

2mm PITCH METRIC CONNECTORS FOR PCB CONNECTION

FCN-086 /087 SERIES

■ OVERVIEW

Fujitsu's 2mm hard metric connector F-PACK-3 (FCN-086/087 series) are connectors for connecting boards developed to support high-speed transmission/high density packaging of communication equipment, conforms to IEC 917 (DIN 43355) and IEC 61076-4-101, and supports compact PCI. Product meets Bellcor 1217. To support high-speed transmission, these connectors implement low inductance, low cross-talk, and matching characteristic impedance (50 ohms), exhibiting superb transmission characteristics.

Connection with the PCB is solderless (press fit) for both the plug/socket side, making mounting cost effective. Insertion connections are completely unnecessary since a polarity key is supported.

Plug contact has a four level sequence structure that makes connection/disconnection in an active state possible. Terminals have a five level pin length to support various applications. New customized connectors can be supported by freely combining the pin lengths of contacts and terminals.

For shield plate products, which support high-speed transmission based on standard products, 5 row 55, 95, 110, 110 (with key) and 125 contact, plugs support 77, 133, 154 and 175 contacts. The shield plate corresponds to the respective number of contacts, and the standard is post attachment. Sockets can also be shipped with shields pre-attached.

8 row products are also in the series. Consult factory for your requirements.

Fujitsu has developed a new high density power connector (25% denser) to improve operability.

A double press fit, which can connect two printed boards with one connector, greatly contributes to improved mounting and decreasing cost. Consult factory for details.

FCN-086/ 087 Series

■ SPECIFICATIONS

Item	Specification	
	Standard connector	Power connector
Operating temperature range	-55° C to +125° C	-40° C to +85° C
Current rating	1A DC max. (75° C)	7A DC/contact max. (75° C)
Voltage rating	500V AC r.m.s	56V DC
Contact resistance	20mohms max. (DC 20mV,10mA)	20mohms max. (DC 20mV, 10mA)
Insulation resistance	10,000 Mohms min. (100V DC)	10,000 Mohms min. (100V DC)
Dielectric strength	750V AC for 1 minute	600V AC for 1 minute
Insertion/Withdrawl life	125 times	250 times
Insertion force	0.75N/pin min.	20N/connector max.
Withdrawl force	0.15N/pin min.	1N/connector min.

■ CHARACTERISTICS

Item	Material
Characteristic impedance	50 ohms
Transmission speed	300 MHz
Near end cross talk	4.3 % max.

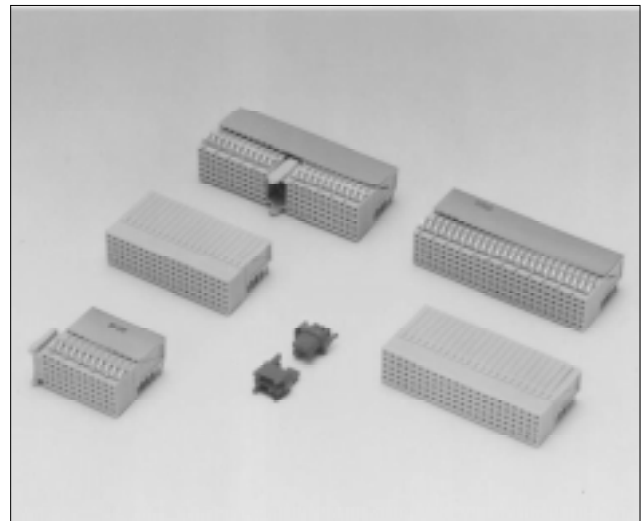
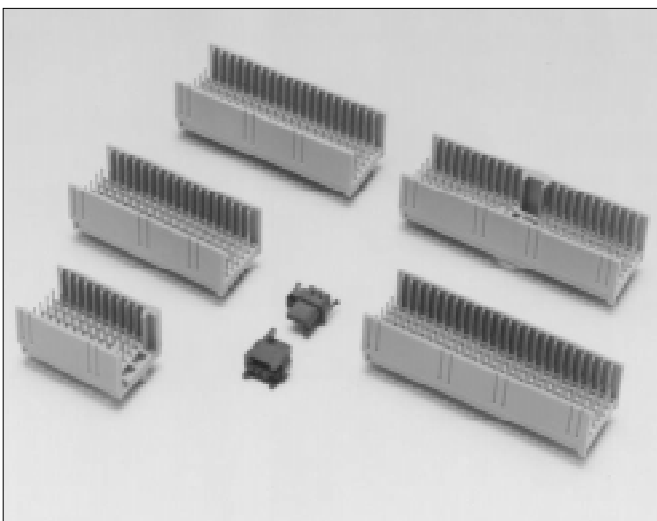
■ MATERIALS

Item	Material
Insulator	Polyester resin (UL94V-0)
Conductor	Copper alloy
Plating	Press fit: Solder Press fit other: PAGOS Contact area: Gold (PAGOS) Lead / press fit area: Solder

■ CONFIGURATION OF F&T 2 MM H.M. CONNECTOR

1. Basic configuration of socket/plug

There are five types of sockets: three basic types: type A (110 contacts), type B (125 contacts), and type C (55 contacts), and a 110 contact and 95 contact types. Many coding keys are in the series to prevent insertion errors.



TRANSMISSION CHARACTERISTICS

The transmission characteristics were designed to an optimum level by repeating various transmission characteristics simulations when the structure was designed, so as to improve the transmission characteristics of this connector. The characteristic impedance and the measurement device of the connector are shown below.

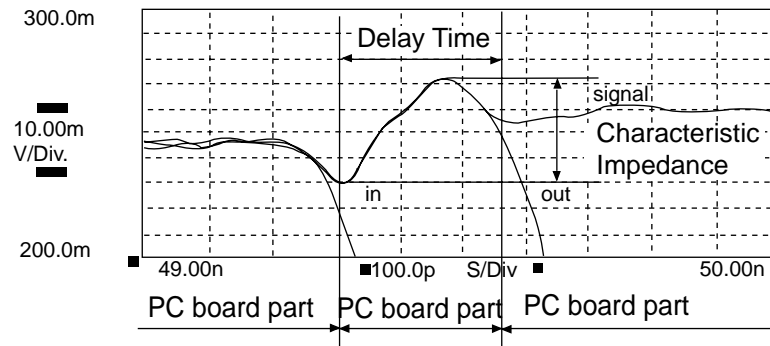
Measurement Point

Measurement Result

- a ● ○ ● ○ ○ ○
 - b ○ ● ○ ○ ○ ●
 - c ● ○ ○ ○ ● ●
 - d ○ ○ ○ ● ● ○
 - e ○ ○ ● ○ ○ ●
- Ground
 ● Not connected
 ○ Measurement signal

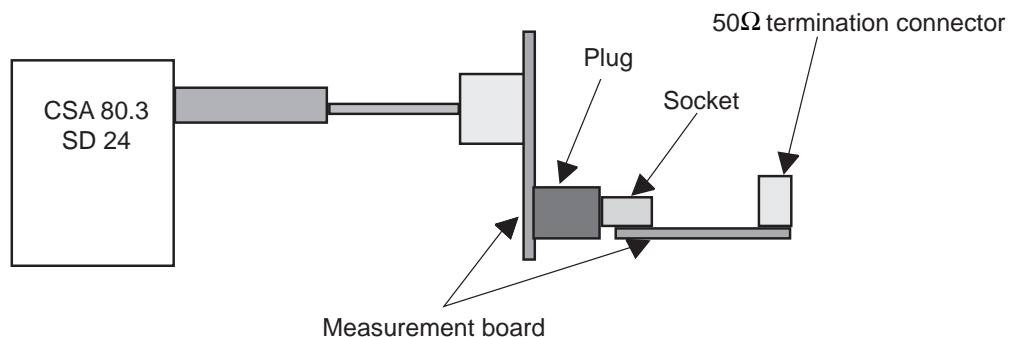
	Fujitsu Components			
At Start	100 ps	300 ps	500 ps	1 ns
Frequency: Hz	1.75 GHz	580 MHz	350 MHz	175 MHz
Characteristic Impedance (Ω)	45.3 to 64.0	48.2 to 56.8	49.2 to 54.6	49.3 to 52.8
Near/Far end cross talk: %	1.96/1.14	1.49/0.78	1.06/0.51	0.71/0.27

	Other Supplier			
At Start	100 ps	300 ps	500 ps	1 ns
Frequency: Hz	1.75 GHz	580 MHz	350 MHz	175 MHz
Characteristic Impedance (Ω)	47.4 to 66.1	48.2 to 56.8	49.5 to 59.2	47.7 to 53.5
Near/Far end cross talk: %	2.24/1.41	1.57/0.98	1.14/0.67	0.78/0.35



- 1.Measurement voltage: $V_{in} = 5.0V$
- 2.Rise time: $T_r = 100ps, 300ps, 500ps, 1ns$
- 3.Measurement device: TDR measurement device CSA803 and SD24 (Tektronix)
- 4.Measurement system

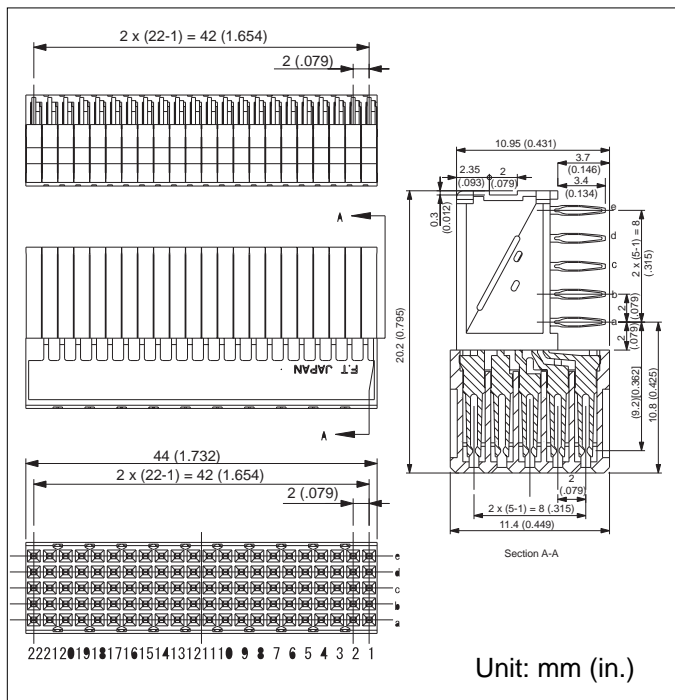
Coaxial cable for measurement



FCN-086/ 087 Series

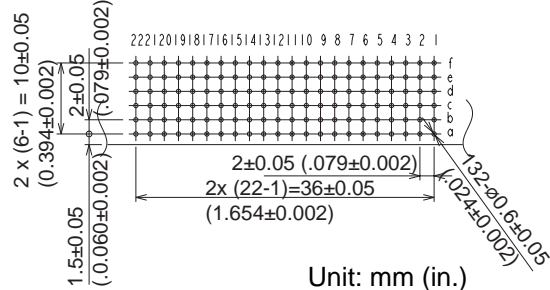
SOCKET: 110 CONTACTS WITHOUT KEY

■ DIMENSIONS



■ MOUNTING HOLE LAYOUT

Thickness: 1.4 to 2.0 mm (.055 to .220 in.)
 Drill hole Diameter: $\phi 0.7 \pm 0.025$ mm (.028 in.)
 Through hole diameter (after plating): $\phi 0.6 \pm 0.05$ mm (.024 in.)

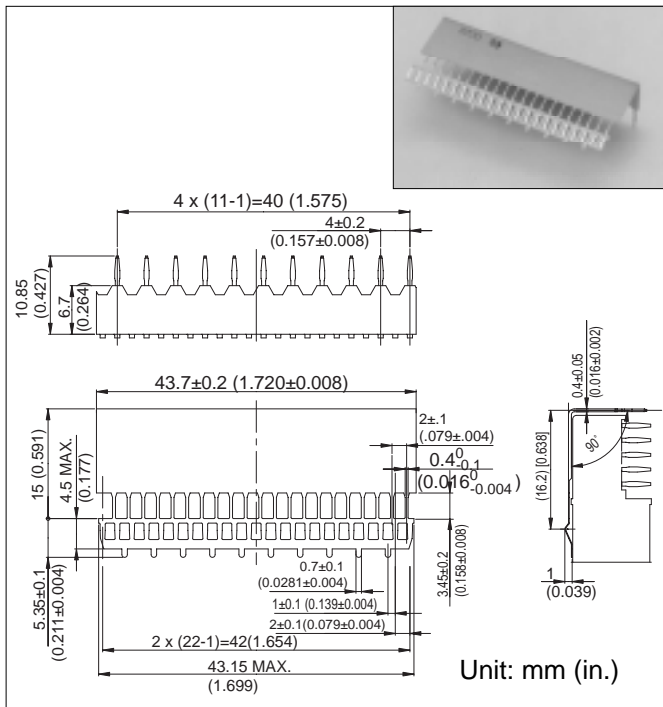


■ ORDERING PART NUMBER: FCN-086J110-G/101A-BCR

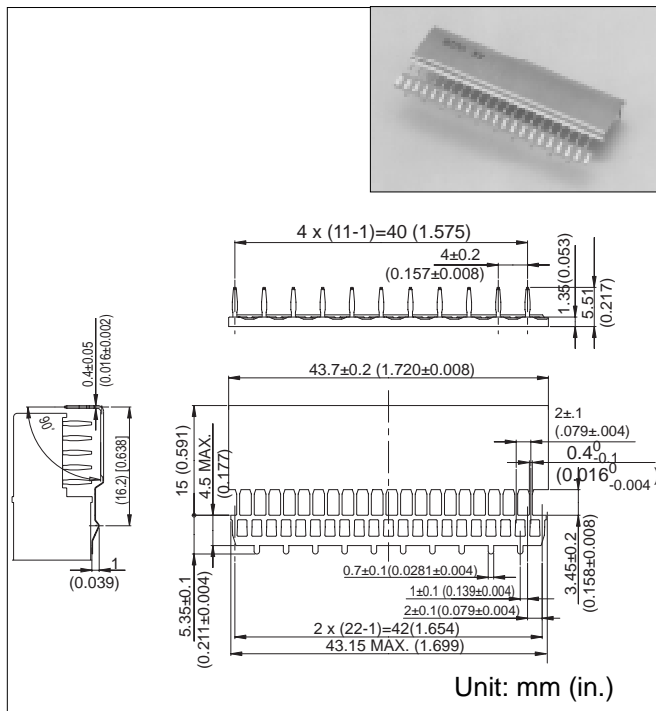
FCN-086J110-G/111A-BCR (with pre-attached upper shield)

SHIELD PLATE

■ DIMENSIONS



■ DIMENSIONS



■ ORDERING PART NUMBER:

FCN-086J110-G/VSD-BCR (without key, top shield plate)

■ ORDERING PART NUMBER:

FCN-086J110-G/MSD-BCR (without key, bottom shield plate)

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