

SPECIFICATION
AND PERFORMANCE CHARACTERISTICS
OF "PCPR" CONNECTOR SERIES

CONTENTS

Section	PAGE
1.0 SCOPE.....	3
2.0 APPLICABLE STANDARDS	
2.1 Regulatory Requirements.....	3
2.2 Industry Standards.....	3
2.3 Drawings.....	4
3.0 APPLICATION FEATURES.....	6
3.1 Environmental.....	6
3.2 Mechanical.....	6
3.3 Durability.....	6
3.4 Total Mating Force.....	6
3.5 Electrical.....	6
3.6 Recognition.....	6
4.0 APPLICATIONS	
Table 4.1: PCI Card Type Connector Configuration.....	6
Table 4.2: Card Form Factor.....	7
5.0 CONNECTOR PERFORMANCE SPECIFICATION	
Table 5.1 – Connector Mechanical Performance Requirements.....	8
Table 5.2 – Connector Electrical Performance Requirements.....	8
Table 5.3 – Connector Environmental Performance Requirements.....	8
6.0 LEAD-FREE REFLOW CONDITION	
6.1 Guideline 1	
6.2 Guideline 2	
6.3 Guideline 3	
Table 6.1 – Recommended Reflow Condition	9
REVISION CHANGES.....	9

1.0 SCOPE

This specification defines the physical, electrical, and quality requirements for the 1.25mm pitch PCPR series connector. The PCPR series consists of 02, 03, 04, 10, 14, 16, 20 and 24 position connectors.

In addition to the LAN/Modem card that employs PCPR as the Type I and Type III LAN and Modem I/O connectors, this series is especially ideal for applications where low profile interconnect is necessary to work in tight space with 2mm height or less.

2.0 APPLICABLE STANDARDS

Reference documents listed below shall be the latest revision unless otherwise specified. Should a conflict occur between this specification and any of the listed documents then this specification shall prevail.

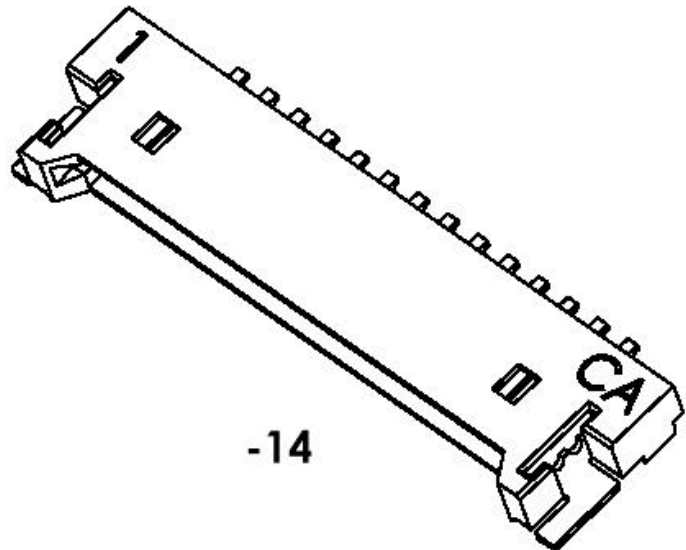
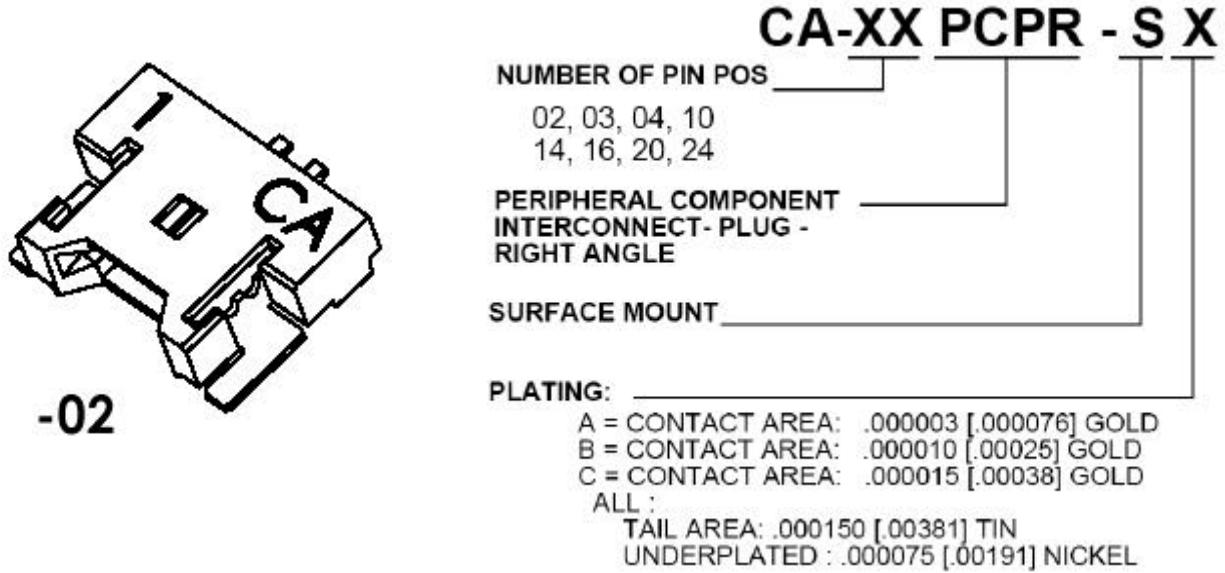
2.1 Regulatory Requirements

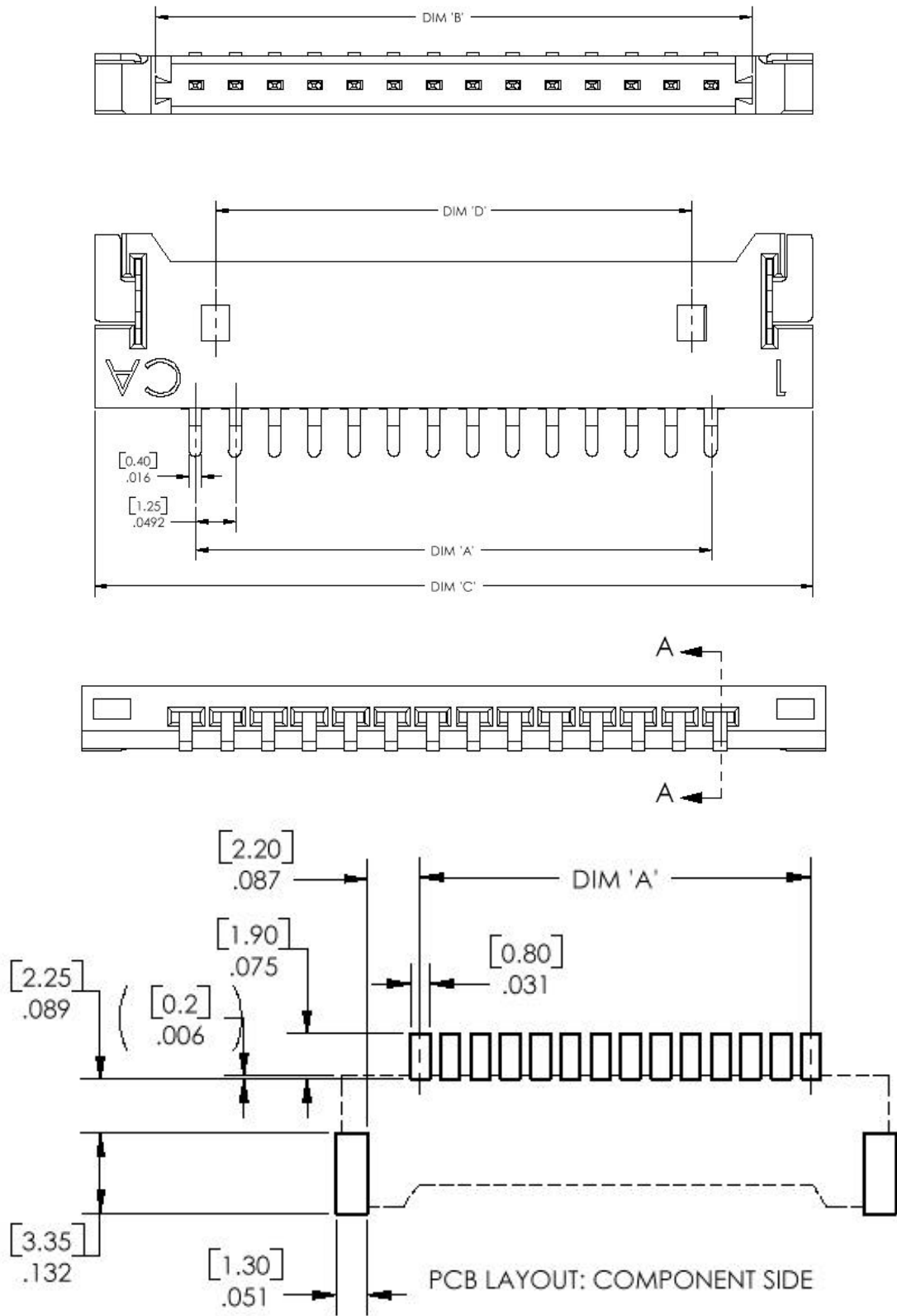
- Be a UL listed or UL Recognized Communication Circuit Accessory
- Be molded of plastics rated UL 94V-2 or less flammable when tested to UL 94
- Be CSA Certified in accordance with CSA C22.2 No. 182.4
- Comply with the requirements of UL1950/CSA C22.2 No. 950.

2.2 Industry Standards

- Mini PCI Specification, Revision 1.0
- PCI Local Bus Specification, Revision 2.2
- PC Card Standard Electrical Specification, Revision April 1998
- ISO/IEC 8802-3 ANSI IEEE Standard 802.3
- Supplement to ANSI/IEEE 802.3 Document 802.3u
- ISO/IEC 8802-5 ANSI IEEE Standard 802.5

2.3 Drawings





TABULATION :

NO OF POS.	DIM 'A'		DIM 'B'		DIM 'C'		DIM 'D'	
	IN	MM	IN	MM	IN	MM	IN	MM
-02	0.049	1.25	0.148	3.77	0.301	7.65	N/A	
-03	0.098	2.50	0.198	5.02	0.350	8.90	N/A	
-04	0.148	3.75	0.247	6.27	0.400	10.15	0.098	2.50
-10	0.443	11.25	0.542	13.77	0.695	17.65	0.394	10.00
-14	0.640	16.25	0.739	18.77	0.892	22.65	0.591	15.00
-16	0.738	18.75	0.837	21.27	0.990	25.15	0.689	17.50
-20	0.935	23.75	1.034	26.27	1.187	30.15	0.886	22.50
-24	1.132	28.75	1.231	31.27	1.384	35.15	1.083	27.50

3.0 APPLICATION FEATURES:

3.1 Environmental

Temperature Range: -40°C to 85°C

3.2 Mechanical

Insulator Material: High Temperature Thermoplastic, Natural, UL94V-0

Contact Material: Brass

Contact Plating A = Contact Area .000003[.000076] Gold

B = Contact Area .000010[.00025] Gold

C = Contact Area .000015[.00038] Gold

ALL :

TAIL AREA : .000150[.00381] TIN

UNDERPLATE: .000075[.00191] NICKEL

3.3 Durability

Thirty cycles not exceeding 20 mΩ increase in contact resistance

3.4 Total Mating Force

< 2.1 N per pin

3.5 Electrical

Voltage Rating: 125V AC

Current Rating: 1.0 Amp per contact

Dielectric Withstanding Voltage: 250V AC minimum for 1 minute between adjacent pins

Insulator Resistance: >100 MΩ

Contact Resistance: <20mΩ

3.6 Recognition and Certification

PCPR series were not UL and CSA recognized at the time this specification was released.

The revision of this document will be updated to reflect the certification of the PCPR series.

4.0 APPLICATIONS

4.1 Mini PCI Specification

Three Application Types have been defined in the Mini PCI Specification. The 2/14 position connector is used in Types I and III. Table 1 defines the three Types and the system/PCI LAN/Modem connectors used and Table 2 illustrates the Type I Form Factor.

Table 4.1: PCI Card Type Connector Configuration

PCI Card Type	System Connector (Board Mount)	I/O Connector (Board Mount)	I/O Connector (Cable Mount)	Cable	Cable I/O Connector
Type I	100 position (AMP 353183-8)	LAN: 14 pin	LAN: 14 pin	14 pin	RJ45
		Modem: 2 pin	Modem: 2 pin	2 pin	RJ11
Type III	124 position (AMP 1318228-1)	LAN: 14 pin	LAN: 14 pin	14 position	RJ45
		Modem: 2 pin	Modem: 2 pin	2 position	RJ11

Table 4.2: Card Form Factor

PCI Card Type	Board Size (mm)	Max. Component Height (mm)	Notes
Type I	70 X 46	7.5 (IA) 5.5 (IB)	Card not placed at outer edge of host system
Type III	59.75 X 50.95 (IIIA) 59.75 X 44.6 (IIIB)	5.0	Card not placed at outer edge of host system

4.2 Other Low-Profile Applications

Newly emerged applications requiring compact interconnect with 2mm height or less have grown substantially in:

- Ultra Mobile PC / Netbook PC
- PDA / Cellular Phones
- Flat Screen LED / LCD Panel
- Digital Still Camera / Camcorder
- Medical Devices
- etc

PCPR is designed to work in tight space in mind and is ideal for the applications wherever display panels or low profile interconnect are involved.

5.0 CONNECTOR PERFORMANCE SPECIFICATION

Table 5.1 – Connector Mechanical Performance Requirements

Parameter	Specification
Durability	100 mating cycles without physical damage or exceeding LLCR requirement when mated with the recommended card edge.
Mating Force	6 oz. (1.7N) max. avg. per opposing contact pair using MIL-STD-1344, Method 2013.1 and gauge per MIL-C-21097 with profile as shown in add-in-board specification.
Contact Normal Force	75 grams minimum

Table 5.2 – Connector Electrical Performance Requirements

Parameter	Specification
Low Level Contact Resistance	30 mΩ maximum initial, 10 mΩ maximum increase through testing. Contact resistance, test per MIL-STD-1344, Method 3002.1.
Insulation Resistance	1000 MΩ min. per MIL-STD 202, Method 302, Condition B.
Dielectric Withstand Voltage	500 VAC RMS. Per MIL-STD-1344, Method D3001.1 Condition 1.
Capacitance	2pF max. @ 1 MHz.
Current Rating	1A, 30 °C rise above ambient.
Voltage Rating	125V.
Certification	UL Recognition and CSA Certification required.

Table 5.3– Connector Environmental Performance Requirements

Parameter	Specification
Operating Temperature	-40 °C to 105 °C
Thermal Shock	-55 °C to 85 °C, 5 cycles per MIL-STD-1344, Method 1003.1.
Flowing Mixed Gas Test	Battelle, Class II. Connector mated with board and tested per Battelle method.

6.0 LEAD-FREE REFLOW CONDITION

6.1 Guideline 1

Reflow condition may change from machine to machine. Additionally, factors such as PCB may also affect the outcome of soldering quality. An ideal reflow condition depends on accurate temperature setting and time duration necessary to ensure acceptable metallurgical bonding of the solder alloy and base metal to be soldered.

6.2 Guideline 2

While tweaking the processing parameters, it is recommended to test using one's own reflow condition first and check the soldering appearance to attain an optimal condition.

6.3 Guideline 3

One should always check the reflow processing condition by monitoring the actual reflow equipment through the in-process thermocouples and data acquisition profilers. Potential variation caused by reflow machines and PCB can exist. Always check and test before production

It is important to use caution and follow the guidelines above when implementing one's own reflow condition. The following table serves as a preliminary condition for tweaking the lead-free reflow condition.

Table 6.1 – Recommended Reflow Condition

Process Stage	Temperature	Duration
I – Preheat	110°C to 150°C	40 to 60 sec
II – Soak	150°C to 200°C	90 to 120 sec
III - Solder	230°C Min.; Peak: 250°C Max.	20 to 40 sec

REV.	DESCRIPTION	DATE	INITIALS
A	INITIAL RELEASE SEE DO 3955	3/29/00	C.C.
B	SEE DO 4597	8/24/01	C.C.
C	SEE DO 4658	10/17/01	C.C.L.
D	SEE DO 4699	11/28/01	C.C.L.
E	SEE DO 6667	06/05/08	I.M.
F	SEE DO 6873	08/08/09	L.F.