

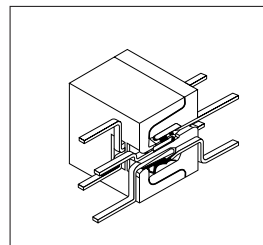
## FEATURES

- Low insertion and withdrawal force
- Mating process is reliable and self-aligning
- Guide pins assure smooth mating and un-mating
- Insulator protects the contacts from damage or breakage
- PPS insulator offers high temperature resistance
- Stacked mating heights of 7, 8, 9, 10 and 12mm (0.276, 0.315, 0.354, 0.394 and 0.472")
- Eight sizes: 20, 30, 40, 50, 60, 80, 100 and 120 pins
- Audible "click" assures users of complete mating
- Three variations; Horizontal, Vertical, and Stacked
- 3 rows of terminals conserve board space
- RoHS compliance

## SPECIFICATIONS

- Insulator : Glass-filled PPS (UL 94V-0), Brown  
Alignment plate : Glass-filled Nylon 66 (UL 94V-0), Brown
- Contact material : Phosphor Bronze
- Plating : Contact area ; Gold over Nickel  
(1)Standard : 0.05 $\mu$ m min. Gold  
(2)Upon request : 0.25 $\mu$ m min. Gold  
Terminal area ; Tin copper over Nickel (Receptacle)  
Gold over Nickel (Plug)
- Current rating : 0.5A per contact
- Contact resistance : 40m  $\Omega$  max.
- Dielectric withstanding voltage : 650V AC for 1 minute
- Insulation resistance : 1,000M  $\Omega$  min. at 500V DC
- Operating temperature : -55°C to +85°C
- Insertion force :  
1.9kg max. / 20 pin, 3.8kg max. / 40 pin,  
5.7kg max. / 60 pin, 9.5kg max. / 100 pin
- Withdrawal force :  
0.3kg min. / 20 pin, 0.6kg min. / 40 pin,  
0.9kg min. / 60 pin, 1.5kg min. / 100 pin

### ● 8900 Series Concept



Today, new electronic equipment must be made lighter and smaller with more functions than existing equipment. Therefore, KEL has developed the highly reliable mating concept in miniature sizes for Horizontal, Vertical, and Stacked applications. Select mating heights from 7 to 12 mm for your board stacking application.

## ● ORDER CODE

**89** - - - - - **F**

- **F** : RoHS Compliance
- Standoff height (Straight type only)  
Receptacle  
**A** : For mating heights of 7, 9mm (0.276, 0.354") (without alignment plate)  
**B** : For mating heights of 8, 10mm (0.315, 0.394") (without alignment plate)  
**D** : For mating heights of 10, 12mm (0.394, 0.472") (with alignment plate)  
Plug  
**A** : For mating heights of 7, 8, 10mm (0.276, 0.315, 0.394") (without alignment plate)  
**C** : For mating heights of 9, 10, 12mm (0.354, 0.394, 0.472") (with alignment plate)
- Plating of contact area  
**Omit** : Au 0.05 $\mu$ m (Standard)  
**D** : Au 0.25 $\mu$ m
- Contact tail style  
**S** : Straight  
**L** : Right angle (with flanges only)
- Contact name  
**177** : Receptacle (8901, 8903)  
**178** : Plug (8911, 8913)
- Number of contacts  
**020** : 20 pin  
**030** : 30 pin  
**040** : 40 pin  
**050** : 50 pin  
**060** : 60 pin  
**080** : 80 pin  
**100** : 100 pin  
**120** : 120 pin
- Series name  
Receptacle  
**8901** : With flanges and hooks  
**8903** : Without flanges and hooks  
Plug  
**8911** : With flanges and hooks  
**8913** : Without flanges and hooks

● Please consult sales office regarding non-standard items.  
\* See the table on page B-5 for 10mm mating height combinations.

### Mating Variations

#### Horizontal Mating

Unit:mm(inch)

#### Vertical Mating

Unit:mm(inch)

Standoff Height	H
A	9.105 (0.359)
C	11.105 (0.437)

Standoff Height	J
A	9.105 (0.359)
B	10.105 (0.398)
D	12.105 (0.477)

#### Stacked Mating

Unit:mm(inch)

Additional mating combinations shown below.

### 8900 Series Stacked Mating Combinations

**8911 series with flanges and hooks**

7 to 12		7 to 12		7 to 12	
Standoff height (A, B, C or D)					

**8913 series without flanges and hooks**

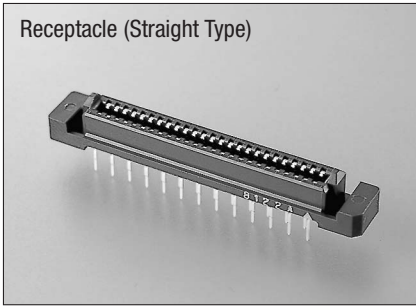
■ **Selection Guide**

Type	7mm(0.276inch)	8mm(0.315inch)	9mm(0.354inch)	10mm(0.394inch)	12mm(0.472inch)
With flanges and hooks	8911-□□□-178S□-A-F	8911-□□□-178S□-A-F	8911-□□□-178S□-C-F	8911-□□□-178S□-A-F	8911-□□□-178S□-C-F
	8901-□□□-177S□-A-F	8901-□□□-177S□-B-F	8901-□□□-177S□-A-F	8901-□□□-177S□-D-F	8901-□□□-177S□-D-F
Without flanges and hooks	8913-□□□-178S□-A-F	8913-□□□-178S□-A-F	8913-□□□-178S□-C-F	8913-□□□-178S□-A-F	8913-□□□-178S□-C-F
	8903-□□□-177S□-A-F	8903-□□□-177S□-B-F	8903-□□□-177S□-A-F	8903-□□□-177S□-D-F	8903-□□□-177S□-D-F

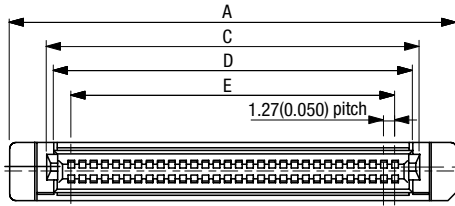
**8901-□□□-177S□-□-F (Receptacle, With flanges and hooks)**

Unit:mm(inch)

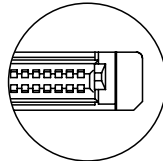
Receptacle (Straight Type)



**A, B type (Standoff height)**

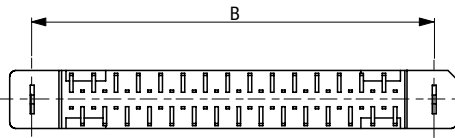
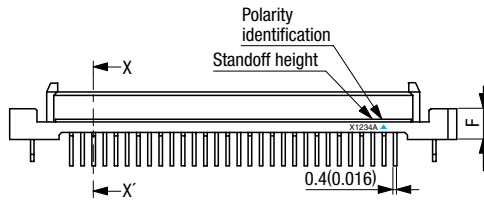
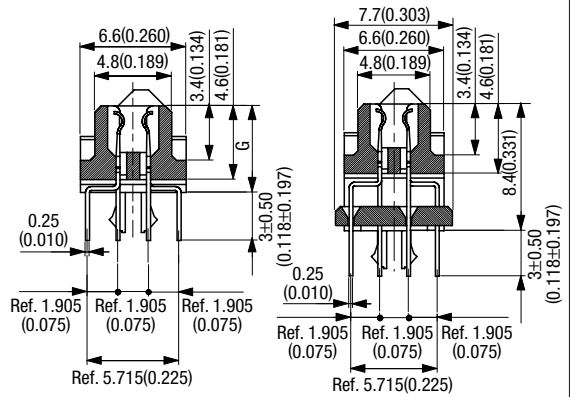


**D type**



Type	F
A	3.5 (0.138)
B	4.5 (0.177)
D	6.5 (0.256)

**X-X' Cross Section**

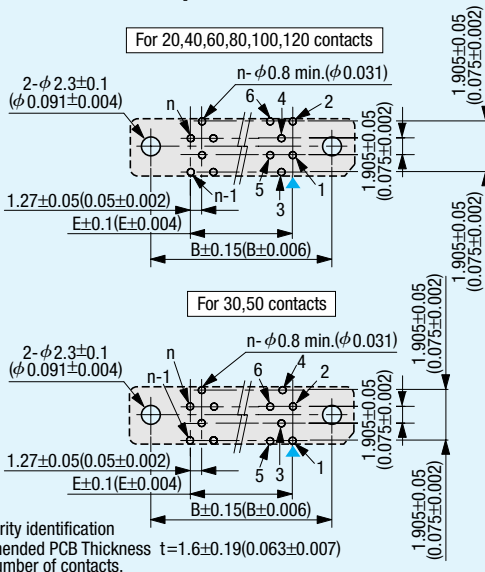


**A, B type**

**D type**

Type	G
A	5.4 (0.213)
B	6.4 (0.252)

**Printed Circuit Board Layout (Component Side View)**



▼=Polarity identification  
Recommended PCB Thickness  $t=1.6\pm0.19(0.063\pm0.007)$   
"n" is number of contacts.

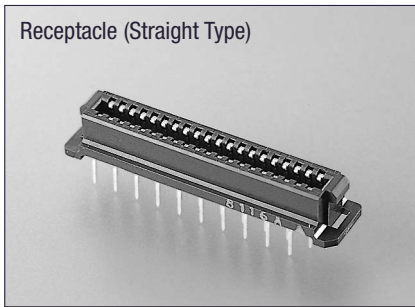
**Product Table / Dimensions**

No. of contacts	Part Number	A	B	C	D	E
20	8901-020-177S□-□-F	25.43 (1.001)	20.32 (0.800)	17.03 (0.670)	15.43 (0.607)	11.43 (0.450)
30	8901-030-177S□-□-F	31.78 (1.251)	26.67 (1.050)	23.38 (0.920)	21.78 (0.857)	17.78 (0.700)
40	8901-040-177S□-□-F	38.13 (1.501)	33.02 (1.300)	29.73 (1.170)	28.13 (1.107)	24.13 (0.950)
50	8901-050-177S□-□-F	44.48 (1.751)	39.37 (1.550)	36.08 (1.420)	34.48 (1.357)	30.48 (1.200)
60	8901-060-177S□-□-F	50.83 (2.001)	45.72 (1.800)	42.43 (1.670)	40.83 (1.607)	36.83 (1.450)
80	8901-080-177S□-□-F	63.53 (2.501)	58.42 (2.300)	55.13 (2.170)	53.53 (2.107)	49.53 (1.950)
100	8901-100-177S□-□-F	76.23 (3.001)	71.12 (2.800)	67.83 (2.670)	66.23 (2.607)	62.23 (2.450)
120	8901-120-177S□-□-F	88.93 (3.501)	83.82 (3.300)	80.53 (3.170)	78.93 (3.107)	74.93 (2.950)

8903-□□□-177S□-□-F (Receptacle, Without flanges and hooks)

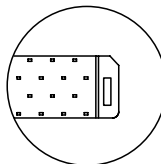
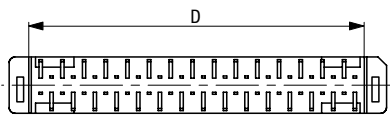
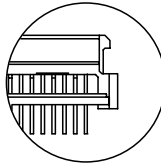
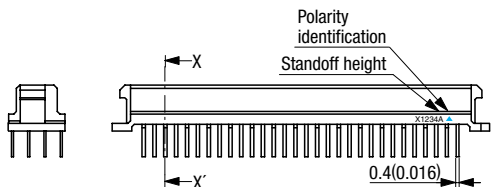
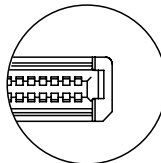
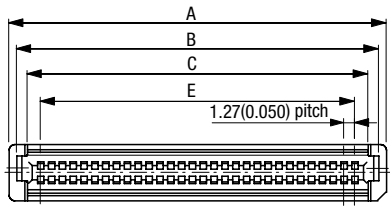
Unit:mm(inch)

Receptacle (Straight Type)

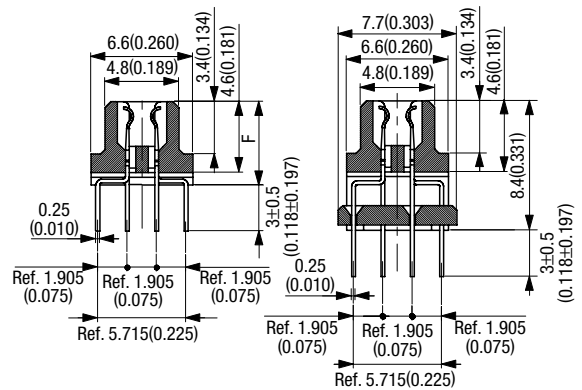


A, B type (Standoff height)

D type



X-X' Cross Section

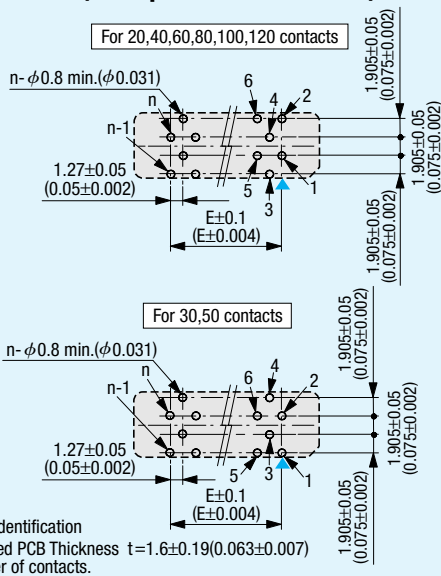


A, B type

D type

Type	F
A	5.4 (0.213)
B	6.4 (0.252)

Printed Circuit Board Layout  
(Component Side View)



▼=Polarity identification  
Recommended PCB Thickness  $t=1.6\pm 0.19(0.063\pm 0.007)$   
"n" is number of contacts.

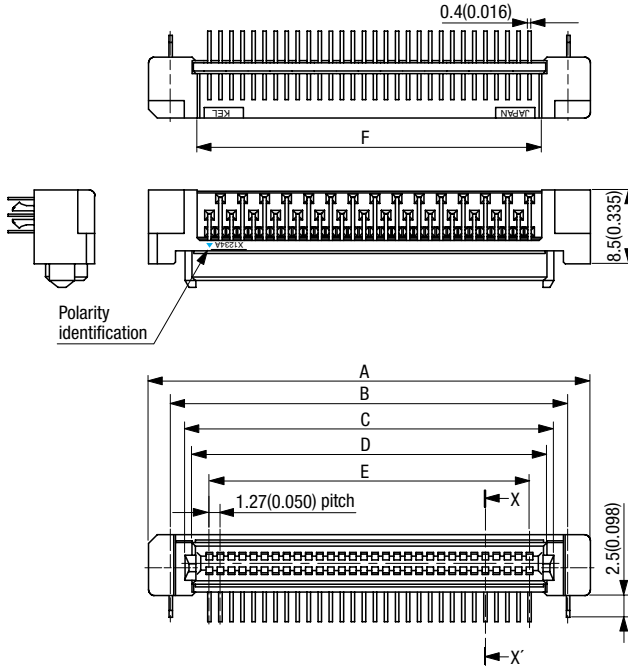
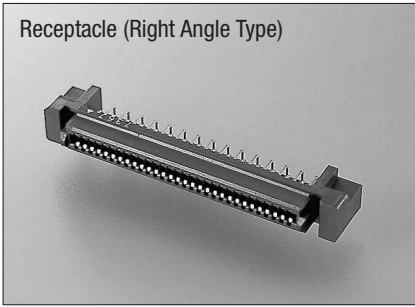
Product Table / Dimensions

No. of contacts	Part Number	A	B	C	D	E
20	8903-020-177S□-□-F	18.83 (0.741)	17.03 (0.670)	14.53 (0.572)	13.43 (0.529)	11.43 (0.450)
30	8903-030-177S□-□-F	25.18 (0.991)	23.38 (0.920)	20.88 (0.822)	19.78 (0.779)	17.78 (0.700)
40	8903-040-177S□-□-F	31.53 (1.241)	29.73 (1.170)	27.23 (1.072)	26.13 (1.029)	24.13 (0.950)
50	8903-050-177S□-□-F	37.88 (1.491)	36.08 (1.420)	33.58 (1.322)	32.48 (1.279)	30.48 (1.200)
60	8903-060-177S□-□-F	44.23 (1.741)	42.43 (1.670)	39.93 (1.572)	38.83 (1.529)	36.83 (1.450)
80	8903-080-177S□-□-F	56.93 (2.241)	55.13 (2.170)	52.63 (2.072)	51.53 (2.029)	49.53 (1.950)
100	8903-100-177S□-□-F	69.63 (2.741)	67.83 (2.670)	65.33 (2.572)	64.23 (2.529)	62.23 (2.450)
120	8903-120-177S□-□-F	82.33 (3.241)	80.53 (3.170)	78.03 (3.072)	76.93 (3.029)	74.93 (2.950)

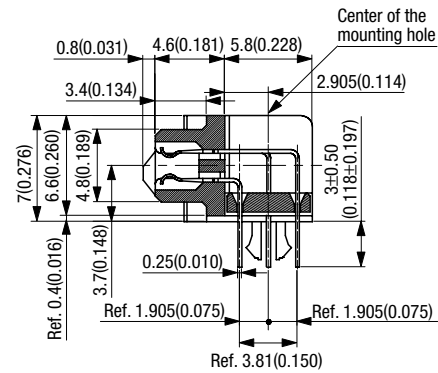
**8901-□□□-177L□-F (Receptacle, With flanges and hooks)**

Unit:mm(inch)

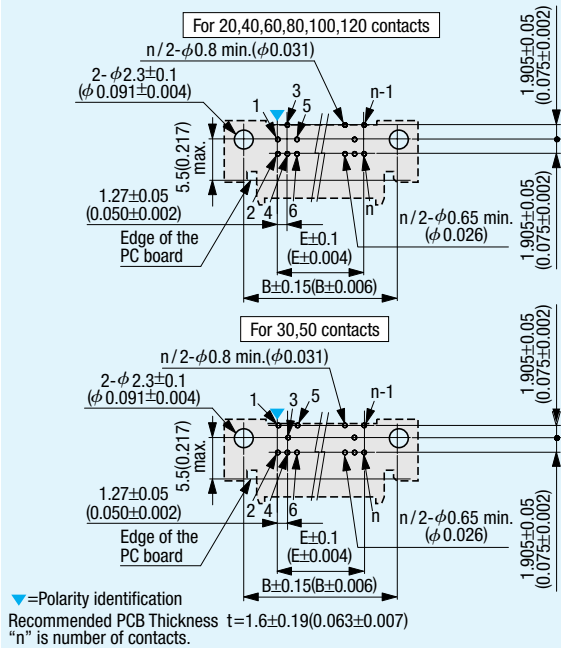
Receptacle (Right Angle Type)



**X-X' Cross Section**



**Printed Circuit Board Layout (Component Side View)**

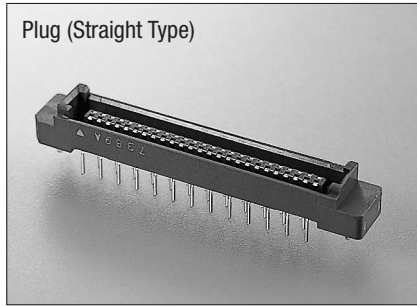


■ Product Table / Dimensions

No. of contacts	Part Number	A	B	C	D	E	F
20	8901-020-177L□-F	25.43 (1.001)	20.32 (0.800)	17.03 (0.670)	15.43 (0.607)	11.43 (0.450)	14.23 (0.560)
30	8901-030-177L□-F	31.78 (1.251)	26.67 (1.050)	23.38 (0.920)	21.78 (0.857)	17.78 (0.700)	20.58 (0.810)
40	8901-040-177L□-F	38.13 (1.501)	33.02 (1.300)	29.73 (1.170)	28.13 (1.107)	24.13 (0.950)	26.93 (1.060)
50	8901-050-177L□-F	44.48 (1.751)	39.37 (1.550)	36.08 (1.420)	34.48 (1.357)	30.48 (1.200)	33.28 (1.310)
60	8901-060-177L□-F	50.83 (2.001)	45.72 (1.800)	42.43 (1.670)	40.83 (1.607)	36.83 (1.450)	39.63 (1.560)
80	8901-080-177L□-F	63.53 (2.501)	58.42 (2.300)	55.13 (2.170)	53.53 (2.107)	49.53 (1.950)	52.33 (2.060)
100	8901-100-177L□-F	76.23 (3.001)	71.12 (2.800)	67.83 (2.670)	66.23 (2.607)	62.23 (2.450)	65.03 (2.560)
120	8901-120-177L□-F	88.93 (3.501)	83.82 (3.300)	80.53 (3.170)	78.93 (3.107)	74.93 (2.950)	77.73 (3.060)

8911-□□□-178S□-□-F (Plug, With flanges and hooks)

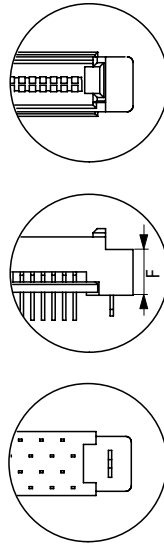
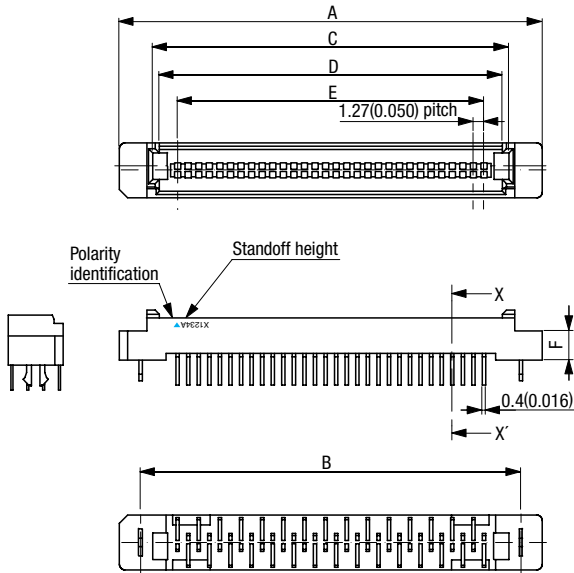
Unit:mm(inch)



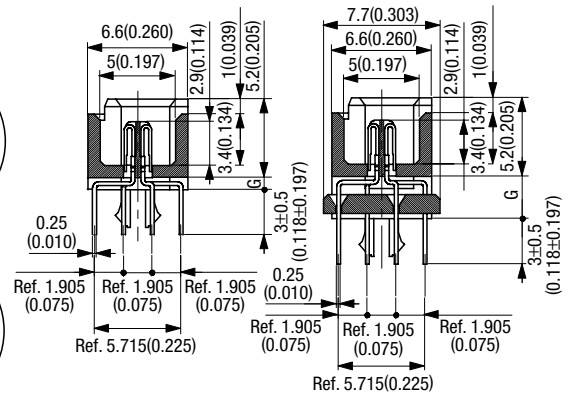
Plug (Straight Type)

A type (Standoff height)

C type



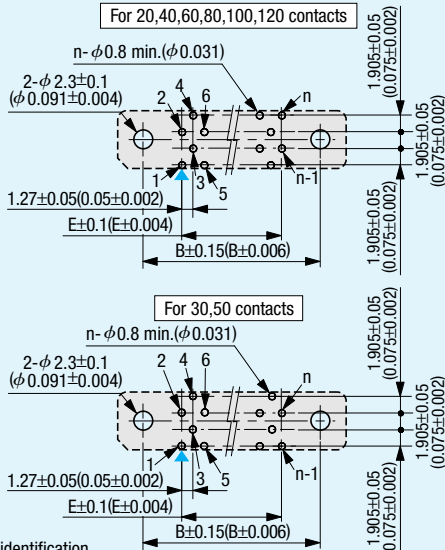
X-X' Cross Section



A type

C type

Printed Circuit Board Layout  
(Component Side View)



▼=Polarity identification  
Recommended PCB Thickness  $t=1.6\pm0.19(0.063\pm0.007)$   
"n" is number of contacts.

Type	F	G
A	3.5 (0.138)	0.8 (0.032)
C	5.5 (0.217)	2.8 (0.110)

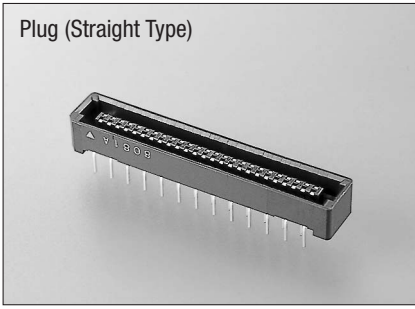
Product Table / Dimensions

No. of contacts	Part Number	A	B	C	D	E
20	8911-020-178S□-□-F	25.43 (1.001)	20.32 (0.800)	17.43 (0.686)	15.83 (0.623)	11.43 (0.450)
30	8911-030-178S□-□-F	31.78 (1.251)	26.67 (1.050)	23.78 (0.936)	22.18 (0.873)	17.78 (0.700)
40	8911-040-178S□-□-F	38.13 (1.501)	33.02 (1.300)	30.13 (1.186)	28.53 (1.123)	24.13 (0.950)
50	8911-050-178S□-□-F	44.48 (1.751)	39.37 (1.550)	36.48 (1.436)	34.88 (1.373)	30.48 (1.200)
60	8911-060-178S□-□-F	50.83 (2.001)	45.72 (1.800)	42.83 (1.686)	41.23 (1.623)	36.83 (1.450)
80	8911-080-178S□-□-F	63.53 (2.501)	58.42 (2.300)	55.53 (2.186)	53.93 (2.123)	49.53 (1.950)
100	8911-100-178S□-□-F	76.23 (3.001)	71.12 (2.800)	68.23 (2.686)	66.63 (2.623)	62.23 (2.450)
120	8911-120-178S□-□-F	88.93 (3.501)	83.82 (3.300)	80.93 (3.186)	79.33 (3.123)	74.93 (2.950)

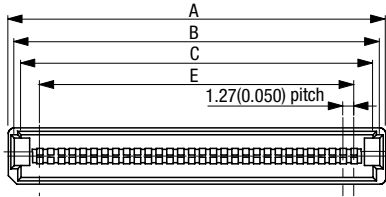
### 8913-□□□-178S□-□-F (Plug, Without flanges and hooks)

Unit:mm(inch)

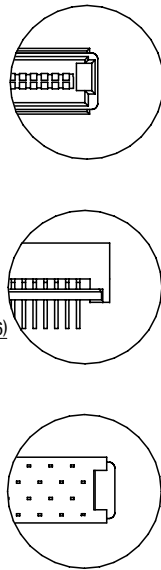
Plug (Straight Type)



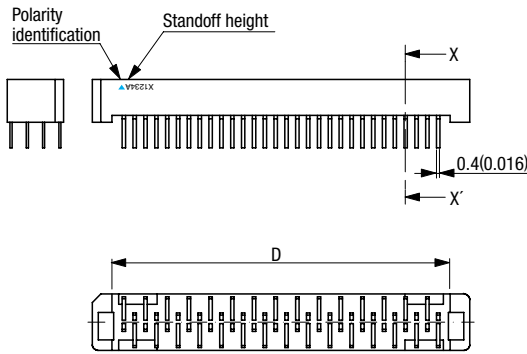
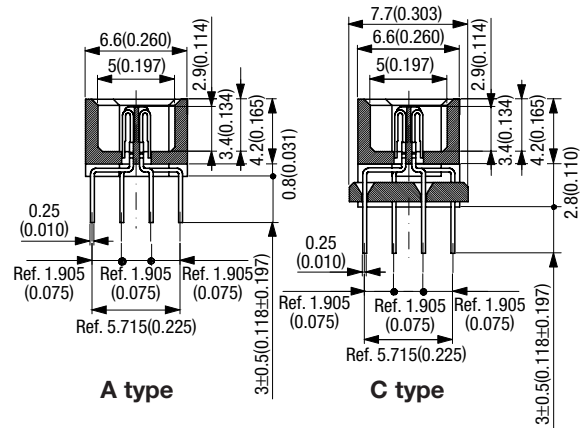
A type (Standoff height)



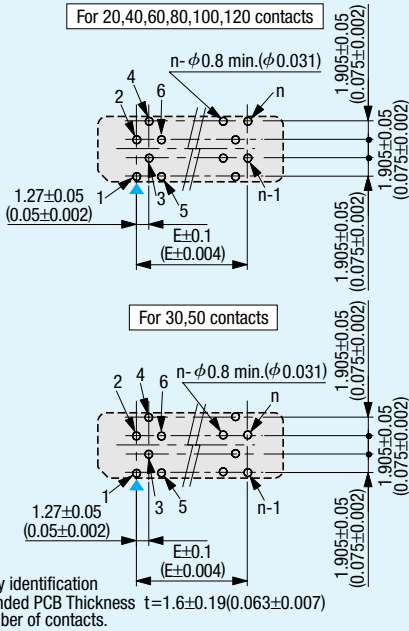
C type



X-X' Cross Section



#### Printed Circuit Board Layout (Component Side View)



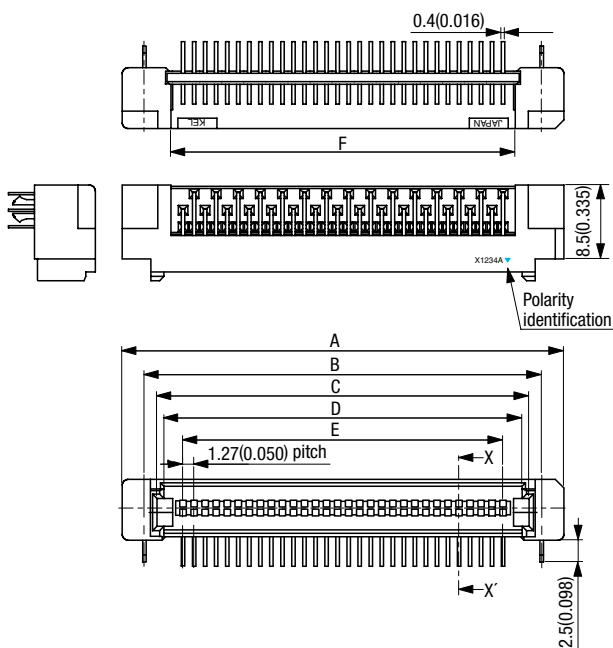
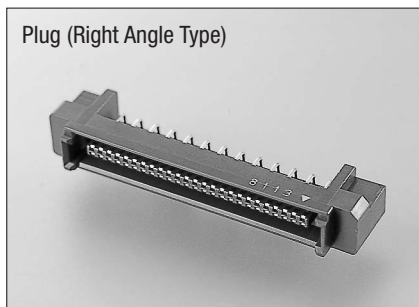
Product Table / Dimensions

No. of contacts	Part Number	A	B	C	D	E
20	8913-020-178S□-□-F	18.83 (0.741)	17.43 (0.686)	15.83 (0.623)	14.23 (0.560)	11.43 (0.450)
30	8913-030-178S□-□-F	25.18 (0.991)	23.78 (0.936)	22.18 (0.873)	20.58 (0.810)	17.78 (0.700)
40	8913-040-178S□-□-F	31.53 (1.241)	30.13 (1.186)	28.53 (1.123)	26.93 (1.060)	24.13 (0.950)
50	8913-050-178S□-□-F	37.88 (1.491)	36.48 (1.436)	34.88 (1.373)	33.28 (1.310)	30.48 (1.200)
60	8913-060-178S□-□-F	44.23 (1.741)	42.83 (1.686)	41.23 (1.623)	39.63 (1.560)	36.83 (1.450)
80	8913-080-178S□-□-F	56.93 (2.241)	55.53 (2.186)	53.93 (2.123)	52.33 (2.060)	49.53 (1.950)
100	8913-100-178S□-□-F	69.63 (2.741)	68.23 (2.686)	66.63 (2.623)	65.03 (2.560)	62.23 (2.450)
120	8913-120-178S□-□-F	82.33 (3.241)	80.93 (3.186)	79.33 (3.123)	77.73 (3.060)	74.93 (2.950)

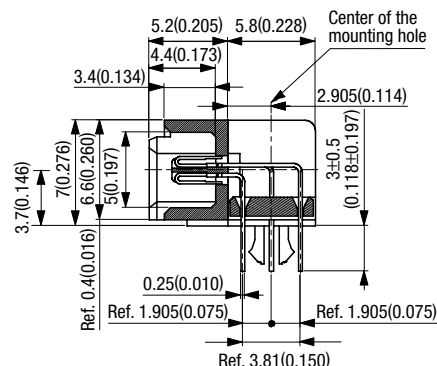
### 8911-□□□-178L□-F (Plug, With flanges and hooks)

Unit:mm(inch)

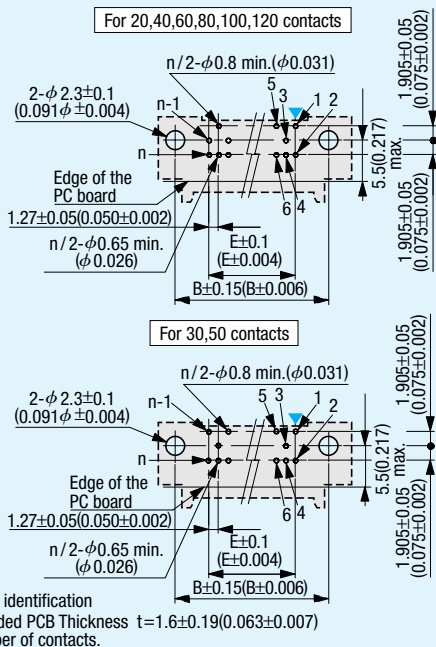
Plug (Right Angle Type)



X-X' Cross Section



#### Printed Circuit Board Layout (Component Side View)



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#### Product Table / Dimensions

No. of contacts	Part Number	A	B	C	D	E	F
20	8911-020-178L□-F	25.43 (1.001)	20.32 (0.800)	17.43 (0.686)	15.83 (0.623)	11.43 (0.450)	14.23 (0.560)
30	8911-030-178L□-F	31.78 (1.251)	26.67 (1.050)	23.78 (0.936)	22.18 (0.873)	17.78 (0.700)	20.58 (0.810)
40	8911-040-178L□-F	38.13 (1.501)	33.02 (1.300)	30.13 (1.186)	28.53 (1.123)	24.13 (0.950)	26.93 (1.060)
50	8911-050-178L□-F	44.48 (1.751)	39.37 (1.550)	36.48 (1.436)	34.88 (1.373)	30.48 (1.200)	33.28 (1.310)
60	8911-060-178L□-F	50.83 (2.001)	45.72 (1.800)	42.83 (1.686)	41.23 (1.623)	36.83 (1.450)	39.63 (1.560)
80	8911-080-178L□-F	63.53 (2.501)	58.42 (2.300)	55.53 (2.186)	53.93 (2.123)	49.53 (1.950)	52.33 (2.060)
100	8911-100-178L□-F	76.23 (3.001)	71.12 (2.800)	68.23 (2.686)	66.63 (2.623)	62.23 (2.450)	65.03 (2.560)
120	8911-120-178L□-F	88.93 (3.501)	83.82 (3.300)	80.93 (3.186)	79.33 (3.123)	74.93 (2.950)	77.73 (3.060)