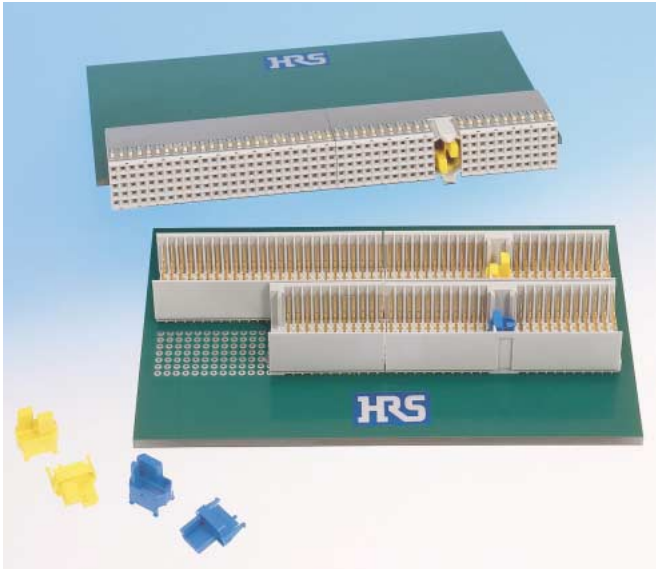


# 2mm Hard Metric Connector

PCN21 Series

IEC 61076-4-101-compliant



## Applications

Switchboards, transmission systems, Cellular base stations, industrial computer boards, measuring instruments, control equipment

## Product varieties (see page 2 for details)

## Features

### 1. IEC compliant

This 2 mm Hard Metric (HM) Connector complies with IEC 61076-4-101. As specified by IEC Standards, 3 types are available: Style A (110 contacts), Style B (125 contacts), Style C (55 contacts) and Style M.

### 2. Many Variations

Products equivalent to Compact PCI standard P2/J2 (110 contacts), P3/J3 (95 contacts) and AB Type (125 contacts) are available.

### 3. Press-fit connection

Connectors of this series, headers and receptacles, are designed for press fit connection.

### 4. Both-side, two-point contact

Receptacles feature two-point contact design for high reliability.

### 5. Ground Connection Supported

Contacts are lined up in rows z a b c d e f. Five rows (a b c d e) are used for signals and two rows (z f) can be added at both sides for use as ground.

### 6. 3-Stage Sequence Supported

There are 3 types of coupling portion contact lengths for the header which permits a 3-stage sequence.

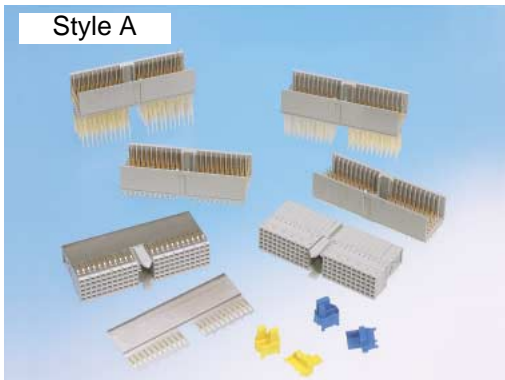
### 7. Coding Keys Can Be Mounted

Coding keys can be attached to style A for the purpose of preventing incorrect insertion of the connector.

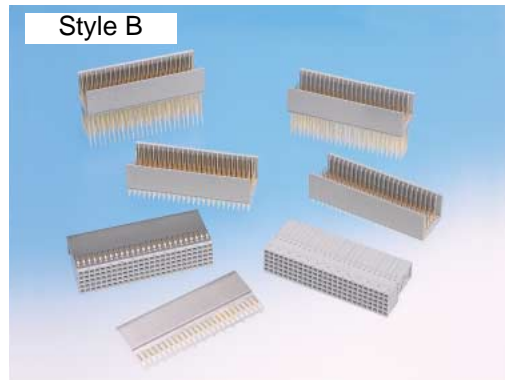
### 8. Two different platings are available on PCB leads

Gold plating and Tin plating are available on PCB leads.

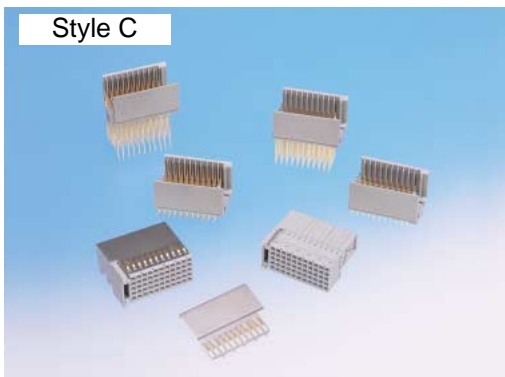
Style A



Style B



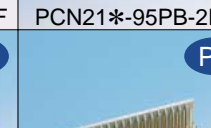
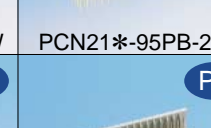
Style C



Compact PCI P2/J2, P3/J3 equivalent



## ■PCN21 Series Seletion Chart

Standards		IEC 61076-4-101 compliant			Compact PCI P2/J2 equivalent	Compact PCI P3/J3 equivalent		
		Style A	Style B	Style C				
Header connector (Back Wiring Board side (BWB) male connector)	Short pin type	Without ground terminal	 P5 PCN21*-110PA-2PF	 P6 PCN21*-125PB-2PF	 P7 PCN21*-55PC-2PF	 P6 PCN21*-110PB-2PF	 P6 PCN21*-95PB-2PF	
		With ground terminal	 P5 PCN21*-110PA-2PF-G	 P6 PCN21*-125PB-2PF-G	 P7 PCN21*-55PC-2PF-G	 P6 PCN21*-110PB-2PF-G	 P6 PCN21*-95PB-2PF-G	
	Long pin type	Without ground terminal	 P5 PCN21*-110PA-2W	 P6 PCN21*-125PB-2W	 P7 PCN21*-55PC-2W	 P6 PCN21*-110PB-2W	 P6 PCN21*-95PB-2W	
		With ground terminal	 P5 PCN21*-110PA-2W-G	 P6 PCN21*-125PB-2W-G	 P7 PCN21*-55PC-2W-G	 P6 PCN21*-110PB-2W-G	 P6 PCN21*-95PB-2W-G	
	Receptacle connector (Package side female connector)	Without ground plate	 P10 PCN21*-110SA-2PF	 P11 PCN21*-125SB-2PF	 P12 PCN21*-55SC-2PF	 P11 PCN21*-110SB-2PF	 P11 PCN21*-95SB-2PF	
		With ground plate	With top ground plate	 P10 PCN21*-110SA-2PF-G	 P11 PCN21*-125SB-2PF-G	 P12 PCN21*-55SC-2PF-G	 P11 PCN21*-110SB-2PF-G	 P11 PCN21*-95SB-2PF-G
			Bottom ground plate	 P15 PCN21*-SA-G	 P15 PCN21*-SB-G	 P15 PCN21*-SC-G	 P15 PCN21*-SB1-G	 P15 PCN21*-SB2-G

\*A...PCB leads : Gold plating  
B...PCB leads : Tin plating

## Ordering information

### Connector

**PCN 2 1 \* - \* P A \* - 2 PF - G (01)**

①      ②      ③   ④   ⑤   ⑥      ⑦   ⑧      ⑨   ⑩

① Series name : PCN 21	⑥ Positioning peg (Applicable to receptacle styles A and C only) Nil : With peg A : Without peg
② A...PCB leads : Gold plating B...PCB leads : Tin plating	⑦ Contact pitch: 2 mm
③ No. of contacts : 55, 95, 110, 125	⑧ Terminal shape PF : Press-fit short pin W : Press-fit back plane
④ Connector classification P: Pin header S: Receptacle	⑨ Ground Nil : Without ground terminal G : With ground terminal
⑤ IEC type A : IEC 61076-4-101 Style A B : IEC 61076-4-101 Style B C : IEC 61076-4-101 Style C M : IEC 61076-4-101 Style M AB : Compact PCI AB type equivalent (For Compact PCI P2/J2, P3/J3 equivalent, the IEC type should be style B.)	⑩ Contact area gold plating thickness Nil : 0.8 μm (01) : 0.2 μm

### Bottom ground plate for receptacle

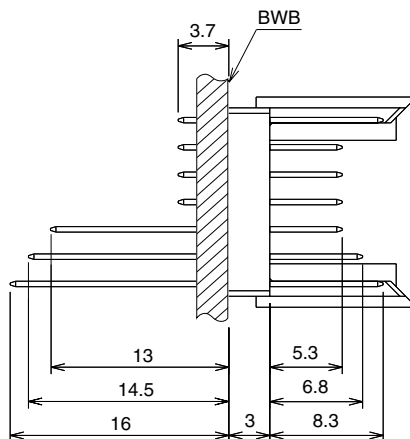
**PCN 2 1 \* - S A - G**

①      ②      ③ ④      ⑤

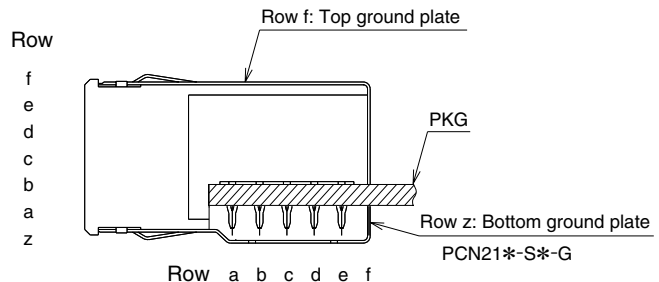
① Series name: PCN21	④ Applicable connectors    A : for PCN21*-110SA-2PF-G B : for PCN21*-125SB-2PF-G C : for PCN21*-55SC-2PF-G B1: for PCN21*-110SB-2PF-G B2: for PCN21*- 95SB-2PF-G
② A...PCB leads : Gold plating B...PCB leads : Tin plating	
③ Connector classification: for receptacle use	⑤ Ground

### Product construction

#### Header



#### Receptacle



A ground plate is joined with the f row.

Rows f and z are ground terminals.  
PCN21\*-\*P\*-2PF (W) has no ground terminal  
PCN21\*-\*P\*-2PF (W)-G has ground terminal

PCN21\*-\*S\*-2PF has no top ground plate  
PCN21\*-\*S\*-2PF-G has top ground plate  
PCN21\*-S\*-G has bottom ground plate only

## ■Product Specifications

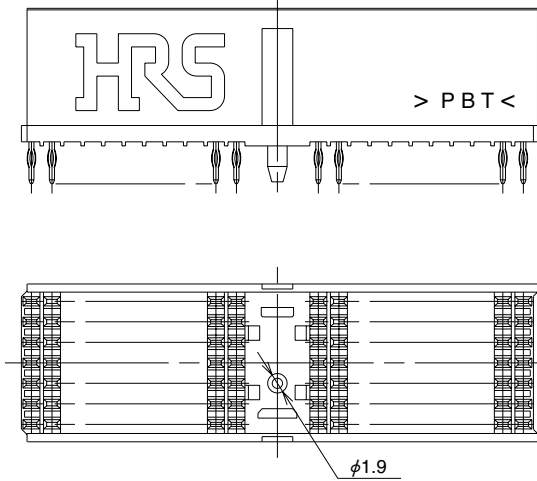
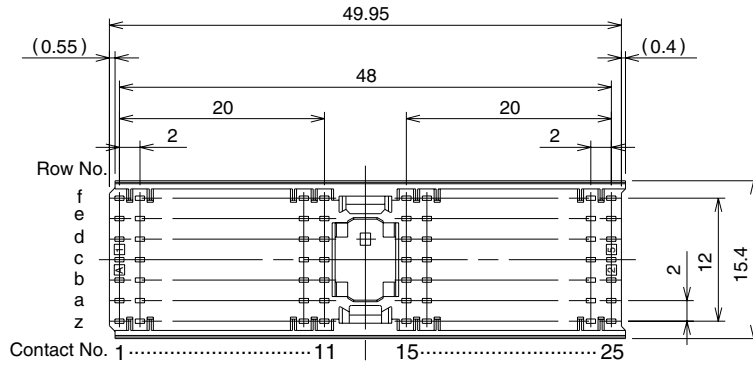
Rating	Current rating	1.5A	Operating temperature	-55°C to +85°C	Storage temperature	-10°C to +60°C
	Voltage rating	AC 300V	Operating humidity	95% RH max. (No condensation)	Storage humidity	40% to 70% RH

Item	Requirements	Test Conditions
1.Insulation resistance	10 <sup>4</sup> M ohms	100 V DC
2.Withstanding voltage	No flashover or breakdown	750 V rms AC for 1 min
3.Contact resistance	30 m ohms max.	0.1 A
4.Vibration	No electrical discontinuity for 1μs min.	Frequency 10 to 500 Hz, amplitude of 0.35 mm in 3 directions, 50m/s <sup>2</sup> acceleration, 10 cycles each
5.Damp heat	Contact resistance: 40 m ohms max. Insulation resistance: 10 <sup>3</sup> M ohms min.	40 ±2°C, 90 to 95% RH, duration 96 h
6.Rapid change of temperature	Contact resistance:40 m ohms max. Insulation resistance: 10 <sup>3</sup> M ohms min. No damage, cracks or parts looseness	5 cycles ( -55°C for 30 min, 15 to 30°C for 5 min max, +125°C for 30 min, 15 to 30°C for 5 min max. )
7.Heat resistance	Contact resistance:40 m ohms max. Insulation resistance: 10 <sup>3</sup> M ohms min.	Ambient temperature + 125°C, 16 h
8.Operation life	Contact resistance:40 m ohms max.	500 cycles

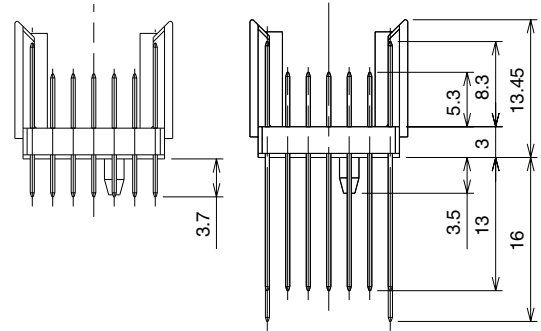
## ■Materials

Product	Part	Material	Finish	Remarks
Header	Insulator	PBT	Gray	UL94V-0
	Terminal	Phosphor bronze	PCN21A Contact area: Nickel base, gold plating PCB leads : Nickel base, gold plating	—
PCN21B Contact area: Nickel base, gold plating PCB leads : Nickel base, tin plating				
Receptacle	Insulator	PBT	Gray	UL94V-0
	Terminal	Phosphor bronze	PCN21A Contact area: Nickel base, gold plating PCB leads : Nickel base, gold plating	—
			PCN21B Contact area: Nickel base, gold plating PCB leads : Nickel base, tin plating	
Shield	Phosphor bronze	PCN21A Contact area: Nickel base, gold plating Mounted area: Nickel base, solder plating	—	
		PCN21B Contact area: Nickel base, gold plating PCB leads : Nickel base, tin plating		

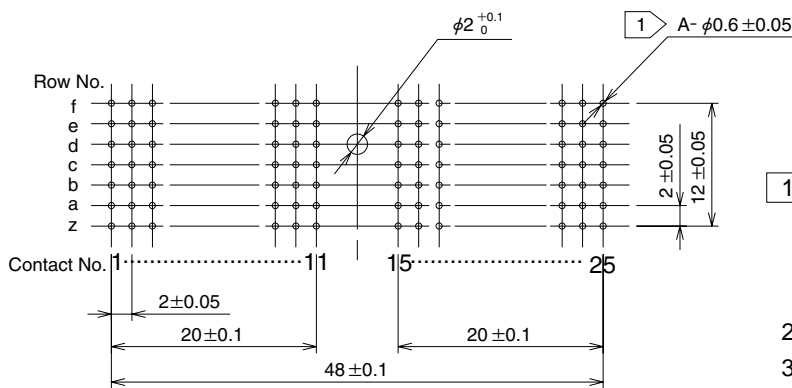
## ■Header (Style A) [BWB-side male connector]



< Short pin > < Long pin >



## ◆Recommended PCB mounting pattern

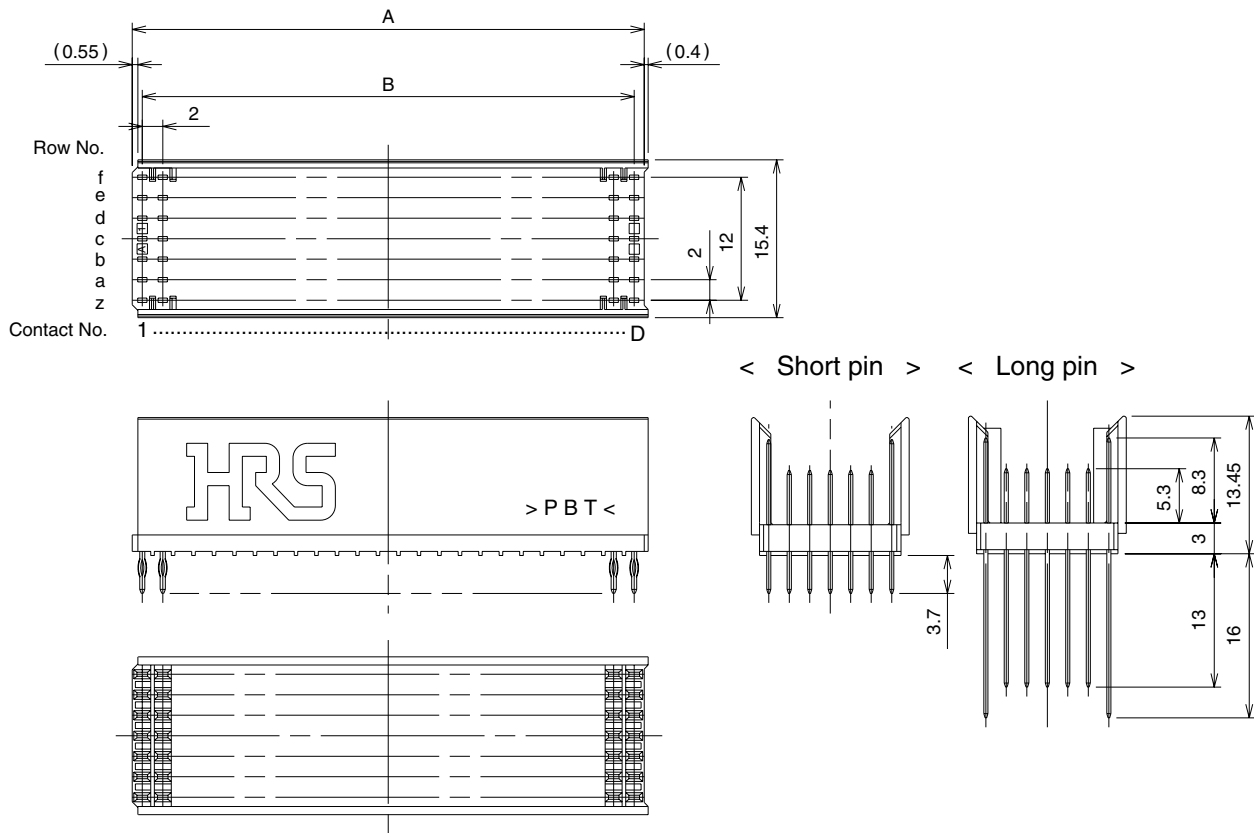


- 1 Through hole  
 Drilling diameter :  $\phi 0.7 \pm 0.02$   
 Finishing diameter :  $\phi 0.6 \pm 0.05$   
 Plating : Cu 25 $\mu$ min.
- 2 For 5-row type, row f and z are unnecessary.
- 3 Board thickness : 1.6 to 5.6 mm

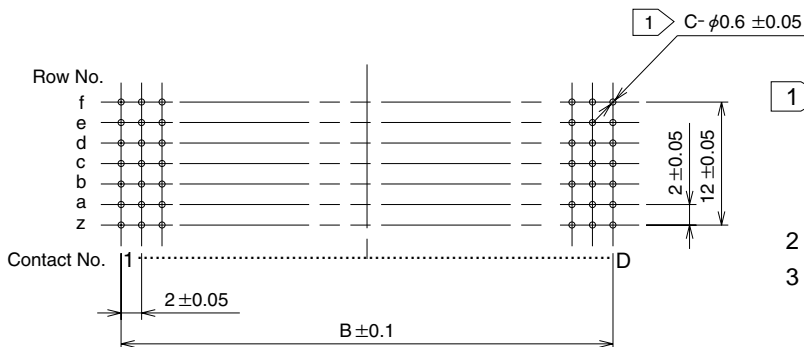
Product No.	A	No. of contacts	Mounted area
PCN21*-110PA-2PF	110	5	Short pin
PCN21*-110PA-2PF-G	154	7	
PCN21*-110PA-2W	110	5	Long pin
PCN21*-110PA-2W-G	154	7	

\*A...PCB leads : Gold plating  
 B...PCB leads : Tin plating

## Header (Style B) [BWB-side male connector]



## Recommended PCB Footprints mounting pattern

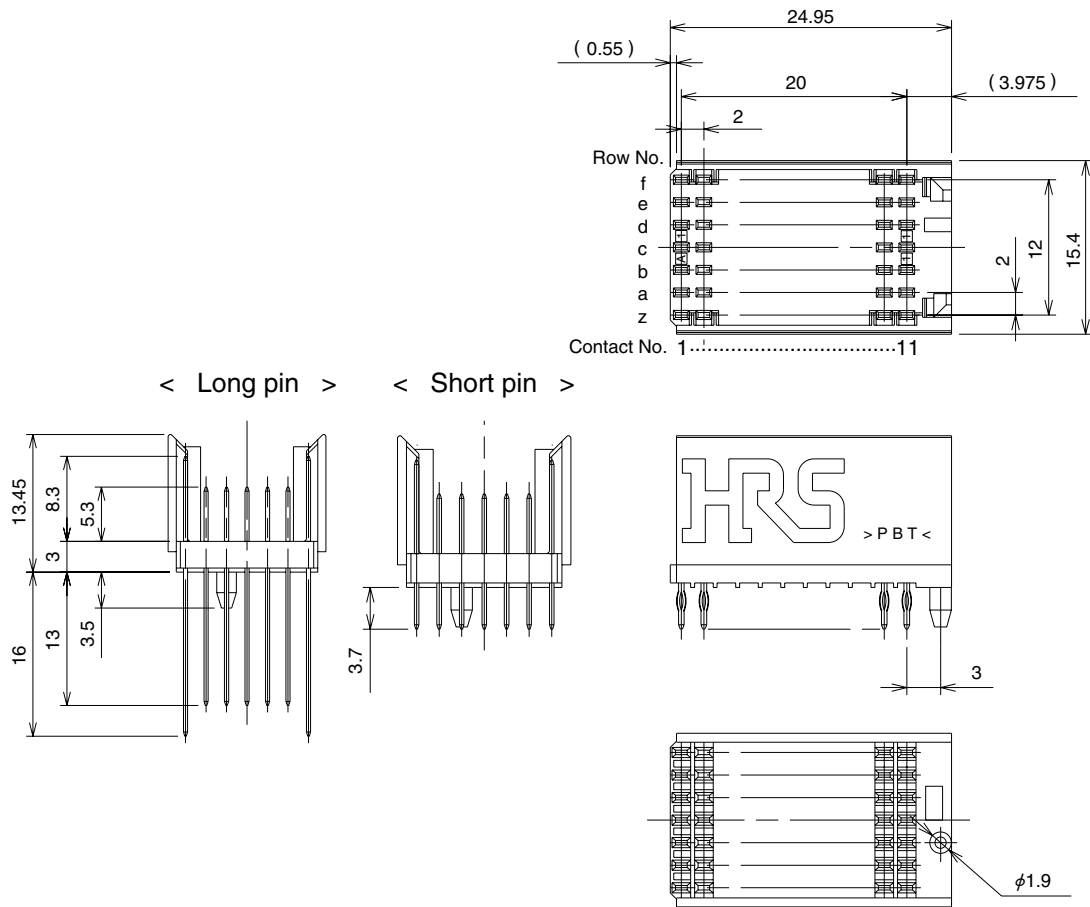


- 1 Through hole  
 Drilling diameter :  $\phi 0.7 \pm 0.02$   
 Finishing diameter :  $\phi 0.6 \pm 0.05$   
 Plating : Cu 25 $\mu$ min.
- 2 For 5-row type, row f and z are unnecessary.
- 3 Board thickness : 1.6 to 5.6 mm

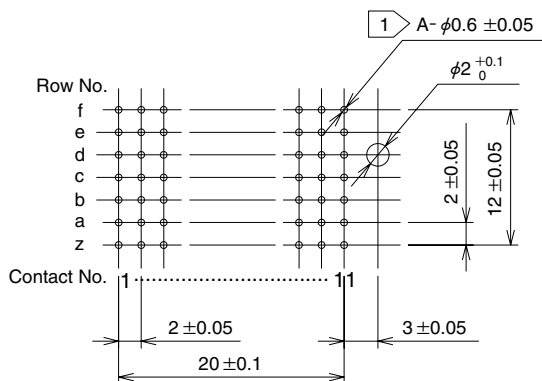
Product No.	A	B	C	D	No. of contacts	Mounted area
PCN21*-125PB-2PF	49.95	48	125	25	5	Short pin
PCN21*-125PB-2PF-G	49.95	48	175	25	7	
PCN21*-110PB-2PF	49.95	42	110	22	5	
PCN21*-110PB-2PF-G	49.95	42	154	22	7	
PCN21*- 95PB-2PF	37.95	36	95	19	5	Long pin
PCN21*- 95PB-2PF-G	37.95	36	133	19	7	
PCN21*-125PB-2W	43.95	48	125	25	5	
PCN21*-125PB-2W-G	43.95	48	175	25	7	
PCN21*-110PB-2W	43.95	42	110	22	5	
PCN21*-110PB-2W-G	43.95	42	154	22	7	
PCN21*- 95PB-2W	37.95	36	95	19	5	
PCN21*- 95PB-2W-G	37.95	36	133	19	7	

\*A...PCB leads : Gold plating  
 B...PCB leads : Tin plating

## Header (Style C) [BWB-side male connector]



## Recommended PCB mounting pattern

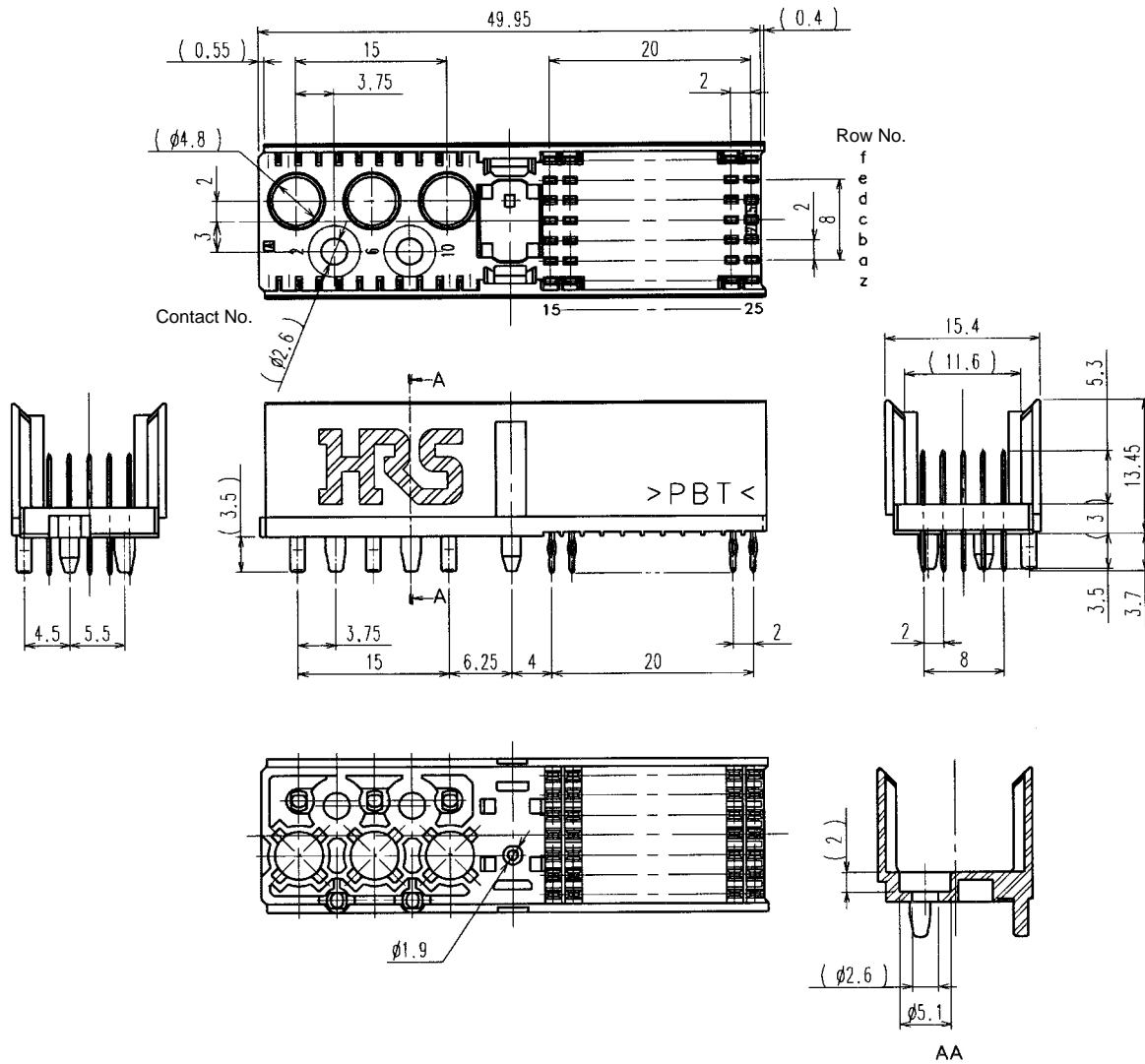


- 1 Through hole  
 Drilling diameter :  $\phi 0.7 \pm 0.02$   
 Finishing diameter :  $\phi 0.6 \pm 0.05$   
 Plating : Cu 25 $\mu$ min.
- 2 For 5-row type, row f and z are unnecessary.
- 3 Board thickness : 1.6 to 5.6 mm

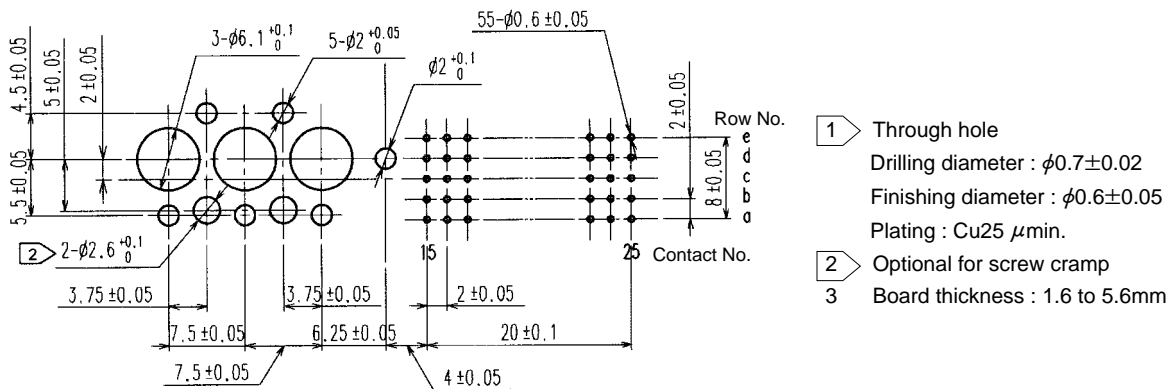
Product No.	A	No. of contacts	Mounted area
PCN21*-55PC-2PF	55	5	Short pin
PCN21*-55PC-2PF-G	77	7	
PCN21*-55PC-2W	55	5	Long pin
PCN21*-55PC-2W-G	77	7	

\*A...PCB leads : Gold plating  
 B...PCB leads : Tin plating

## Header (Style M) [BWB-side male connector]



## Recommended PCB mounting pattern

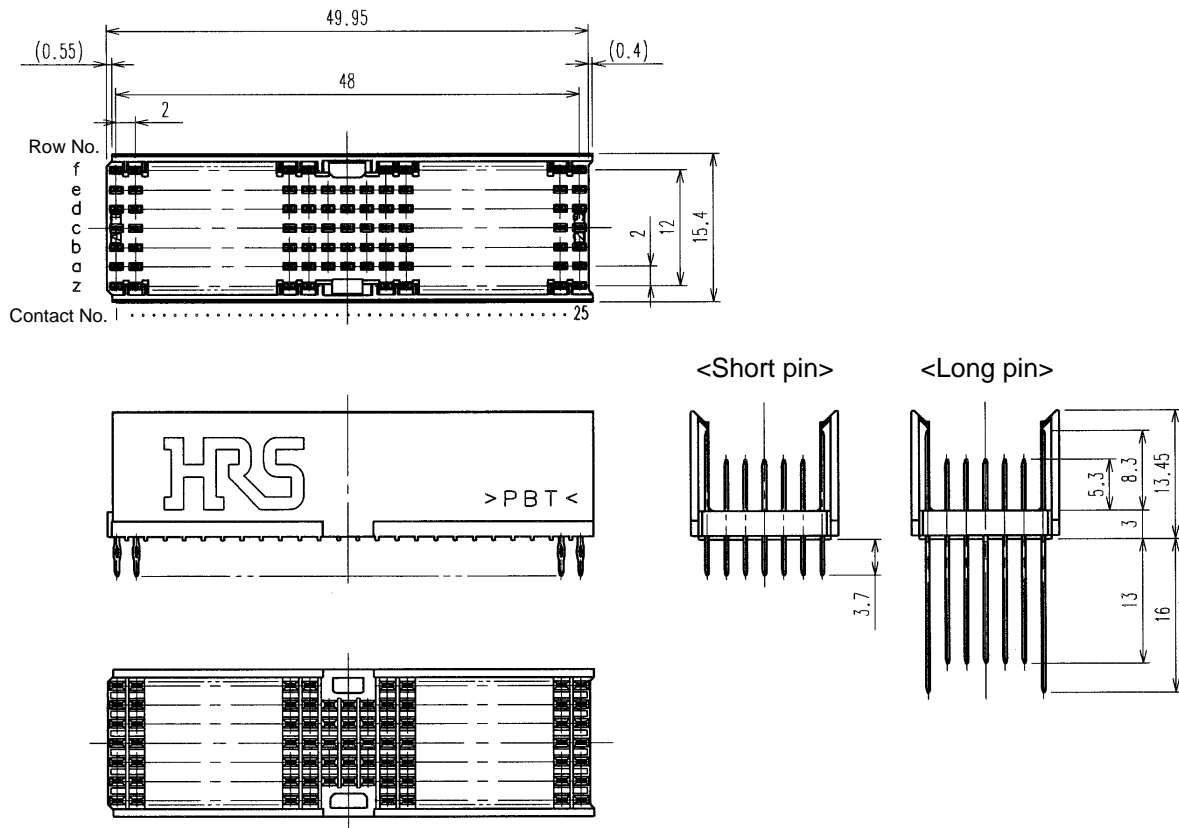


Product No.	No. of contacts	Mounted area
PCN21*-55PM-2PF	5	Short Pin

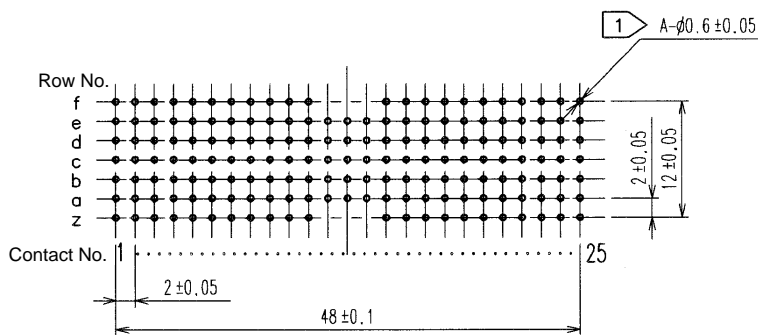
\* A...PCB leads : Gold plating, B...PCB leads : Tin plating



## ■Header (Style AB) [BWB-side male connector]



## ◆Recommended Mounting Hole Pattern



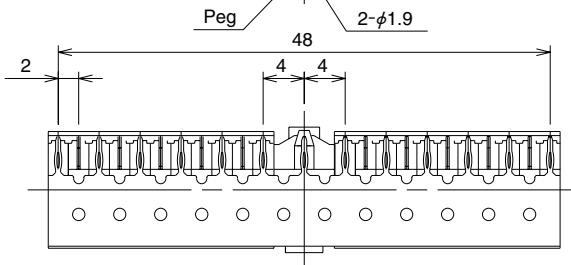
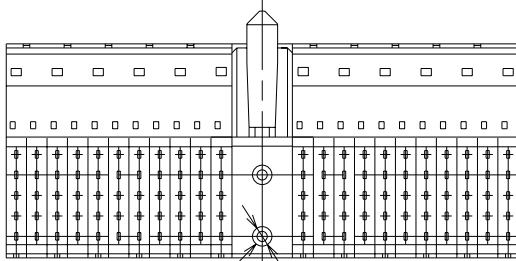
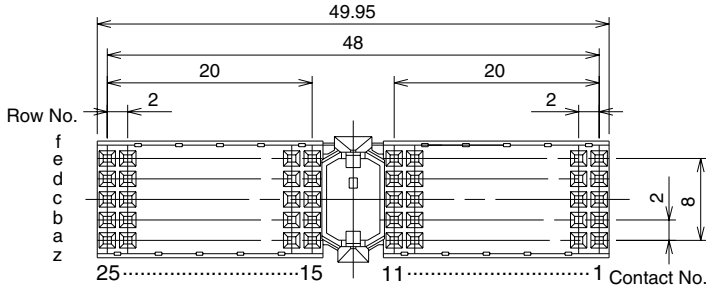
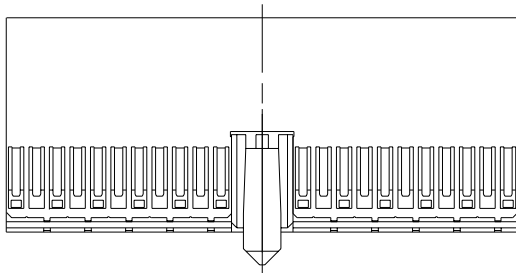
- 1 Through hole  
Drilling diameter :  $\phi 0.7 \pm 0.02$   
Finishing diameter :  $\phi 0.6 \pm 0.05$   
Plating :  $\text{Cu}25\mu\text{min}$ .
- 2 For 5-row type, row f and z are unnecessary
- 3 Board thickness : 1.6 to 5.6mm

Product No.	A	No. of contacts	Mounted area
PCN21*-125PAB-2PF	125	5	Short Pin
PCN21*-125PAB-2PF-G	169	7	
PCN21*-125PAB-2W	125	5	Long Pin
PCN21*-125PAB-2W-G	169	7	

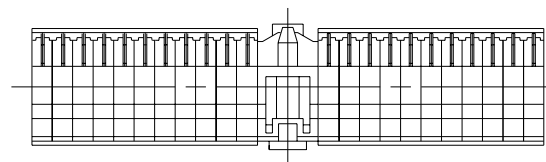
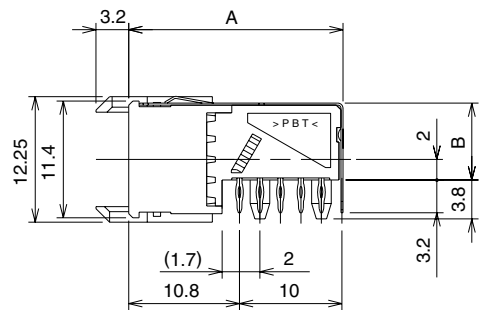
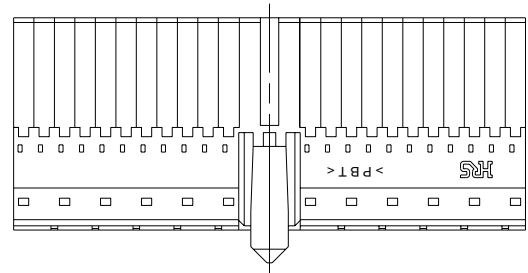
\* A...PCB leads : Gold plating, B...PCB leads : Tin plating

## ■ Receptacle (Style A) [PKG-side female connector]

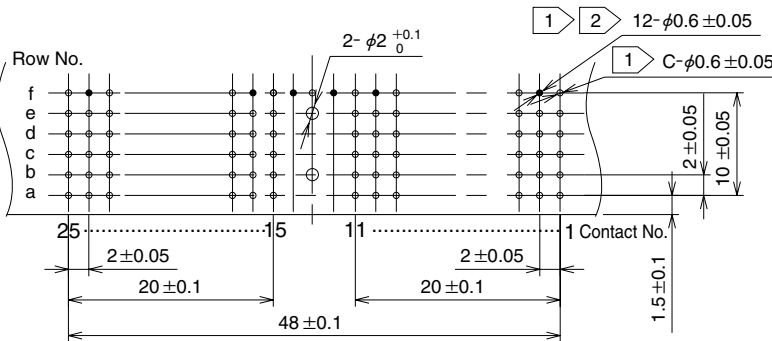
< With ground plate >



< Without ground plate >



## ◆ Recommended PCB mounting pattern



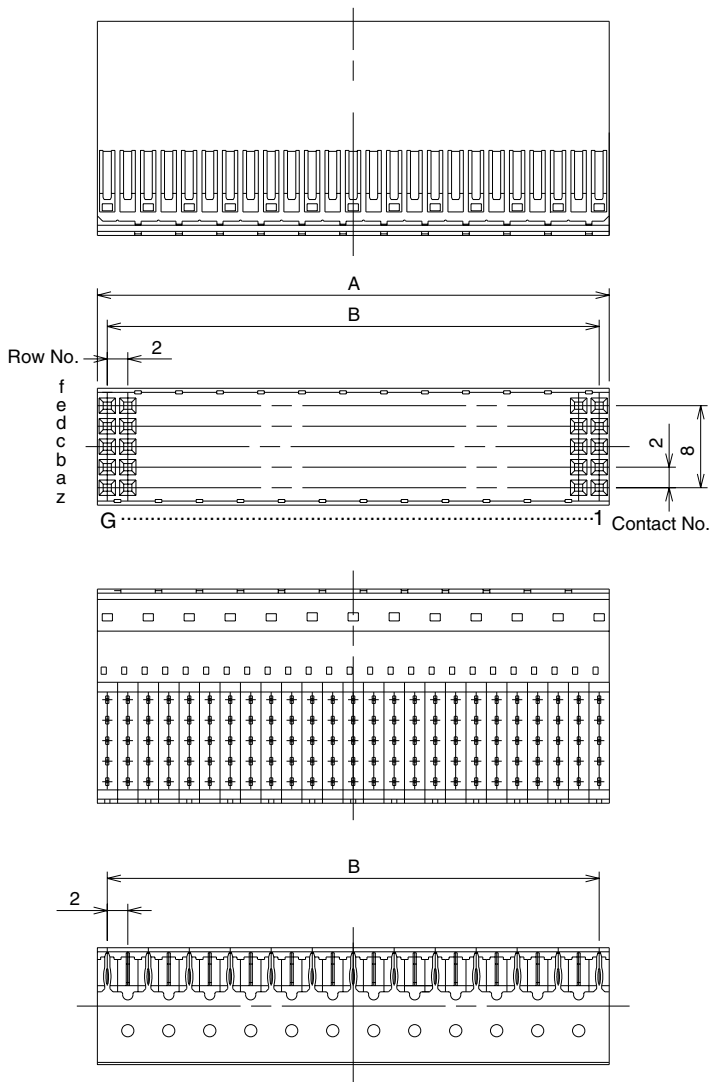
- 1 Through hole  
Drilling diameter:  $\phi 0.7 \pm 0.02$   
Finishing diameter:  $\phi 0.6 \pm 0.05$   
Plating: Cu 25 $\mu$ m min.
- 2 Even numbers are required on the f row when using the lower surface ground plate (PCN21\*, SA-G).
- 3 For without ground the plate type, rows f and z unnecessary.
- 4 The type without the peg does not require the 2mm dia. hole.
- 5 Board thickness: 1.6 to 4.2 mm

Product No.	A	B	C	Ground plate	Peg
PCN21*-110SA-2PF	20.7	7.3	110	Not provided	Provided
PCN21*-110SA-2PF-G	20.9	7.5	123	Provided	
PCN21*-110SAA-2PF	20.7	7.3	110	Not provided	Not provided
PCN21*-110SAA-2PF-G	20.9	7.5	123	Provided	

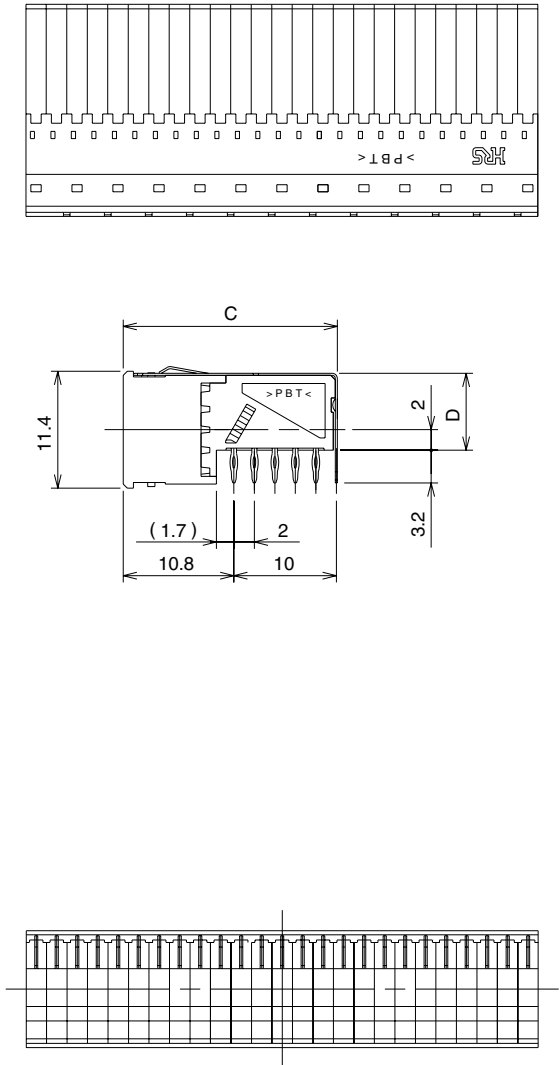
\* A...PCB leads : Gold plating, B...PCB leads : Tin plating

## ■ Receptacle (Style B) [PKG-side female connector]

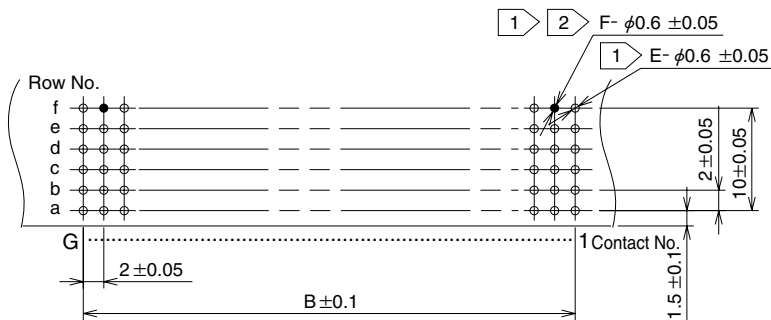
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< Without ground plate >



## ◆ Recommended PCB mounting pattern



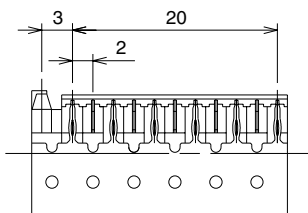
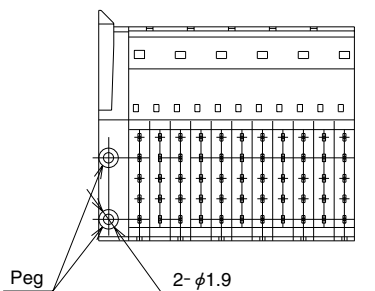
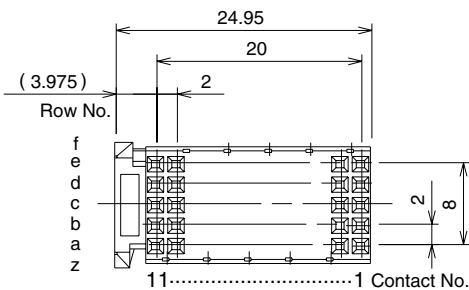
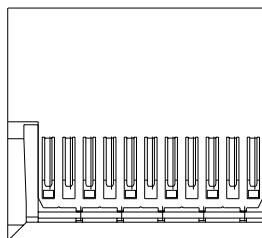
- 1 Through hole  
Drilling diameter:  $\phi 0.7 \pm 0.02$   
Finishing diameter:  $\phi 0.6 \pm 0.05$   
Plating: Cu 25 $\mu$ m min.
- 2 Even numbers are required on the f row when using the lower surface ground plate (PCN21\*, SB\*-G).
- 3 For without ground the plate type, rows f and z unnecessary.
- 4 Board thickness: 1.6 to 4.2 mm

Product No.	A	B	C	D	E	F	G	Ground plate
PCN21*-125SB-2PF	49.95	48	20.7	7.3	125	—	25	Not provided
PCN21*-125SB-2PF-G	49.95	48	20.9	7.5	138	12	25	Provided
PCN21*-110SB-2PF	43.95	42	20.7	7.3	110	—	22	Not provided
PCN21*-110SB-2PF-G	43.95	42	20.9	7.5	121	11	22	Provided
PCN21*- 95SB-2PF	37.95	36	20.7	7.3	95	—	19	Not provided
PCN21*- 95SB-2PF-G	37.95	36	20.9	7.5	105	9	19	Provided

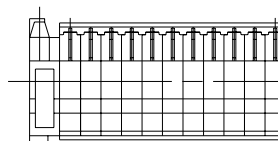
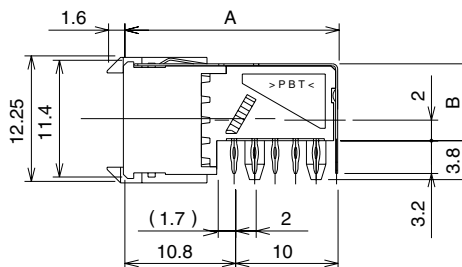
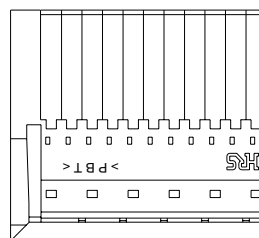
\* A...PCB leads : Gold plating, B...PCB leads : Tin plating

## ■ Receptacle (Style C) [PKG-side female connector]

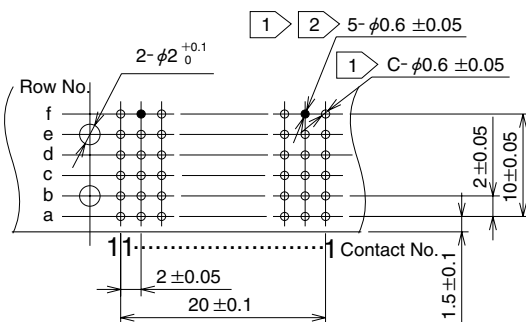
< With ground plate >



< Without ground plate >



## ◆ Recommended PCB mounting pattern

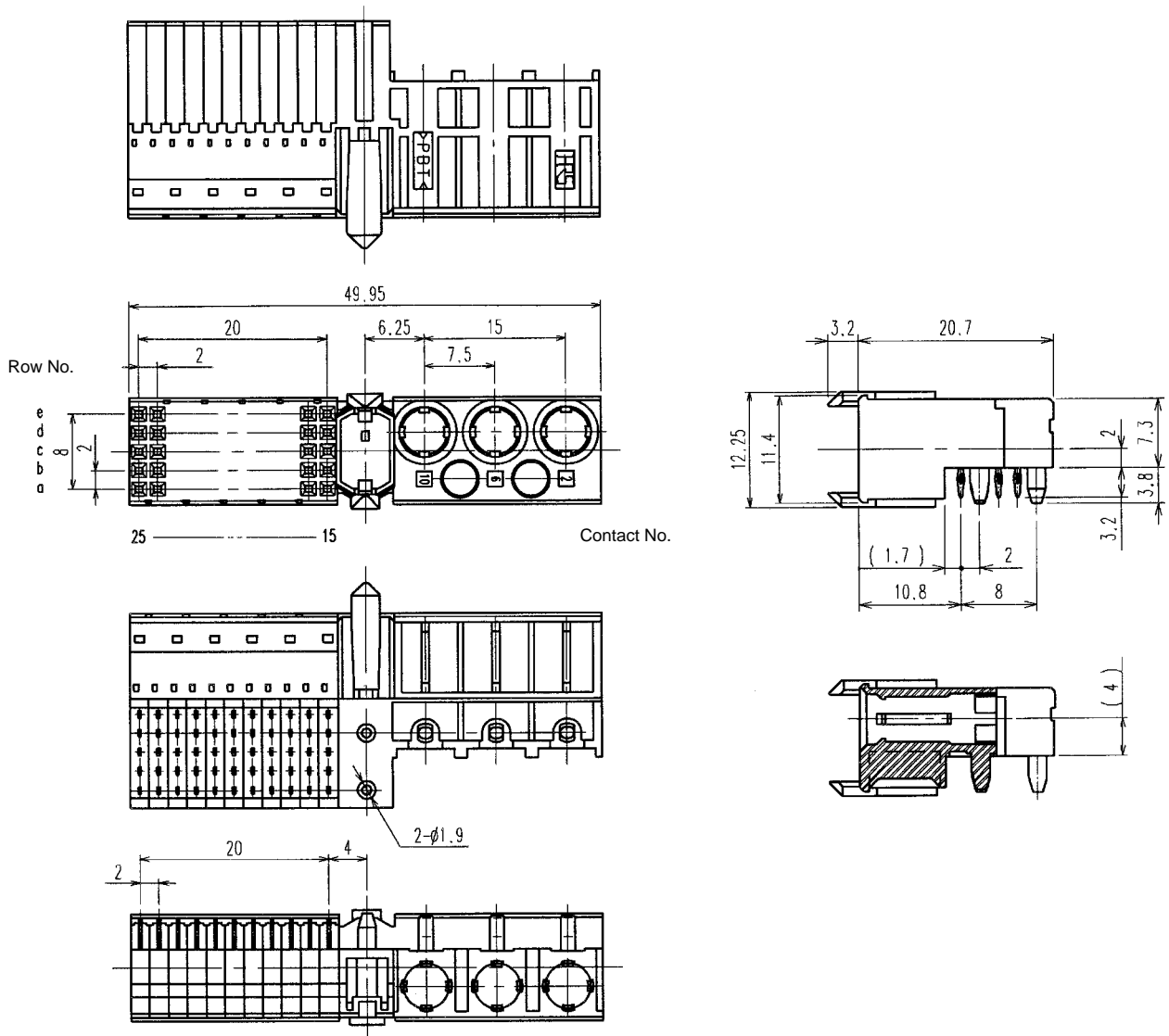


- 1 Through hole  
Drilling diameter:  $\phi 0.7 \pm 0.02$   
Finishing diameter:  $\phi 0.6 \pm 0.05$   
Plating: Cu 25 $\mu$ m min.
- 2 Even numbers are required on the f row when using the lower surface ground plate (PCN21\*, SC-G).
- 3 For without ground the plate type, rows f and z unnecessary.
- 4 The type without the peg does not require the 2mm dia. hole.
- 5 Board thickness: 1.6 to 4.2 mm

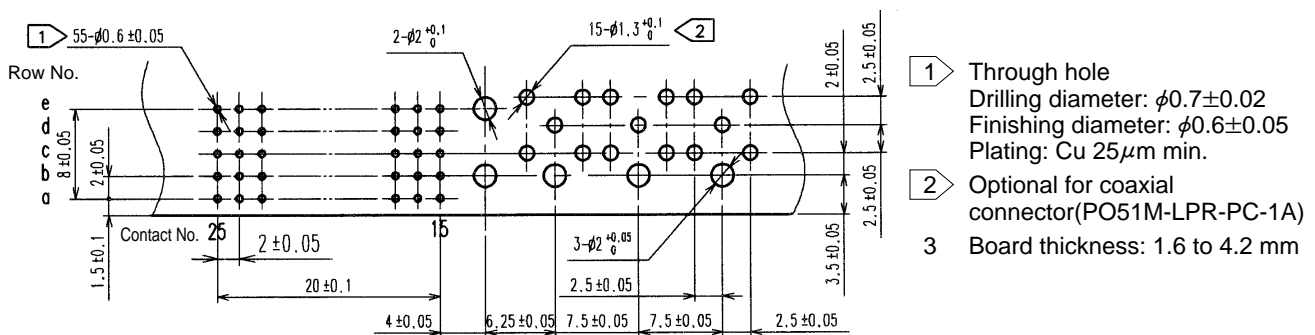
Product No.	A	B	C	Ground plate	Peg
PCN21*-55SC-2PF	20.7	7.3	55	Not provided	Provided
PCN21*-55SC-2PF-G	20.9	7.5	61	Provided	
PCN21*-55SCA-2PF	20.7	7.3	55	Not provided	Not provided
PCN21*-55SCA-2PF-G	20.9	7.5	61	Provided	

\* A...PCB leads : Gold plating, B...PCB leads : Tin plating

## ■ Receptacle (Style M) [PKG-side female connector]



## ◆ Recommended Mounting Hole Pattern

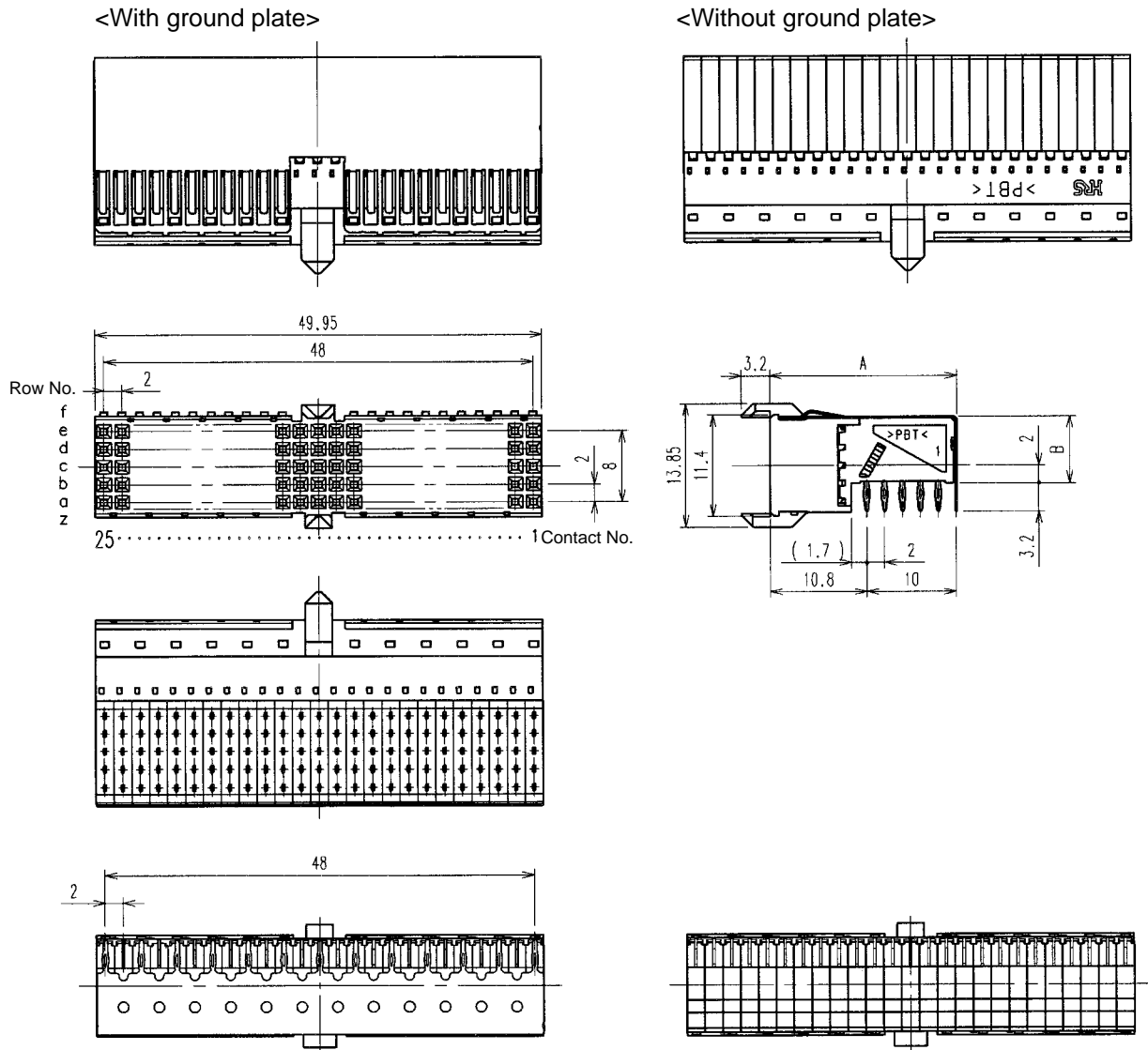


- 1 Through hole  
Drilling diameter:  $\phi 0.7 \pm 0.02$   
Finishing diameter:  $\phi 0.6 \pm 0.05$   
Plating: Cu 25 $\mu$ m min.
- 2 Optional for coaxial connector (PO51M-LPR-PC-1A)
- 3 Board thickness: 1.6 to 4.2 mm

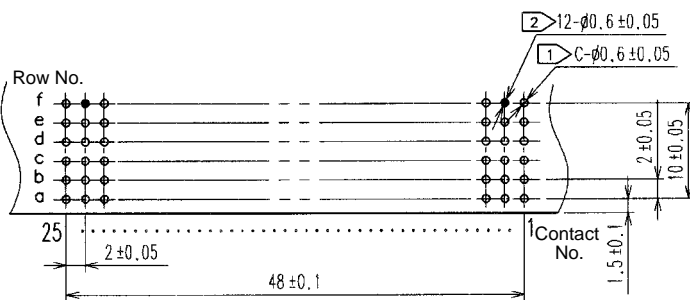
Product No.	Ground plate	Peg
PCN21*-55SM-2PF	Not provided	Provided

\* A...PCB leads : Gold plating, B...PCB leads : Tin plating

## ■ Receptacle (Style AB) [PKG-side female connector]



## ◆ Recommended PCB mounting pattern



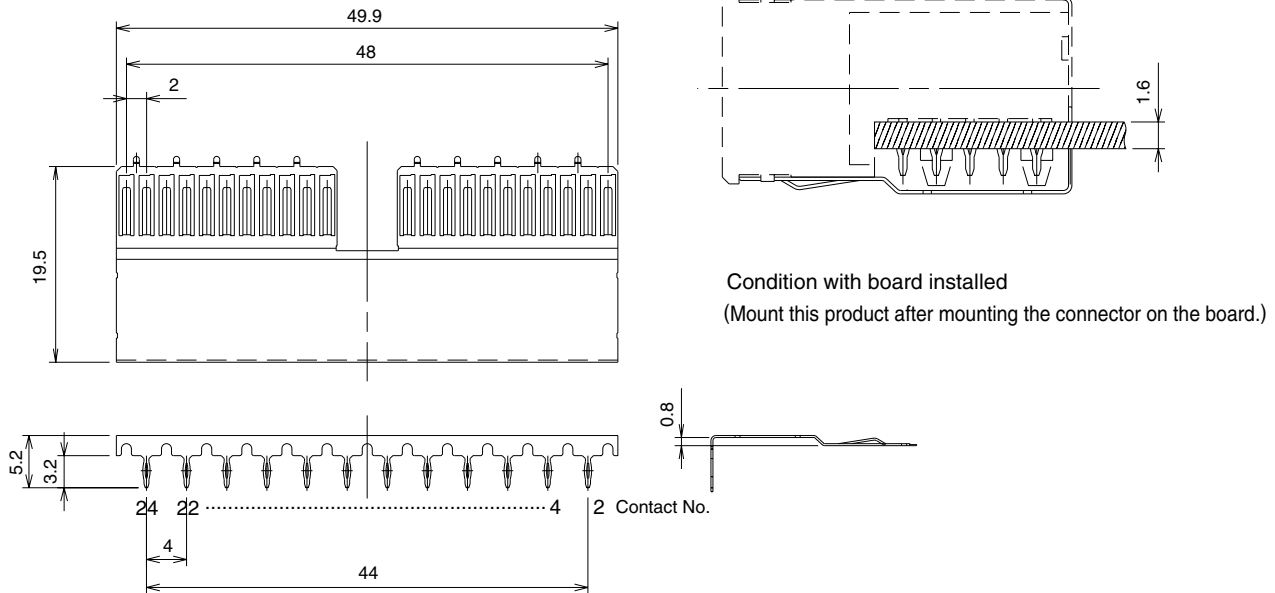
- 1) Through hole  
Drilling diameter:  $\phi 0.7 \pm 0.02$   
Finishing diameter:  $\phi 0.6 \pm 0.05$   
Plating: Cu  $25\mu\text{m}$  min.
- 2) Even numbers are required on the f row when using the lower surface ground plate (PCN21\*, SA-G).
- 3) For without ground the plate type, rows f and z unnecessary.
- 4) Board thickness: 1.6 to 4.2 mm

Product No.	A	B	C	Ground plate
PCN21*-125SAB-2PF	20.7	7.3	125	Not provided
PCN21*-125SAB-2PF-G	20.9	7.5	138	Provided

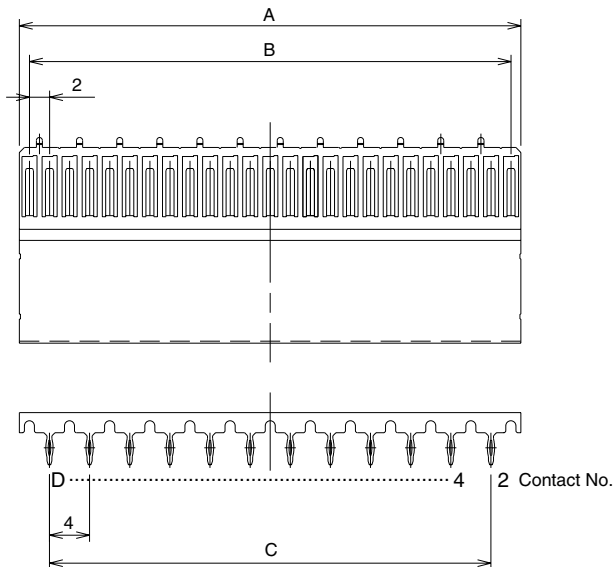
\* A...PCB leads : Gold plating, B...PCB leads : Tin plating

## Bottom ground plate for receptacle

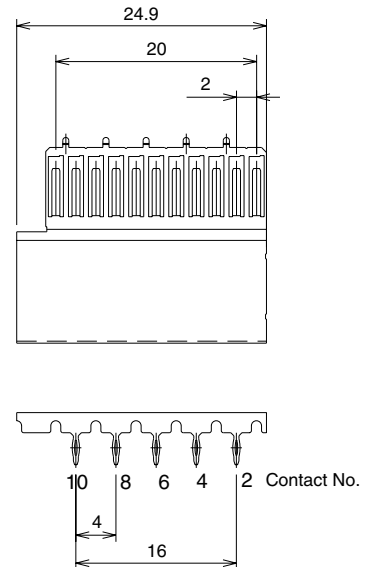
PCN21A-SA-G



PCN21A-SB-G  
PCN21A-SB1-G  
PCN21A-SB2-G



PCN21A-SC-G

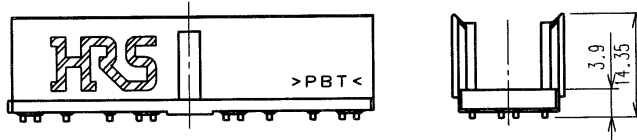
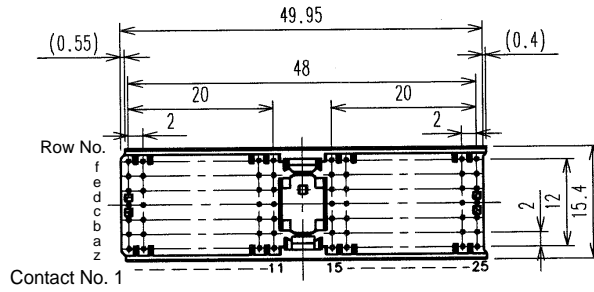


●Recommended board thickness: 1.6 mm

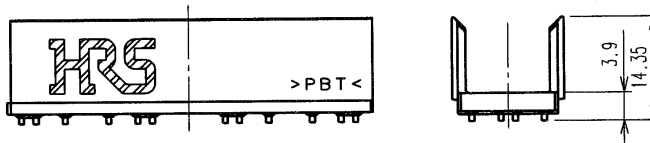
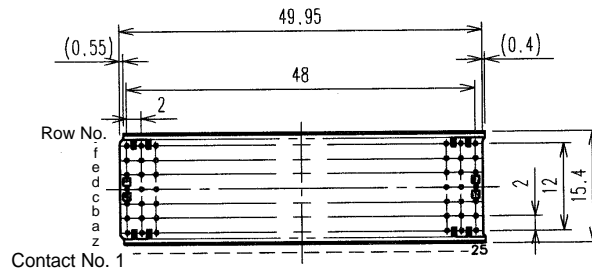
Product No.	A	B	C	D	Applicable connectors
PCN21*-SA-G	—	—	—	—	PCN21*-110SA-2PF-G
PCN21*-SB-G	49.9	48	44	24	PCN21*-125SB-2PF-G
PCN21*-SB1-G	43.9	42	40	22	PCN21*-110SB-2PF-G
PCN21*-SB2-G	37.9	36	32	18	PCN21*- 95SB-2PF-G
PCN21*-SC-G	—	—	—	—	PCN21*- 55SC-2PF-G

\*A...PCB leads : Gold plating  
B...PCB leads : Tin plating

## Mid-plane (Shroud) [ Style A ]



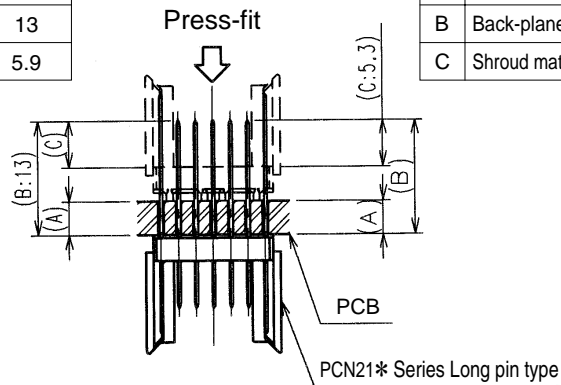
## [ Style B ]



Product No.	Applicable connector
PCN21-110PA-2C1	PCN21*-110PA-2W-G
PCN21-125PB-2C1	PCN21*-125PB-2W-G

2 FIG.1

A	PCB thickness	2.4	3.2
B	Back-plane Contact Length	13	13
C	Shroud mating contact length	6.7	5.9



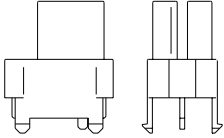
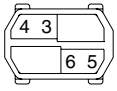
A	PCB thickness	3.8	5.3
B	Back-plane Contact Length	13	14.5
C	Shroud mating contact length	5.3	5.3



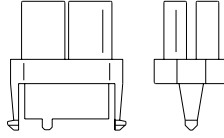
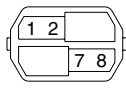
## ■ Coding key

This can be installed on Style A to prevent improper insertion.

### Header



### Receptacle



Header		Receptacle		Color	Remark
Product No.	Type	Product No.	Type		
PCN21-P-CK(A)	3456	PCN21-S-CK(A)	1278	Yellow	Supports Compact PCI 3.3V
PCN21-P-CK(B)	1567	PCN21-S-CK(B)	2348	Blue	Supports Compact PCI 5V

## ◆ Header Contacts

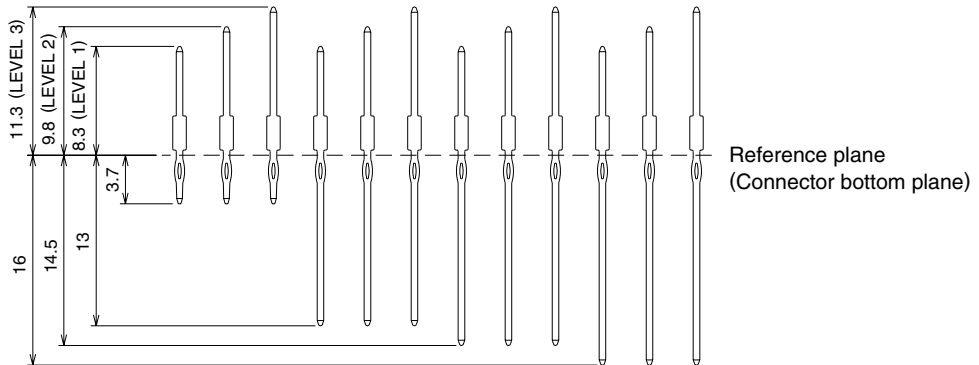
Custom support for header sequenced contacts is available. Please contact a Hirose sales representative.

Use of rows of contacts having the same length is recommended.

### Contact Code

A B C K L M N P Q R S T

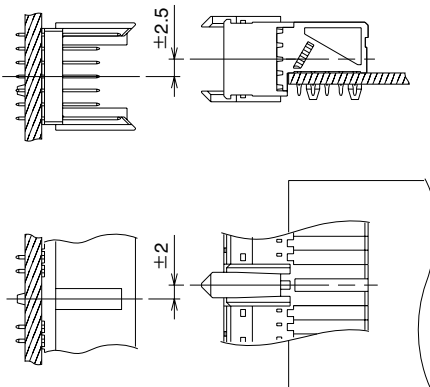
### PKG Side



### BWB Side

## ◆ Mating conditions

### ● Lateral and longitudinal mating



### ● Oblique mating

