### 2mm Pitch, Multi Functional Connector System (Floating [Board-to-Board], Swing-Lock [Wire-to-Board], Short-Circuit Pin)

**DF59** Series



### Features Common to all series

### 1. High Operating Temperature

DF59's are rated at temperatures up to 105 °C. DF59

### 2. Swing Lock Structure (Wire-to-Board)

The DF59 features a "swing-lock" mechanism that employs both a positive and friction lock. This helps to prevent accidental unmating by severe wiring and mechanical stress.

### 3. Short-Circuit Pin

The Short-Circuit Pin allows the termination of an open circuit. Typically used at the end of a series of connected circuit boards.

#### 4. Multi Function Design

The DF59 has the ability to function as either a Board-to-Wire or Board-to-Board System. The PCB mounted receptacle is designed to mate with the W-to-B, B-to-B, and Short Circuit Pin connectors. This multi function ability allows versatility while keeping connectors to a minimum.

#### 5. Contact Design

The terminal design features two-point contact to ensure a highly reliable connection.

#### 6. Common Applicator

Crimping can be performed using the applicator (AP105-DF11-22S) for the existing series DF11-22S C F(A), by replacing the die with the one for DF59 series.

\* For crimping quality standards and crimping conditions, crimping needs to be performed in accordance with the specific conditions of DF59-22PCFA.

### Common to DF59/59S/59SN

### 7. Floating Structure (Board-to-Board)

The Board-to-Board connector can be used to connect two PCB together in a co-planar arrangement and features a "Stress free contact" that floats ± 0.5mm in the X, Y and Z dimensions.

### 8. Space Savings

The DF59 series offers high performance in a compact, space saving design; featuring a 2mm pitch and coupled with a mated height of only 2.48mm with AWG#22 cable. The single position floating plugs DF59S and DF59SN are specifically designed to save space, and can be mounted in high density applications.

#### 9. Robust locking structure on DF59M (W-to-B Connection) The lock mechanism on compact DF59M provides 16N horizontal lock strength. (Fig.4)

### 10. Standardization of PCB layout

The DF59S/SN type is used on board-to-board connections and the DF59M type is intended for wire-to-board connections. Although they have different receptacles, the PCB mounting pattern can be used for these two types. Different combinations of these connectors can be used in the same system with a common PCB. This allows for standardization of PCB. (Fig.5)

#### Note : Each stencil mask is necessary



### Product Specifications

		DF59/S/S	N	ЗA		
Ratings	Current rating	DF59M	6A (22 A 4A (26 A	WG), 5A (24 AWG) WG), 3A (28 AWG)	Operating Temperature : -40 to 105 C (Note 1) Operating Humidity Range : 20 to 80%	
		DF59/S/S	AC/D	C 230V (Note 3)	Storage Temperature Range : -10 to 60℃ (Note 2)	
	Voltage rating	DF59M	AC/D	C 300V (Note 3)	Storage Humidity Range : 40 to 70% (Note 2)	
Items		Spe	cifications		Conditions	
1 Contact resistance	DF59-*P-2FC/ DF59S/SN	SP 50mΩ	min.		Under 6V DC, must be measured by 100mA	
1.Contact resistance	DF59M-1S-H	45mΩ	min.		(DC or 1000Hz)	
	DF59-*P-2C	30mΩ	min.			
2.Vibration	No electrical c	liscontinuity	v over 1µs.		Frequency 10 to 55Hz, single amplitude 0.75mm, 3 directions, 10 cycles each	
3.Shock	No electrical c	al discontinuity over 1 $\mu$ s.			Acceleration 490 m/s <sup>2</sup> , 11ms; duration, sine half-wave 3 cycles in each of the 3 axis.	
		■Conta	ct resistance	■Insulation resistance		
4.Humidity	DF59-*P-2FC/SP DF59S/SN 50mΩ		min.	1000140 mov	Temperature 40 $\pm$ 2°C, humidity 90 to 95%,	
	DF59M	45mΩ	min.	1000ivis2 max.		
	DF59-*P-2C	30mΩ	min.			
		■Conta	ct resistance	Insulation resistance		
5.Temperature cycle	DF59-*P-2FC/ DF59S/SN	<sup>′SP</sup> 50mΩ	min.		(-55℃ : 30 min. → 5-35℃ : 2 to 3 min. →85℃ : 30 min. →5-35℃ : 2 to 3 min.)	
	DF59M	45mΩ	min.	1000MΩ max.	5 cycles	
	DF59-*P-2C	30mΩ	min.			
		∎Con	act resistar	nce	■Number of insertion and withdrawal force	
	DF59-*P-2FC	;			30 times	
6. Operating Life	DF59-*P-2FC/ DF59S/SN	'SP 50mΩ	min.		10 times	
	DF59M	45mΩ	min.		20 times	
	DF59-*P-2C	30mΩ	min.		30 times	
7.Resistance to soldering heat	No melting of	resin which	affect the	performance.	Reflow : Depends on recommended temperature profile. Hand soldering : Soldering iron temperature 350 $\pm$ 10°C, 3 sec.	

Note 1 : Including temperature rise caused by current flow.

Note 2 : The term "storage" refers to products stored for long period of time prior to mounting and use.

Operating temperature and humidity range covers connectors after installation, storage, shipment or during transportation.

Note 3 : The rated voltage is the applied voltage when connectors are mounted parallel to each other on the PCB with a distance of 1.6mm or more between them. Hirose recommends his mounting distance.

This mounting distance is required in order to prevent creepage between the printed wiring to maintain an effective voltage of 300V, according to IEC 60664 and JIS C 60664 standards.

### Materials / Finish

Iter	ns	Parts	Materials	Treatment	UL Specification
	DESO	Insulator	LCP	Natural	UL94V-0
Decenterale	DF59		Dhaanhanhaaa	Gold plated	
Receptacie	DF59S	Contact	Phosphor bronze	Tin plated	
	DF59M		Copper Alloy	i i i piateu	
	DESO	Insulator	PBT	White	UL94V-0
DF59	Contact	Brass	Gold plated		
	DEFOR	Insulator	LCP	Natural	UL94V-0
Floating plug	DF595	Contact	Brass	Tin plated	
	DEFORM	Insulator	LCP	Natural	UL94V-0
	DESASIN	Contoot	Brass	Tip plated	
Crimp contact	DF59M	Contact	Copper Alloy	Tin plated	
Char	t nin	Insulator	PBT	White	UL94V-0
51101	t pin	Contact	Brass	Gold plated	
Crimp	case	Insulator	PBT	White	UL94V-0
Crimp o	contact	Contact	Phosphor bronze	Gold plated	

### Product Number Structure

Refer to the chart below when determining the product specifications from the product number. Please select from the product numbers listed in this catalog when placing orders.

DE	lacie								
	59	#	_	*	S	_	*	V	
0	2	3		4	5		6	1	
<ol> <li>Serie</li> </ol>	es Name	: DF						6	Pitch
<ol> <li>Serie</li> </ol>	es No. : 5	59							None : Single contact type
3 None	e : Stand	ard							2 : Standard 2mm (4mm : Without the central contact
5	S∶B-to-	B type	е					0	Termination form
Ν	1∶W-to	-B typ	e					`	/ : SMT straight type (B-to-B type)
4 Num	ber of co	ontacts	: 1, 2	, 3, 4				H	H : SMT right angle type (W-to-B type)
5 Type S : F	e of conn leceptac	ector le							
Plug									
DF	<b>59</b>	<u>#</u>	-	*	<u>P</u>	-	*	FC	
0	2	3		4	5		6	7	
1 Serie	es Name	: DF						6	Type of connector
<ol> <li>Serie</li> </ol>	es No. : 5	59							P : Plug
3 Non	e : Stand	ard						6	Pitch
S	S : Single	e conta	act typ	е					2 : DF59 : 2mm (4mm : Without the central contact
SN	I : Single	e conta	act slin	n type				1	None : DF59S/SN/M
4 Num	ber of co	ontacts	;					0	Termination form
DF5	9 : 2 98/SN : 1	2, 3, 4							FC : Floating
Short	Circui	t nin							
		r pin		_		•	~ ~		
DF	<u>59</u>	-	*	<u>P</u>	-	2	SP	_	
0	2		3	4		5	6		
<ol> <li>Serie</li> </ol>	es Name	: DF						6	Pitch : 2mm
2 Serie	es No. : 5	59						6	Termination form
	ber of co	ontacts	: 2, 3	, 4					SP : Short Pin
o num									
<ul><li>Num</li><li>Type</li></ul>	of conn	ector							
<ul><li>Num</li><li>Type</li><li>P : P</li></ul>	of conn lug	ector							
<ul> <li>Num</li> <li>Type</li> <li>P : P</li> <li>Crimp</li> </ul>	e of conn lug Socke	ector et							
1	of conn lug Socke	ector et	*	P		2	C		
Type P:P Crimp	of conn lug Socke	ector et _	*	<u>P</u>	_	2	<u>C</u>		
Type     P : P     Crimp     DF     1	e of conn Plug Socke <u>59</u> 2	ector et 	*	<b>P</b>	-	<u>2</u> 5	<u>С</u> б		
Type     P : F     Crimp     DF     0     Serie	of connulug Socke <u>59</u> 2 es Name	ector et .: DF	*	<b>P</b> 4	-	<u>2</u>	<u>C</u> 6	5	Pitch : 2mm
Type     P : F     Crimp     DF     0     Serie     Serie	of conn lug Socke <u>59</u> 2 es Name es No. : 5	ector et : DF 59	*	P 0	-	<u>2</u> 6	<u>C</u> 6	5	Pitch : 2mm Termination form
<ul> <li>Num</li> <li>Type</li> <li>P : F</li> <li>Crimp</li> <li>DF</li> <li>Serie</li> <li>Serie</li> <li>Serie</li> <li>Num</li> </ul>	of connulug Socke 59 2 es Name es No. : 5 ber of co	ector et : DF 59 ontacts	<b>*</b> 3	<b>P</b> <b>4</b>	-	<u>2</u> 5	<u>C</u>	6	Pitch : 2mm Termination form C : Crimp case
A Type     P : F     Crimp     DF     0     Serie     Serie     Serie     Num     Type     P : F	of conn lug Socke 59 2 es Name es No. : 5 ber of co of conn lug	ector et .: DF 59 ontacts ector	<b>*</b> 3	<b>P</b> <b>4</b>	-	<u>2</u> 5	<u>C</u>	6	Pitch : 2mm Termination form C : Crimp case
A Variable     A	of conn lug Socke 59 2 es Name es No. : 5 ber of co of conn lug	Ector Et DF 59 ontacts Ector to-R	* 3	<b>P</b> <b>4</b>	-	2	<u>C</u>	6	Pitch : 2mm Termination form C : Crimp case
Image: Num           Image: P : F           Image: P : F <td>e of connulug Socke 59 2 es Name es No. : 5 ber of co of connulug act (W-</td> <td>ector t DF is9 ontacts ector to-B)</td> <td><b>*</b> 3</td> <td><b>P</b> <b>4</b></td> <td>-</td> <td>2</td> <td><u>C</u></td> <td>6</td> <td>Pitch : 2mm Termination form C : Crimp case</td>	e of connulug Socke 59 2 es Name es No. : 5 ber of co of connulug act (W-	ector t DF is9 ontacts ector to-B)	<b>*</b> 3	<b>P</b> <b>4</b>	-	2	<u>C</u>	6	Pitch : 2mm Termination form C : Crimp case
Num     Type     P : F     Crimp     DF     0     Serie     Serie     Num     Type     P : F     Conta     DF	of conn lug Socke 59 2 es Name es No. : 5 ber of co of conn lug act (W- 59	ector t DF 39 ontacts ector to-B) M	<b>*</b> 3	<b>P</b> <b>4</b>	_	2 5	C © PCF	6	Pitch : 2mm Termination form C : Crimp case
<ul> <li>Num</li> <li>Type</li> <li>P : F</li> <li>Crimp</li> <li>DF</li> <li>Serie</li> <li>Serie</li> <li>Serie</li> <li>Serie</li> <li>Num</li> <li>Type</li> <li>P : F</li> <li>Oconta</li> <li>DF</li> <li>0</li> </ul>	of connulug Socke 59 2 es Name es No. : 5 ber of co of connulug act (W- 59 2 2	ector t DF 59 ontacts ector to-B) M 3	* 3 : 2, 3,	<b>P</b> <b>4</b>	_ 224	2 5	<u>C</u> 6 PCF 5	6	Pitch : 2mm Termination form C : Crimp case
Num     Type     P : F     Crimp     DF     0     Serie     Serie     Num     Type     P : P     Conta     DF     0     Serie	of connulug Socke 59 2 es Name es No. : 5 ber of co of connulug act (W- 59 2 es Name	ector et DF is9 ontacts ector to-B) M 3 : DF : DF	* 3 :: 2, 3	<b>₽</b> <b>4</b>	_ 224	2 6	C o PCF o	6	Pitch : 2mm Termination form C : Crimp case
1         Type           P : F         Crimp           DF         0           1         Serie           3         Num           4         Type           9         Serie           1         Serie           1         Type           1         Serie           1         Serie           1         Serie           1         Serie           1         Serie           2         Serie           2         Serie	of conn lug Socke <u>59</u> 2 es Name es No. : 5 ber of co of conn lug act (W- <u>59</u> 2 es Name es Name es No. : 5	ector t - 59 ontacts ector to-B) M 3 : DF 59	* 3 : 2, 3	<b>P</b> <b>4</b>	_ 224 4	2 5	C G PCF G	6 6 5 7	Pitch : 2mm Termination form C : Crimp case Form Type/Package Type/Plating type CFA : Plug crimping contact-Reel contact-Gold plating
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<ul> <li>Num</li> <li>Type</li> <li>P : F</li> <li>Crimp</li> <li>DF</li> <li>Serie</li> <li>Serie</li> <li>Num</li> <li>Type</li> <li>P : F</li> <li>Num</li> <li>Type</li> <li>P : F</li> <li>Conta</li> <li>DF</li> <li>Serie</li> <li>Serie</li> <li>Serie</li> <li>None</li> </ul>	of connulug Socke 59 2 es Name es No. : 5 ber of co of connulug act (W- 59 2 es Name es No. : 5 es Name es No. : 5 es Name act : Stand 1 : Single	ector t DF is9 ontacts ector to-B) M 3 : DF is9 ard conta	* 3 : 2, 3 -	 , 4 2 e (W-to	<u>–</u> 224 3	2 5	<u>С</u> () () () () () () () () () ()	5 6 P P P	Pitch : 2mm Termination form C : Crimp case Form Type/Package Type/Plating type CFA : Plug crimping contact·Reel contact·Gold plating CA : Plug crimping contact·Bulk contact·Gold plating CF : Plug crimping contact·Bulk contact·Tin plating CF : Plug crimping contact·Reel contact·Tin plating
<ul> <li>Num</li> <li>Type</li> <li>P:F</li> <li>Crimp</li> <li>DF</li> <li>0</li> <li>Serie</li> <li>Serie</li> <li>Num</li> <li>Type</li> <li>P:F</li> <li>Oconta</li> <li>DF</li> <li>0</li> <li>Serie</li> <li>Serie</li> <li>Serie</li> <li>None</li> <li>Appl</li> </ul>	of connulug Socke 59 2 s Name es No. : 5 ber of connu- lug act (W- 59 2 es Name es No. : 5 59 2 es Name es No. : 5 59 2 es Name ber of connu- lug	ector t - 59 ontacts ector to-B) ( 0 ( 3) ( 3) ( 59) ( 59 ( 59) ( 5)) ( 5)) ( 5)) ( 5)) ( 5)) ( 5)) ( 5)) ( 5)) ( 5)) ( 5)) ( 5)) ( 5)) () 5) () () 5)) ()	* 3 : 2, 3	 , 4 2 = (W-te	<u>-</u> 224 4 о-в м	2 5	<u>С</u> () () () () () () () () () ()	5 6 9 9 9 9 9 9 9 9	Pitch : 2mm         Termination form         C : Crimp case         Form Type/Package Type/Plating type         CFA : Plug crimping contact·Reel contact·Gold platin         CA : Plug crimping contact·Bulk contact·Gold plating         CF : Plug crimping contact·Reel contact·Tin plating         CF : Plug crimping contact·Bulk contact·Tin plating         C : Plug crimping contact·Bulk contact·Tin plating
<ul> <li>Num</li> <li>Type</li> <li>P:F</li> <li>Crimp</li> <li>DF</li> <li>Serie</li> <li>Serie</li> <li>Num</li> <li>Type</li> <li>P:F</li> <li>Conta</li> <li>DF</li> <li>Serie</li> <li>Serie</li> <li>Serie</li> <li>Serie</li> <li>Appl</li> <li>2222</li> </ul>	of connulug Socke 59 2 es Name es No. : 5 ber of co of connulug act (W- 59 2 es Name es No. : 5 e s Name es No. : 5 e s Stand 1 : Single icable W : 22 AW	ector : DF : OF : OF	* 3 : 2, 3, -	 , 4  e (W-tr	_ 224 3 о-в ма	2 5 =micre	<u>С</u> 6 РСЕ 5 о)	5 6 9 9 9 9 9 9	Pitch : 2mm         Termination form         C : Crimp case         Form Type/Package Type/Plating type         CFA : Plug crimping contact·Reel contact·Gold plating         CA : Plug crimping contact·Bulk contact·Gold plating         CF : Plug crimping contact·Reel contact·Tin plating         C : Plug crimping contact·Bulk contact·Tin plating         C : Plug crimping contact·Bulk contact·Tin plating
<ul> <li>Num</li> <li>Type P:F</li> <li>Crimp</li> <li>DF</li> <li>Serie</li> <li>Serie</li> <li>Num</li> <li>Type P:F</li> <li>Num</li> <li>Type</li> <li>Serie</li> <li>Num</li> <li>Serie</li> <li>Serie</li> <li>None</li> <li>Appl</li> <li>2224</li> <li>2224</li> <li>2224</li> </ul>	of connulug Socke 59 2 es Name es No. : 5 ber of co of connulug act (W- 59 2 es Name es No. : 5 e Stand 1 : Single icable W : 22 to 2	ector t DF is9 ontacts ector to-B) M 3 : DF is9 ard conta ire G 24 AW	* 3 : 2, 3 :	 , 4  ≘ (W-ta	_ 224 (4) о-в Ма	2 5 =micro	<u>С</u> (в) (с) (с) (с) (с) (с) (с) (с) (с	5 6 P P P	Pitch : 2mm         Termination form         C : Crimp case         Form Type/Package Type/Plating type         CFA : Plug crimping contact·Reel contact·Gold plating         CA : Plug crimping contact·Bulk contact·Gold plating         CF : Plug crimping contact·Reel contact·Tin plating         C : Plug crimping contact·Bulk contact·Tin plating         C : Plug crimping contact·Bulk contact·Tin plating

# Straight Receptacle (SMT)



Recommended PCB Dimensions (t=1.6mm)



#### Packaging Dimensions





(51) : Gold plating, emboss packaging

Unit : mm

							0111111
Part No.	HRS No.	No. of contacts	А	В	С	D	E
DF59-2S-2V(51)	667-0001-0 51	2	7.2	5.3	2.0	6.0	6.62
DF59-3S-2V(51)	667-0002-3 51	3	9.2	7.3	4.0	8.0	8.62
DF59-4S-2V(51)	667-0003-6 51	4	11.2	9.3	6.0	10.0	10.62
DF59-2S-4V(51)	667-0021-8 51	2*	9.2	7.3	4.0	8.0	8.62

\* DF59-2S-4V(51) is made by removing the middle pin of DF59-3S-2V(51) at the factory. Note : Please order in full reel quantities. (2,000 pcs/reel)



\* DF59-2P-4FC(50) is made by removing the middle pin of DF59-3P-2FC(50) at the factory. Note : Please order in full tray quantities. (50 pcs/tray) DF59 Series@2mm Pitch, Multi Functional Connector System (Floating [Board-to-Board], Swing-Lock [Wire-to-Board], Short-Circuit Pin)

### Short-Circuit Pin





Part No.	HRS No.	No. of contacts	А	В	С	Packaged Quantity/Tray
DF59-2P-2SP(50)	667-0017-0 50	2	7.2	5.9	2.0	
DF59-3P-2SP(50)	667-0018-3 50	3	9.2	7.9	4.0	100
DF59-4P-2SP(50)	667-0046-9 50	4	11.2	9.9	6.0	

Note 1 : Please order in full tray quantities.

Note 2 : For 4 pos. type contact No.1 and 2, No.3 and 4 are connected respectively.

### Crimp Socket





Unit : mm

Part No.	HRS No.	No. of contacts	A	В	С	D
DF59-2P-2C	667-0011-4 00	2	7.2	5.9	5.2	2.0
DF59-3P-2C	667-0012-7 00	3	9.2	7.9	7.2	4.0
DF59-4P-2C	667-0013-0 00	4	11.2	9.9	9.2	6.0

Note : Please order in full pack quantities. (100 pcs/pack)



## Crimp contact





Part No.	HRS No.	Packaging	Quantity	Treatment
DF59-22PCFA	667-0016-8 00	667-0016-8 00 Reel contact (Note 1) 10,00		Cold plated
DF59-22PCA	667-0022-0 00	Bulk contact (Note 2)	100 contacts / pack	Gold plated

Note 1 : Please order reel contacts by full reel quantities. (10,000 pcs/reel)

Note 2 : Please order loose piece contacts in full pack. (100 pcs/pack)

### Applicable Wire (Tin plated soft copper wire)

Conductor Size (Wire Constitution)	Jacket Diameter
22  AVAC (17 / 40 1  fmm)	UL1061 (ø1.26mm)
22 AWG (17 /φ0.16mm)	UL3265 (ø1.38mm)

 Recommended Wire UL1061, UL3265
 Strip Length

1.7 to 2.3mm

Note 1 : In these cases please contact Hirose Sales Representative.

Assemble with non-applicable wire.

LED application usage.

Note 2 : The strip length is a reference value. Please make adjustments to match with dimensional specifications. Refer to the crimping quality standards (ETAD-H0504-00) for details.



Note : Please order in full reel quantities. (10,000 pcs/reel)

### Single Contact Type Floating Plug



DF59S-1P-FC(21)



Note : Please order in full reel quantities. (10,000 pcs/reel)

# Single Contact Slim Type Floating Plug

667-0023-3 21





Part No.	HRS No.
DF59SN-1P-FC(21)	667-0028-7 21

[Specification No.] (21) : Tin plating, emboss packaging

Note 1 : Please order in full reel quantities. (10,000 pcs/reel)

Note 2 : Use the special (DF59SN-1P-FC/IN-TOOL) tool for connector insertion.

# Single Contact Type Right Angle Receptacle (SMT)





#### Recommended PCB Dimensions (t=1.6mm)



Note 1 : Please order in full reel quantities. (10,000 pcs/reel)

Note 2 : This connector is designed to mate with Crimp contact of DF59M only. (P.8)

# Single Contact Type Crimp Contact





Dout No.		Applicable Wire				Du Tura	Quantity	Treatment
Fan NO.		Recommended Wire	Jacket Diameter	Conductor Size	Wire Constitution	Бутуре	Quantity	rreatment
	667-0042-9 00		41 11 to 1 06mm	22 AWG	17/ø0.16mm	Reel contact	15,000/reel	
DF39M-2224FGF	007-0042-0.00		φ1.11 to 1.26mm	24 AWG	11/ø0.16mm	(Note 1)		
DEFON 0004DC 007 0044 0.00			<i>∳</i> 1.26mm	22 AWG	17/ø0.16mm	Bulk contact	100/pools	
DF59M-2224PC 667-0044-3 00	007-0044-3.00		<i>∳</i> 1.11mm	24 AWG	11/ø0.16mm	(Note 2)	100/pack	Tin plated
	667-0042-0.00	0110300	10.00 to 0.00mm	26 AWG	7/ø0.16mm	Reel contact	15.000/rool	rin plateu
DF59M-2628PCF 667-0043-0 00			$\varphi$ 0.88 to 0.98mm	28 AWG	7/ø0.17mm	(Note 1)	15,000/1661	
			¢0.98mm	26 AWG	7/ø0.16mm	Bulk contact	100/2221	
DF99WF2020FC	007-0045-0 00		<i>∲</i> 0.88mm	28 AWG	7/ø0.17mm	(Note 2)	тоо/раск	

Note 1 : Please order reel contacts by full reel quantities. (15,000 pcs/reel)

Note 2 : Please order loose piece contacts in full pack. (100 pcs/pack)

Note 3 : In these cases please contact Hirose Sales Representative.

·Assemble with non-applicable wire.

LED application usage.

Note 4 : The strip length is a reference value. Please make adjustments to match with dimensional specifications. Refer to the crimping quality standards (ETAD-H0778-00) for details.



	Crimping	Tool
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Types	Part No.	HRS No.	Applicable Contact	Remarks
	AP105-DF59-22P	901-4619-8	DF59-22PCFA	
	AP105-DF59M-2224P	901-4638-2		
Applicator	DHS887200H-UP	_	DF39M-2224FGF	(Note 2) Manufactured by Japan Automatic Machine Co., Ltd.
	AP105-DF59M-2628P	901-4639-5		
	DHS887300H-UP	_	DF59M-2626PCF	(Note 2) Manufactured by Japan Automatic Machine Co., Ltd.
Press Unit	CM-105C	901-0001-0	-	
	HT801/DF59-22P	550-0404-7	DF59-22PCA ※UL1061 AWG#22 Only	
Hand Tool	HT801/DF59M-2224P	550-0420-3	DF59M-2224PC ※UL10368 AWG#22、24 Only	
	HT801/DF59M-2628P 550-0421-6		DF59M-2628PC ※UL10368 AWG#26、28 Only	
Extraction Tool	DF-C-PO(B)	550-0179-2	DF59-22PCFA DF59-22PCA	
(vv-to-B)	DF-C-PO(A)	550-0170-8	DF59M Series	
Insertion Tool (B-to-B)	DF59SN-1P-FC/IN-TOOL	667-0040-2	DF59SN-1P-FC	

Note 1 : Customers are strongly encouraged to utilize HRS application tooling or tooling created by a Hirose tooling partner. Hirose assumes no liability for customers using tooling from non-recognized sources.

Note 2 : Please contact Japan Automatic Machine Co., Ltd. (hereinafter J.A.M.) through their website regarding crimping issues when using applicators manufactured by J.A.M. URL http://www.jam-net.co.jp

### Mating Dimensions

### Board-to-board connection (floating plug)

[Standard]



### [Single contact type]





### [Single contact slim type]



### •Short-circuit pin connection



### •Wire-to-Board connection [Standard]



#### [Single contact type]





# Operating Precautions

1. Recommended Temperature Profile (Lead-free soldering possible)	250
	0 TIME (sec) <u>90 - 120sec</u> PRE-HEATING TIME SOLDERING TIME
	<ul> <li>[Applicable Conditions]</li> <li>1. Peak Temperature : MAX 250°C</li> <li>2. Heated Area : 220°C or above, within 60 sec.</li> <li>3. Pre-heating Area : 150 to 180°C, 90 to 120 sec.</li> <li>4. Number of Times : within 2 times</li> <li>*Measured at contact lead area</li> <li>Please be noted that the reflow condition may vary depending on soldering paste type, manufacturer of soldering material, board size, as well as conditions of other mounting materials.</li> <li>(*1) Above temperature profile is our recommended value.</li> </ul>
2. Recommended Hand Solder Conditions	Soldering iron temperature : 350 $\pm$ 10 °C, soldering time : within 3 seconds
3. Recommended Screen Thickness, Open Ratio (Pattern Area Ratio)	Thickness 0.1mm, Open ratio : 100%
4. Warpage of PC board	Maximum of 0.02mm at the connector center, with both ends of the connector as reference points.
5. Cleaning Condition	Cleaning with IPA is possible. (Cleaning is not recommended. In case of cleaning, please evaluate if it causes a decrease in the performance which includes mechanical operation and environmental resistance.)
6. Precautions	<ul> <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 a non-terminated plug with a non-mounted receptacles. This may lead to damage or deformation of the contacts.</li> <li>Please note that pulling on the wires or cable during un-mating may cause damage.</li> <li>DO NOT apply flux to the contact terminals when hand soldering the receptacle to the board. Flux can wick into the electrical contact areas and 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 following for the points for proper handling regarding mating/unmating operations.</li> <li>"DF59 Insertion and Removal Manual" ETAD-H0496-00</li> <li>"DF59S Insertion manual" ETAD-H0779-00</li> </ul>

MEMO :

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# HIROSE ELECTRIC CO.,LTD.

2-6-3,Nakagawa Chuoh,Tsuzuki-Ku,Yokohama-Shi 224-8540,JAPAN https://www.hirose.com/

12 Its The characteristics and the specifications contained herein are for reference purpose. Please refer to the latest customer drawings prior to use. The contents of this catalog are current as of date of 01/2022. Contents are subject to change without notice for the purpose of improvements.