# **2mm Hard Metric Connector**

PCN21 Series



### Applications

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

### IEC 61076-4-101-compliant

### **Features**

### 1. Variety of styles

IEC Styles: A (110 contacts, 5 row ), B (125 contacts, 5 row), C (55 contacts, 5 row ), D (176 contacts, 8 row), E (200 contacts, 8 row) and M (5 row + 3 coaxial or power contacts).

Compact PCI styles: P2/J2 (110 contacts), P3/J3 (95 contacts) and Type AB (125 contacts).

### 2. Compliant press-fit board connection

Headers and receptacles with the compliant press-fit terminations can be easily installed on PCB with readily available tools.

### 3. High reliability socket contacts

Two-point contacts assure good electrical and mechanical connection.

### 4. Ground connection

Ground connection contact rows can be added (except M Style).

### 5. 3-stage sequential contacts

Header can be supplied with different lengths of contacts (mating side) to assure ground-signal-power mating sequence.

### 6. Coding keys

Style A, D and M will accept coding keys to prevent mating of incorrect connectors.

### 7. Different platings are available

Gold plating and tin plating are available for the termination side. (Except 8 rows type)

### 8. Coding key

UL listed (File E52653)



## ■PCN21 Series Seletion Chart



Note: ...A: PCB leads gold plated (top ground plate is tin-lead or tin plated, bottom ground plate is tin-lead plated). B...PCB leads tin plated Mid-plane (Shroud): Page 22 to 23, Coding key: Page 24, High power contact or coaxial connector: Page 25

Style M	туре Ав	P2/J2 equivalent	P3/J3 equivalent
P11	P12	P7	P7
PCN21*-55PM-2PF	PCN21*-125PAB-2PF	PCN21*-110PB-2PF	PCN21*-95PB-2PF
	P12	P7	P7
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	PCN21*-125PAB-2PF-G	PCN21*-110PB-2PF-G	PCN21*-95PB-2PF-G
		P7	P7
	PCN21*-125PAB-2W	PCN21*-110PB-2W	PCN21*-95PB-2W
	P12	P7	P7
	PCN21*-125PAB-2W-G	PCN21*-110PB-2W-G	PCN21*-95PB-2W-G
P18	P19	P14	P14
-			
PCN21*-55SM-2PF	PCN21*-125SAB-2PF	PCN21*-110SB-2PF	PCN21*-95SB-2PF
	P19	P14	P14
	PCN21*-125SAB-2PF-G	PCN21*-110SB-2PF-G	PCN21*-95SB-2PF-G
	P20	P20	P20
	PCN21*-SA-G	PCN21*-SB1-G	PCN21*-SB2-G

IEC 61076-4-101 compliant

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Type AB

The product information in this catalog is for reference only. Please request the Engineering Drawing for the most current and accurate design information. All non-RoHS products have been discontinued, or will be discontinued soon. Please check the products status on the Hirose website RoHS search at www.hirose-connectors.com, or contact your Hirose sales representative.

Compact PCI

2/12

Compact PCI

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### ■Ordering information

### Connector

PCN 21 * - * P A * - 2	2 PF - G (01)		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			
Series name : PCN 21	Positioning post (Applicable to receptacle styles A and C only)		
A…PCB leads : Gold plated	Blank : With		
B···PCB leads : Tin plated	A : Without		
<b>8</b> No. of contacts : 55, 95, 110, 125,176,200	Contact pitch: 2 mm		
Connector classification	8 Terminal length		
P: Pin header	PF : Press-fit short pin		
S: Receptacle	W : Press-fit long pin		
IEC type	(9) Ground		
A : IEC 61076-4-101 Style A	Blank : Without ground terminal		
B : IEC 61076-4-101 Style B	G : With ground terminal		
C : IEC 61076-4-101 Style C	Ontact area gold plating thickness		
D : IEC 61076-4-101 Style D	Blank : 0.8 μm		
E : IEC 61076-4-101 Style E (01) : 0.2 μm			
M : IEC 61076-4-101 Style M			
AB : Compact PCI AB type equivalent			
For Compact PCI P2/J2, P5/J5 equivalent,			
the IEC type should be style B.			

### Bottom ground plate for receptacle



Series name: PCN21	4 Applicable connector	A : for PCN21*-110SA-2PF-G
2 A···PCB leads : Gold plated		B : for PCN21*-125SB-2PF-G
B···PCB leads : Tin plated		C : for PCN21*-55SC-2PF-G
Connector classification	_	D : for PCN21B-176SD-2PF-G
S : For receptacle		E : for PCN21B-200SE-2PF-G
		B1: for PCN21*-110SB-2PF-G
		B2: for PCN21*- 95SB-2PF-G
	5 Ground	

f

### Product construction (5 row)





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

### Receptacle





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

	Current rating	1.5A	Operating temperature	-5	5°C to +85°C(Note 1)	Storage temperature	−10°C to +60°C(Note 2)
Rating	Voltage rating	AC 300V	Operating humidity	959	% RH max.	Storage humidity	40% to 70% RH (Note 2)
				(No	condensation)		
Item		Requ	uirements			Test Conditions	
1.Insulation resistance	104 MΩ				100 V DC		
2.Withstanding voltage	No flashover	or break	down		750 V rms AC	/ 1 min	
3.Contact resistance	30 mΩ max.				0.1 A		
4.Vibration	4. Vibration No electrical discontinuity for $1\mu$ s min.			Frequency 10 to 500 Hz, single amplitude of 0.35 mm, acceleration of 50m/s <sub>2</sub> , 10 cycles in each of the 3 axis.			
5.Damp heat	Contact resistance: 40 mΩ max.				96 hours at ten	nperature of 40°C ± 2°C	
5.Damp neat	Insulation resistance: $10_3 M\Omega$ min.			and RH of 90% to 95%			
6 Papid abango of	Contact resis	stance:40	mΩ max.		Temperature : $-55^{\circ}C \rightarrow +15^{\circ}C$ to $+30^{\circ}C \rightarrow +125^{\circ}C \rightarrow +15^{\circ}C$ to $+30^{\circ}C$		
6.Rapid change of temperature	Insulation res	sistance:	10₃ MΩ min.		Duration : 30 $\rightarrow$ 5max. $\rightarrow$ 30 $\rightarrow$ 5max.(Minutes)		
lemperature	No damage, cracks or parts dislocation			5 cycles			
7.Heat resistance	Contact resis	stance:40	mΩ max.		16 hours at temperature of 125℃		
1.1 IEal TESISIAIICE	Insulation res	sistance:	10₃ MΩ min.		to nours at ten	iperature of 125C	
8.Operation life	Contact resis	stance:40	m ohms max.		500 cycles		

Note 1: Includes temperature rise caused by the current flow.

Note 2: The term "storage" refers to products stored for long period of time prior to mounting and use. Operating temperature range and humidity range covers non-conducting condition of installed connectors in storage, shipment or during transportation.

### Materials / Finish

Product	Part	Material	Finish/color	Remarks	
	Insulator	PBT	Gray	UL94V-0	
			PCN21A		
			Contact area : Nickel base, gold plated		
Header	Terminal	Phosphor bronze	PCB leads : Nickel base, gold plated		
	remina	Phosphor bronze	PCN21B		
			Contact area : Nickel base, gold plated		
			PCB leads : Nickel base, tin plated		
	Insulator	PBT	Gray	UL94V-0	
			PCN21A		
			Contact area : Nickel base, gold plated		
	Terminal	Phosphor bronze	PCB leads : Nickel base, gold plated		
	reminal		PCN21B		
			Contact area : Nickel base, gold plated		
Receptacle			PCB leads : Nickel base, tin plated		
			PCN21A		
			Contact area : Nickel base, gold plated		
	Shield	Dhoophor bronzo	Mounted area : Nickel base, tin lead plated		
	Shield	Phosphor bronze	PCN21B		
			Contact area : Nickel base, gold plated		
			PCB leads : Nickel base, tin plated		
Shroud	Insulator	PBT	Gray	UL94V-0	
Coding key	Insulator	PBT	Refer to page 24	UL94V-0	
Power contact		Brass, phosphor bronze	Nickel base, gold plated		
	Insulator	PTFE	White		
Coaxial contact	Outer conductor	Brass, phosphor bronze	Nickel base, gold plated		
	Inner conductor	Phosphor bronze,	Nickel base, gold plated		
		beryllium copper	Nickel base, gold plated		





### Recommended PCB mounting pattern



Part number	А	No. of contacts	Mounting side	
PCN21*-110PA-2PF	110	5	Chart nin	
PCN21*-110PA-2PF-G	154	7	Short pin	
PCN21*-110PA-2W	110	5		
PCN21*-110PA-2W-G	A-2W-G 154		Long pin	

■Header (Style B) [Backplane side male connector, 5 row]







Product No.	A	В	С	D	No. of contacts	Mounting side
PCN21*-125PB-2PF	49.95	48	125	25	5	
PCN21*-125PB-2PF-G	49.95	48	175	25	7	
PCN21*-110PB-2PF	49.95	42	110	22	5	Short nin
PCN21*-110PB-2PF-G	49.95	42	154	22	7	Short pin
PCN21*- 95PB-2PF	37.95	36	95	19	5	
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	Long pin
PCN21*- 95PB-2W	37.95	36	95	19	5	
PCN21*- 95PB-2W-G	37.95	36	133	19	7	

## ■Header (Style C) [Backplane side male connector, 5 row]



### Recommended PCB mounting pattern



1	Plated through hole	
	Drilled diameter	: <i>ϕ</i> 0.7±0.02
	Finished diameter	: <i>ф</i> 0.6±0.05
	Plating	: Cu 25µmin
2	Without ground terr	ninal types, row f and z are
	not needed.	

3 Board thickness : 1.6 to 5.6 mm

Part number .	А	No. of contacts	Mounting side	
PCN21*-55PC-2PF	55	5	Chartain	
PCN21*-55PC-2PF-G	77	7	Short pin	
PCN21*-55PC-2W	55	5	Longnin	
PCN21*-55PC-2W-G	77	7	Long pin	

## ■Header (Style D) [Backplane side male connector, 8 row]







### Recommended PCB mounting pattern



Plated through hole	
Drilled diameter	: ø0.7±0.02
Finished diameter	: ø0.6±0.05
Plating	: Cu 25µmin
Without ground terr	ninal types,
row i and z are not	needed.
Board thickness	: 1.6 to 5.6 mm
	Drilled diameter Finished diameter Plating Without ground terr row i and z are not

Part number	А	No. of contacts	Mounting side	
PCN21B-176PD-2PF	176	8	Chart sin	
PCN21B-176PD-2PF-G	220	10	Short pin	

## ■Header (Style E) [Backplane side male connector, 8 row]





Part number	А	No. of contacts	Mounting side	
PCN21B-200PE-2PF	200	8	Chart sin	
PCN21B-200PE-2PF-G	250	10	Short pin	

### ■Header (Style M) [Backplane side connector, 5 row]



### Recommended PCB mounting pattern



Part number	No. of contacts	Mounting side		
PCN21*-55PM-2PF	5	Short Pin		

## ■Header (Type AB) [Backplane side male connector, 5 row]



### Recommended PCB mounting pattern



1>	Plated through hole	
	Drilled diameter	: ø0.7±0.02
	Finished diameter	:¢0.6±0.05
	Plating	: Cu 25µmin

- 2 Without ground terminal types, row f and z are not needed.
- 3 Board thickness : 1.6 to 5.6 mm

Part number	А	No. of contacts	Mounting side		
PCN21*-125PAB-2PF	125	5	Chart Din		
PCN21*-125PAB-2PF-G	169	7	Short Pin		
PCN21*-125PAB-2W	125	5	Long Din		
PCN21*-125PAB-2W-G	169	7 Long P			

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## Receptacle (Style A) [Package side female connector, 5 row]

< With ground plate >



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< Without ground plate >





### Recommended PCB mounting pattern



I Contact No.	3	Without ground to row f are not nee
	4	The type without require the 2mm
I	5	Board thickness:

		_	-		_	
Part number	A	B	C	Ground plate	Post	
PCN21*-110SA-2PF	20.7	7.3	110	Without	With	
PCN21*-110SA-2PF-G	20.9	7.5	123	With	VVIth	
PCN21*-110SAA-2PF	20.7	7.3	110	Without	Without	
PCN21*-110SAA-2PF-G	20.9	7.5	123	With	Without	

1 Plated through hole Drilled diameter : ¢0.7±0.02 Finished diameter : ∲0.6±0.05 Plating : Cu 25µmin

- 2>Even numbers are required on the f row when using the lower surface ground plate (PCN21\*-SA-G).
- terminal types, eded.
- the post does not dia, hole.
- 1.6 to 4.2 mm



## ■Receptacle (Style B) [Package side female connector, 5 row]

< With ground plate >







- Plated through hole Drilled diameter Finished diameter Plating
  ∴ \$\u03c90.7±0.02\$
  ∴ \$\u03c90.7±0.02\$
  ∴ \$\u03c90.6±0.05\$
  ∴ Cu 25µmin
- Even numbers are required on the f row when using the lower surface ground plate (PCN21\*-SB-G).
  - Without ground terminal types, row f are not needed.
- 4 Board thickness: 1.6 to 4.2 mm

Part number	A	В	С	D	E	F	G	Ground plate
PCN21*-125SB-2PF	49.95	48	20.7	7.3	125	—	25	Without
PCN21*-125SB-2PF-G	49.95	48	20.9	7.5	138	12	25	With
PCN21*-110SB-2PF	43.95	42	20.7	7.3	110	—	22	Without
PCN21*-110SB-2PF-G	43.95	42	20.9	7.5	121	11	22	With
PCN21*- 95SB-2PF	37.95	36	20.7	7.3	95	_	19	Without
PCN21*- 95SB-2PF-G	37.95	36	20.9	7.5	105	9	19	With
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## ■ Receptacle (Style C) [Package side female connector, 5 row]

< With ground plate >



11-----1 Contact No.





< Without ground plate >

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### Recommended PCB mounting pattern



## ■ Receptacle (Style D) [Package side female connector, 8 row]





<Without ground plate>



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### Recommended PCB mounting pattern



1 Plated through hole	
Drilled diameter	: ø0.7±0.02
Finished diameter	: ø0.6±0.05
Plating	: Cu 25µmin
2 Even numbers are	required on the

- 2 Even numbers are required on the i row when using the low surface ground plate (PCN21B-SE-G).
- 3 Without ground plate types, row i not needed.
- 4 Board thickness: 1.6 to 4.2mm

	D		Ground plate
Through hole 22.7	7 13.3	176	Without
PCN21B-176SD-2PF-G 23.1	5 13.5	189	With

## ■ Receptacle (Style E) [Package side female connector, 8 row]





### Recommended PCB mounting pattern





connector(PO51M-LPR-PC-1A). High power contact type, hole ● not needed.

3 Board thickness: 1.6 to 4.2 mm

Part number.	Ground plate	Post
PCN21*-55SM-2PF	Without	With

## ■ Receptacle (Type AB) [Package side female connector, 5 row]



## Recommended PCB mounting pattern



- 2> Even numbers are required on the f row when using the lower surface ground plate (PCN21\*-SA-G).
- 3 Without ground the plate types, rows f not needed.
- 4 Board thickness: 1.6 to 4.2 mm

Part number.	A	В	С	Ground plate		
PCN21*-125SAB-2PF	20.7	7.3	125	Without		
PCN21*-125SAB-2PF-G	20.9	7.5	138	With		

### Bottom ground plates for receptacles





### PCN21B-SD-G



PCN21B-SE-G



Product No.	Applicable connector
PCN21B-SD-G	PCN21B-176SD-2PF-G
PCN21B-SE-G	PCN21B-200SE-2PF-G

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



## [Style B]



Style	Part number	Applicable connector
A	PCN21-110PA-2C1	PCN21*-110PA-2W(-G)
В	PCN21-125PB-2C1	PCN21*-125PB-2W(-G)
С	PCN21- 55PC-2C1	PCN21*- 55PC-2W(-G)
AB	PCN21-125PAB-2C	PCN21*-125PAB-2W(-G)

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



## [Type AB]



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### Assemblied condition

### Back-plane contact length: 13mm (Example)

Α	Back-plane contact length	13	13
В	Shroud height	3.9	3
С	PCB thickness	2.3	3.2
D	Shroud mating contact length	6.8	6.8



### Shroud mating contact length: 6.8mm (Example)

Е	Shroud mating contact length	6.8	6.8
F	Shroud height	3.9	3
G	Back-plane contact length	13	13
н	PCB thickness	2.3	3.2

PCN21\* series long pin type header

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### Coding keys

Installed on Style A, D, M to prevent improper insertion.

### For header

4 3











For header		For receptacle		Color	Remarks
Part number	Туре	Part number	Туре	COIOI	nemarks
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
PCN21-P-CK(D)	1248	PCN21-S-CK(D)	3567	Red	
PCN21-P-CK(F)	2578	PCN21-S-CK(F)	1346	Breen	
PCN21-P-CK(G)	3467	PCN21-S-CK(G)	1258	Gray	
PCN21-P-CK(I)	3568	PCN21-S-CK(I)	1247	Orange	

### Header contact

Custom support for header sequencial contacts is available. Contact a Hirose sales representative. Use of rows of contacts having the same length is recommended.





### High power contact

### PCN21-P-PWR(20A)





PCN21-S-PWR(PC)



Part number	Power	Applicable connector
PCN21-P-PWR(20A)	20A(70℃)	PCN21*-55PM-2PF
PCN21-S-PWR(PC)	20A(70℃)	PCN21*-55SM-2PF

### **Coaxial connector**

Part number	Characteristic impedance	Applicable cable	Applicable connector
PO51M-J-1.5W	50Ω	1.5D-HQEW, 1.5D-2W or equivalent	PCN21*-55PM-2PF
PO51M-J-1.5	50Ω	1.5D-HQEV, 1.5D-2V or equivalent	PCN21*-55PM-2PF
PO82M-J-1.5C	75Ω	1.5C-QEV, 1.5C-2V or equivalent	PCN21*-55PM-2PF
PO51M-LJ-1.5W	50Ω	1.5D-HQEW, 1.5D-2W or equivalent	PCN21*-55PM-2PF
PO51M-LJ-1.5	50Ω	1.5D-HQEV, 1.5D-2V or equivalent	PCN21*-55PM-2PF
PO51M-LJ-178-1	50Ω	RG-178B/U	PCN21*-55PM-2PF
PO51M-P-1.5W	50Ω	1.5D-HQEW, 1.5D-2W or equivalent	PCN21*-55SM-2PF
PO51M-P-1.5	50Ω	1.5D-HQEV, 1.5D-2V or equivalent	PCN21*-55SM-2PF
PO82M-P-1.5C	75Ω	1.5C-QEV, 1.5C-2V or equivalent	PCN21*-55SM-2PF
PO51M-LPR-PC-1A	50Ω		PCN21*-55SM-2PF

Refer to PO21M, PO51M, PO82M series for dimensions.

### ■High power contact, coaxial connector extraction tools

	Part number
For PCN21*-55PM-2PF	PO51J-T-1
For PCN21*-55SM-2PF	PO51MP-T-1