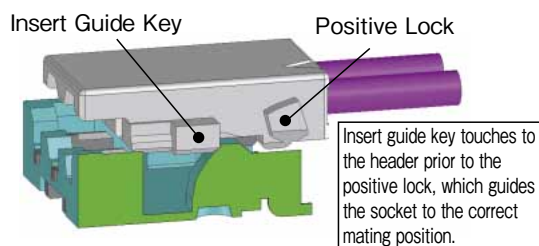
## Contact Structure



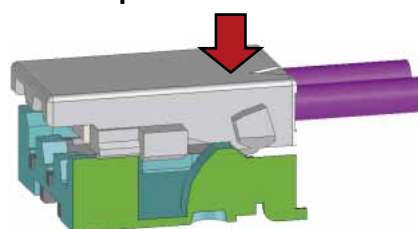
Cross-sectional view of the contact surface

Fig.2

## Incorrect Positioning



## Starts mating after the socket is aligned to the correct position



Insert Guide Key Structure

Fig.3

## Specifications

Rating	Current rating (Note 1)		2pos.	3pos.	4pos.	5,6pos.	Operating temperature range -35°C to 85°C (Note 2) Operating humidity range 20% to 80% (Note 3)
		AWG#26	3.0A	—	—	1.5A	
		AWG#28	2.5A	2.0A	1.5A		
		AWG#30	1.5A		1.0A		
		AWG#32	1.0A		0.8A		
	AWG#34	0.8A		0.5A			
Voltage rating	2 to 6 pos. : 50V AC/DC 2 pos. (Middle pin of 3 pos. is removed) : 100V AC/DC					Storage temperature range -10°C to 60°C (Note 4) Storage humidity range 40% to 70% (Note 4)	

UL, C-UL certified specifications							
Rating	Current rating (Note 1)		2pos.	3pos.	4pos.	5,6pos.	
		AWG#26	3.0A	—	—	1.5A	
		AWG#28	2.5A	2.0A	1.5A		
		AWG#30	1.5A		1.0A		
		AWG#32	1.0A		0.8A		
	AWG#34	0.8A		0.5A			
Voltage rating	2 - 6 pos. : 29V AC/DC						

Item	Specification	Conditions
1. Insulation resistance	100MΩ min.	100V DC
2. Withstanding voltage	No flashover or insulation breakdown	500V AC / 1 minute
3. Contact resistance	10mΩ max.	20mV max., at 1mA.
4. Vibration	No electrical discontinuity of 1μs or longer No damage, cracks or parts dislocation.	Frequency : 10 to 55Hz, single amplitude of 0.75mm, 10 cycles, 3 direction
5. Shock	No electrical discontinuity of 1μs or longer No damage, cracks or parts dislocation.	Acceleration of 490m/s <sup>2</sup> , 11ms duration, sine half-wave, 3 cycles in each of the 3 axis
6. Humidity	Contact resistance : 20mΩ max., Insulation resistance : 500MΩ min. No damage, cracks or parts dislocation.	96 hours at 40 ±2°C, and humidity of 90 to 95%
7. Temperature cycle	Contact resistance : 20mΩ max., Insulation resistance : 500MΩ min. No damage, cracks or parts dislocation.	-55°C → 5 to 35°C → 85°C → 5 to 35°C Times : 30 min. → 2 min. → 3 min. → 30 min. → 2 min. to 3 min. 5 cycles
8. Durability	Contact resistance : 20mΩ max., No damage, cracks or parts dislocation.	30 cycles
9. Resistance to soldering heat	No deformation of components affecting performance	Reflow : At the recommended temperature profile Manual soldering : 350°C for 3 seconds

Note 1 : This is the maximum current rating while all pins are powered or used as all power lines. When isolating power lines into multiple circuits, current ratings may go above the stated current ratings. Please consult Hirose for specific details before doing this.

Note 2 : Includes the temperature rise of power lines.

Note 3 : The connector should be completely dry. (no condensation present)

Note 4 : The term “storage” refers to the long-term storage condition of unused products before PCB mounting. The operating temperature and humidity ranges are applied while in a non-energized state, while in transport or after PCB mounting.

## Material / Finish

Item	Component	Material	Finish	UL Flammability rating
Header	Insulator	LCP	Black	UL94V-0
			Beige	
	Contact	Brass	Tin plating or gold plating	—
Crimp socket	Insulator	PBT	White	UL94V-0
			Black	
		LCP	Beige	
			Black	
Crimp contacts	Contact	Phosphor bronze	Tin plating or gold plating	—

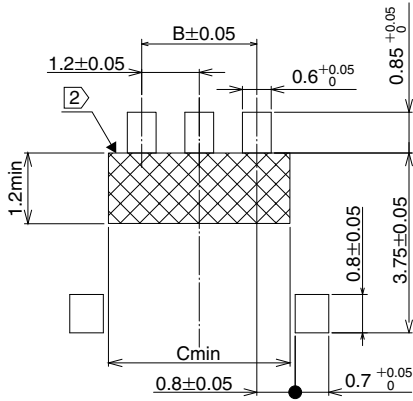


## Header(SMT)

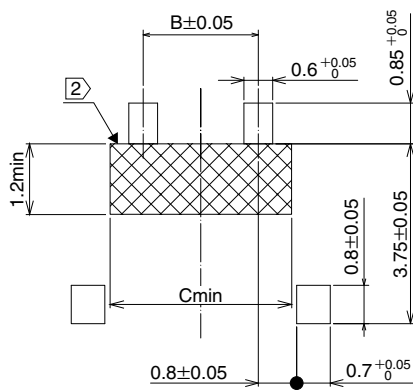


Above image is 3 pos.

### Recommended PCB layout (Thickness : 1.0mm)



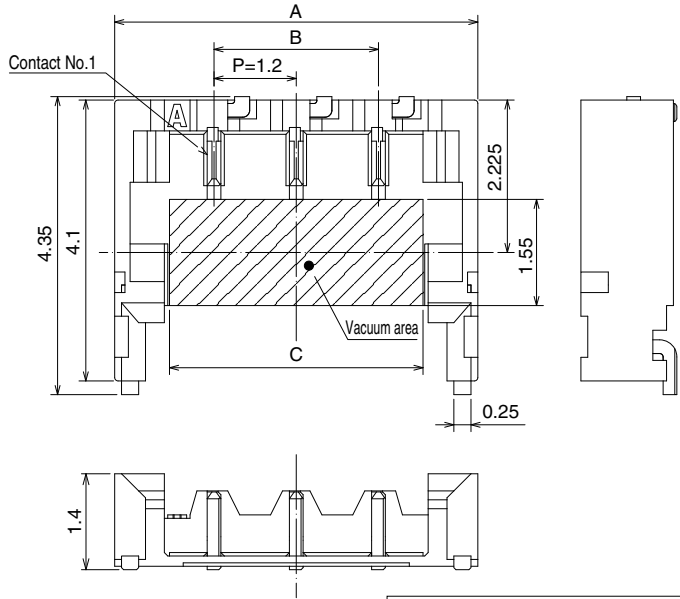
### Recommended PCB layout (Thickness : 1.0mm)



Part No.	HRS No.	No. of contacts	A	B	C
DF57H-2P-2.4V(**)	666-0109-0 **	2	5.3	2.4	3.7

Unit : mm

[Specification number] \*\*  
(21) : Tin plated, color : black  
(23) : Tin plated, color : beige



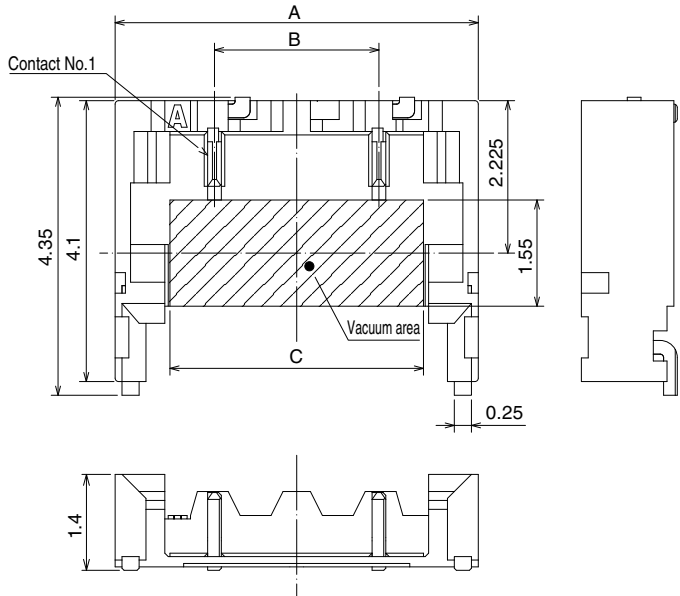
[Specification number] \*\*  
(21) : Tin plated, color : black  
(23) : Tin plated, color : beige  
(51) : Gold plated, color : black

Unit : mm

Part No.	HRS No.	No. of contacts	A	B	C
DF57H-2P-1.2V(**)	666-0104-7 **	2	4.1	1.2	2.5
DF57H-3P-1.2V(**)	666-0105-0 **	3	5.3	2.4	3.7
DF57H-4P-1.2V(**)	666-0106-2 **	4	6.5	3.6	4.9
DF57H-5P-1.2V(**)	666-0107-5 **	5	7.7	4.8	6.1
DF57H-6P-1.2V(**)	666-0108-8 **	6	8.9	6.0	7.3

Note 1 : Embossed tape reel packaging (5,000 pcs/reel).

Note 2 : The crossed-shaded area is a no conductive trace area.

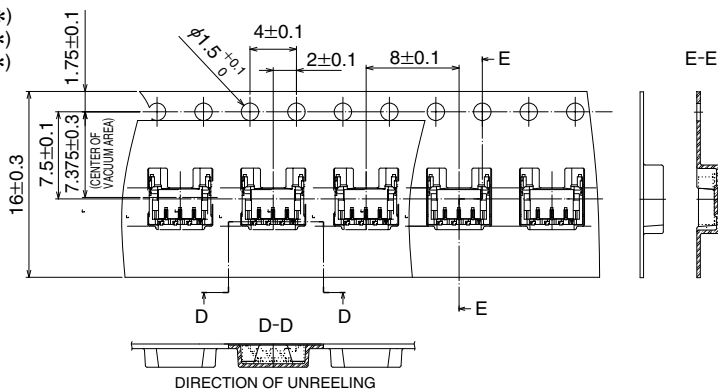


Unit : mm

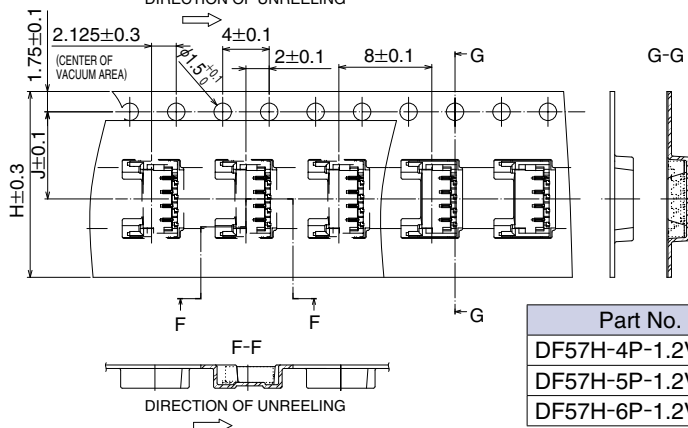
[Specification number] \*\*  
(21) : Tin plated, color : black  
(23) : Tin plated, color : beige

●Packaging Specification

DF57H-2P-1.2V(\*\*)  
 DF57H-3P-1.2V(\*\*)  
 DF57H-2P-2.4V(\*\*)



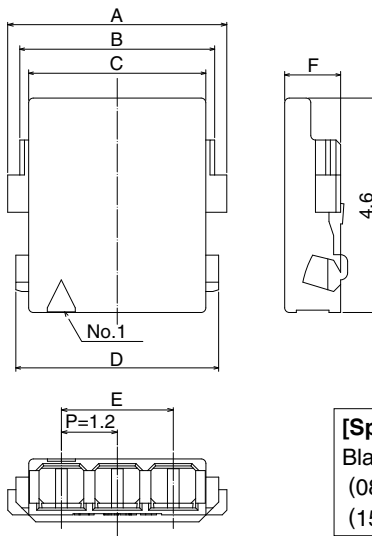
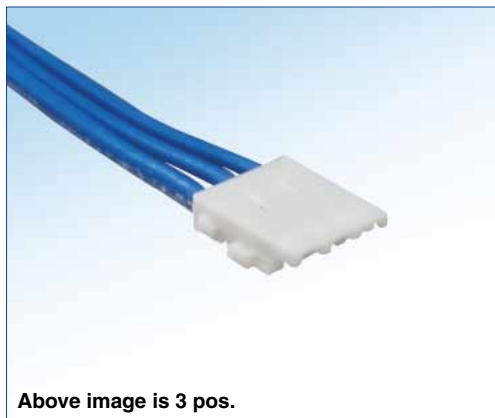
DF57H-4P-1.2V(\*\*)  
 DF57H-5P-1.2V(\*\*)  
 DF57H-6P-1.2V(\*\*)



Unit : mm

Part No.	No. of contacts	H	J
DF57H-4P-1.2V(**)	4	16	7.5
DF57H-5P-1.2V(**)	5	16	7.5
DF57H-6P-1.2V(**)	6	24	11.5

■Crimp socket



**[Specification number]\*\***  
 Blank : Material : PBT, color : white  
 (08) : Material : LCP, color : beige  
 (15) : Material : LCP, color : black

Unit : mm

Part No.	HRS No.	No. of contacts	A	B	C	D	E	F
DF57H-2S-1.2C(**)	666-0100-6 **	2	3.5	2.98	2.6	3.2	1.2	1.2
DF57H-3S-1.2C(**)	666-0012-0 **	3	4.7	4.18	3.8	4.4	2.4	1.2
DF57H-4S-1.2C(**)	666-0101-9 **	4	5.9	5.38	5.0	5.6	3.6	1.2
DF57H-5S-1.2C(**)	666-0102-1 **	5	7.1	6.58	6.2	6.8	4.8	1.2
DF57H-6S-1.2C(**)	666-0103-4 **	6	8.3	7.78	7.4	8.0	6.0	1.2

Note 1 : The quantity is delivered per pack (1,000 pcs.). Order by number of pack.

■Socket for 26 AWG

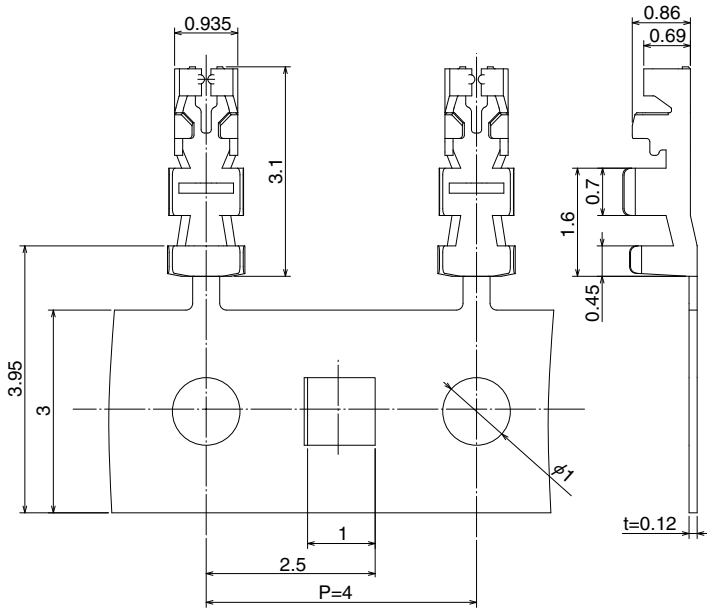
Unit : mm

Part No.	HRS No.	No. of contacts	A	B	C	D	E	F
DF57AH-2S-1.2C(**)	666-0112-0 **	2	3.5	2.98	2.6	3.2	1.2	1.4
DF57AH-5S-1.2C(**)	666-0110-0 **	5	7.1	6.58	6.2	6.8	4.8	1.4
DF57AH-6S-1.2C(**)	666-0111-2 **	6	8.3	7.78	7.4	8.0	6.0	1.4

Note 1 : The quantity is delivered per pack (1,000 pcs.). Order by number of pack.

**[Specification number]\*\***  
 Blank : Material : PBT, color : black  
 (10) : Material : PBT, color : white  
 (15) : Material : LCP, color : black

## ■ Crimp contact



**[Packaging Specification]**

Blank : Embossed tape packaging (40,000 pcs/reel)  
 (41) : Embossed tape packaging (35,000 pcs/reel)

Part No.	HRS No.	Packaging	Quantity	Finish	Applicable wire	Applicable socket connector
DF57-2628SCF(41)	666-0013-3 41	Reel	35,000	Tin plated	26 to 28 AWG	DF57AH-*S-1.2C(**)
DF57-2628SCFA(41)	666-0033-0 41	Reel	35,000	Gold plated		
DF57-2830SCF	666-0001-4	Reel	40,000	Tin plated	28 to 30 AWG	DF57H-*S-1.2C(**) DF57AH-*S-1.2C(**)
DF57-2830SCFA	666-0034-3	Reel	40,000	Gold plated		
DF57-3234SCF	666-0016-1	Reel	40,000	Tin plated	32 to 34 AWG	DF57AH-*S-1.2C(**)
DF57-3234SCFA	Under planning	Reel	40,000	Gold plated		

Note : Embossed tape reel packaging (40,000 pcs/reel).  
 Order by number of reels.

### ● Applicable wire (Tin plated annealed copper wire)

Part No.	Wire size (Stranded wire conductor)	Jacket outer diameter	Recommended cable
DF57-2628SCF(41)	26 AWG (7/φ0.16mm)	φ0.88mm max.	UL3302, UL3610
DF57-2628SCFA	28 AWG (7/φ0.127mm)		
DF57-2830SCF	28 AWG (7/φ0.127mm)	φ0.5mm – φ0.63mm	UL1571 (Thin wire), UL10584 (ETFE wire)
DF57-2830SCFA	30 AWG (7/φ0.102mm)		
DF57-3234SCF	32 AWG (7/φ0.08mm)	φ0.32mm – φ0.42mm	——
	34 AWG (7/φ0.08mm)		

● Strip length 1.0 to 1.4mm

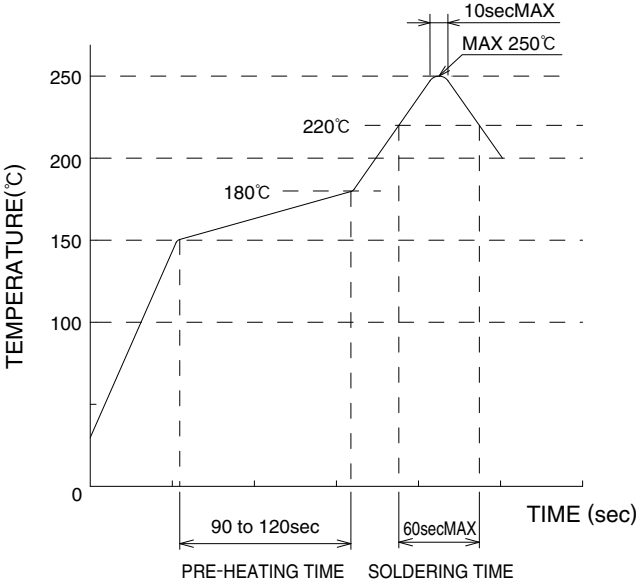
Note 1 : When using other than the recommended wire, contact your nearest Hirose sales representative.  
 Note 2 : The strip length is a reference value. Please make adjustments so finished crimps will meet the specified values.  
 Refer to the crimping quality standards (ATAD-H0404) for details.

## ◆ Tools

Type	Part No.	HRS No.	Applicable contact
Applicator	AP105-DF57-2628S	901-4622-2	DF57-2628SCF(41) DF57-2628SCFA(41)
	AP105-DF57-2830S	901-4618-5	DF57-2830SCF
	AP105-DF57-2830SA	901-4645-0	DF57-2830SCFA
	AP105-DF57-3234S	901-4629-1	DF57-3234SCF
Press	CM-105C	901-0001-0	——
Hand crimping tool	HT305/DF57-2830HC(Note 2)	902-4635-0	DF57-2830SCF
Contact extraction tool	DF-C-PO(B)	550-0179-2	DF57-****SCF(A)

Note 1 : If any trouble has occurred due to tools other than the designated tool, Hirose bears no responsibility for any trouble.  
 Note 2 : The compatible wire is limited to UL1571 of thin wire type, 28 to 30 AWG.

## Usage Recommendations

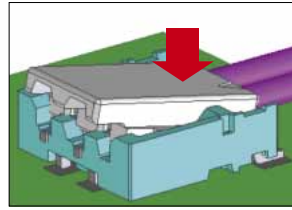
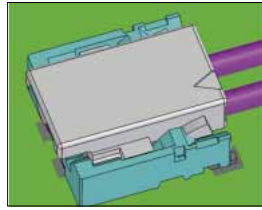
<p>1.Recommended temperature profile</p>	 <p>The temperature profiles are based on the above conditions. In individual applications the actual temperature may vary, depending on solder paste type, volume/thickness and board size/thickness. Consult your solder paste and equipment manufacturer for specific recommendations.</p>
<p>2.Recommended manual soldering</p>	<p>Manual soldering : 350°C ± 10°C for 3 seconds</p>
<p>3.Recommended screen thickness and open area ratio (Pattern area ratio)</p>	<p>Thickness : 0.1mm Open area ratio : 100%</p>
<p>4.Board warpage</p>	<p>Maximum of 0.02mm at the connector center, with both ends of the connector as reference points.</p>
<p>5.Cleaning conditions</p>	<p>Cleaning is not recommended. When cleaning, please evaluate as if can deteriorate the performance including mechanical operation and environmental resistance.</p>
<p>6.Precautions</p>	<ul style="list-style-type: none"> <li>■When inserting crimp-type (solderless) terminals to crimping (solderless) sockets, to maintain reliable performance, please do not insert obliquely.</li> <li>■DO NOT mate/un-mate non-terminated plugs with non-mounted receptacles. This may lead to damage or deformation of the contacts.</li> <li>■Removal of the holding electric cable may cause damage so please be careful.</li> <li>■DO NOT apply flux to the contact terminals when hand soldering the receptacle to the board. Wicking of the flux into the electrical contact areas may lead to connection failures.</li> <li>■Slight discoloration on the insulating materials will not affect form, fit or function of the connectors.</li> <li>■Please refer to the documents "DF57 Series Cable assembly Procedure ETAD-H0421", "Crimp condition" and "DF57-***SCF(A)**" Crimp quality standards ATAD-H0404" for the cable assembly procedures.</li> <li>■Please refer to the "DF57H Series Mating/Unmating Operation Instruction Manual (ETAD-H0652)" for the connector operation.</li> </ul>

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7. Insertion and removal operation method

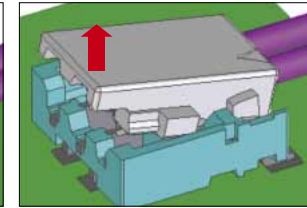
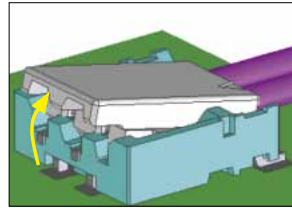
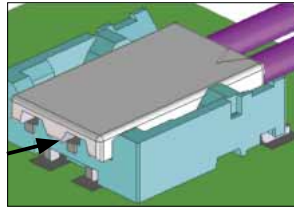
**Mating**

- ① Determine position, fitting the external form
- ② Insert the cable side
- ③ Push the contact portion side



**Un-mating**

- ① Engage lever
- ② Pull up and release the simple lock
- ③ The reinforced lock is also released and the un-mating is complete



8. Mating compatibility

		DF57H		DF57	
Header					
Socket					
Mating compatibility	Y	Y	N	Y	
Additional guiding keys	Y	N	-	N	