

5. 6330 MICRO DESIGN-IN MODULE

The RangeLAN2 6330 Micro Design-in Module is an integrated hardware/software package that allows developers to easily incorporate sophisticated wireless LAN networking capabilities into their products. It is the smallest and lightest high-performance wireless LAN module available, designed to bring wireless LAN connectivity to a new class of mobile computing devices.

The RangeLAN2 6330 Micro Design-in Module includes a 2.4 GHz frequency hopping spread spectrum radio and network controller in a compact single-piece package. The 6330 offers sophisticated wireless networking features including high performance, roaming, and power management. It supports industry standard interfaces to assure quick and inexpensive integration and compatibility with all RangeLAN2 and Wireless LAN Interoperability Forum devices.

5.1 Introduction

This chapter details the specific issues related to the 6330 Micro Design-in Module.

5.2 Product Specification and Outline Drawing

Included at the end of Section 5 are the Product Specification and the Outline Drawing for the 6330 Micro Design-in Module.

5.3 Interface Description

The 6330 Micro Design-in Module provides a 40 pin connector to the host for passing power, control, and data signals to the module. The pin-out is shown in the PIN NUMBERS section of the Product Specification.

The 6330 has been designed to interface to the host as an PC/ISA Memory-Mapped I/O device. The 6330 defaults to a 16-bit data bus, but will also operate as an 8-bit device with 8-bit hosts, as discussed in Section 5.4. The 6330 supports both normal write and read accesses, but the 6330 does not support DMA transfers.

The 6330 requires a minimal set of signals to operate, including data bus, chip select, address bus, and read / write strobes. The INTERFACE PIN DESCRIPTION section of the Product Specification details the inputs and outputs for the module.

The chip select signal, CS#, is used to decode addresses destined for the 6330. The 6330 requires an address space of 8 I/O registers, that can be located on any 8 byte boundary

decoded with the CS# signal. The 3-bit address bus is used to identify the specific I/O register. The 6330 uses only 5 I/O registers and all of them can be specified using an even address value (SA<0> = 0). More detail information of these registers are described in Section 12.4.

5.3.1 Interrupts and I/O Ports

The drivers for the 6330 Micro Design-in Module support the following ISA Bus specification interrupts (IRQ3, IRQ4, IRQ5, IRQ7, IRQ10, IRQ12 and IRQ15). A single interrupt output signal is provided by the 6330, and must be connected to the corresponding interrupt line on the platform's interface bus. For example, the default interrupt for the standard 6330 driver is IRQ15. The 6330 Test Adapter board is configured to connect the PC ISA bus IRQ15 to the 6330's INTR# interrupt output. This allows the interrupt of the 6330 to be interpreted as IRQ15 by the PC and driver.

The 6330 requires an address space of 8 consecutive bytes that is considered to be an I/O port to an XT or AT compatible platform. The drivers for the 6330 Micro Design-in Module support the following starting addresses for I/O ports: 100, 120, 140, 218, 270, 280, 290, 298, 2A0, 2A8, 2E0, 300, 310, 358, 360, and 368. The platform must decode the selected I/O port range and provide a chip select (CS#) to the 6330. The driver must be configured for the selected I/O port range also.

5.4 8-Bit vs.16-Bit Data Operation

Both 8-bit and 16-bit data operations are supported. The 6330 can be configured for the desired operation through the driver, by specifying Byte (8-bit) or Word (16-bit) operation. The standard drivers supplied with the 6330 automatically determine whether the host operates in 8-bit or 16-bit modes. When the driver is loaded by the host, the driver automatically performs a test to determine the mode. A 16-bit transfer to 6330 is first attempted. If the transfer between the driver and the 6330 is successful, 16-bit mode will be used. If the driver was not able to successfully write and subsequently read back from the upper byte of the data word, then 8-bit mode will be used. In either mode, SA<2..0> = 0H is used to access the I/O data register(s).

The section **Read and Write Operations** in the Product Specification describe the process for reading and writing to the 6330. Both operations are performed as I/O Accesses by the host. Differences between 8-bit transfers and 16-bit transfers are discussed. These read and write operations are consistent with the ISA bus specification.

5.5 Mechanical Issues

The 6330 has four mounting holes that are used for installing the module to the host with stand-offs. Sections 8.4 and 8.5 provide guidelines about the positioning of the 6330 relative to the enclosure and other components.

5.5.1 Outline Drawing and Dimensions

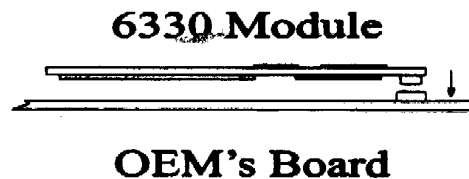
The 6330 outline drawing is shown at the end of this chapter.

5.5.2 Mating Connectors and Mounting Orientations

The 6330 OEM Module with the AMP connector supports a stacked mounting orientation, as shown in Figure 5-1.

The AMP connector #177986-1 on the 6330 OEM module mates with AMP connector #177983 or #179009 in stacked fashion. Please refer to the dimensional drawings for each part in the pages following. AMP can be contacted at 717-564-0100. AMP also offers a FAX-back number at 800-522-6752 (input a Part Number and receive back a drawing of the part).

Figure 5-1: 6330 OEM Module Mounting



If there are electrical components on the host platform that are mounted near the 6330 module, consider employing proper insulation or shielding to avoid crosstalk or shorting.

FILE

Insert 5-1: AMP Connector Catalog 65981

The AMP connector catalog that includes the information of the connectors described above is inserted in the following pages.

Product Facts

- For board stacking applications
- High density packaging on 0.8 [.031] centerline spacing
- Available sizes from 48 to 288 positions (in 24 position increments)
- Board stacking heights available from 5 [.197] to 16 [.630] (in 1 [.039] increments)
- Bellows type spring contacts are resistant to scraping and stubbing during mating and unmating
- Positioning bosses for proper on-board orientation
- Surface-mount hold-down feature available upon request
- Produced under a Quality Management System certified to ISO 9001

A copy of the certificate is available upon request.

Technical Document

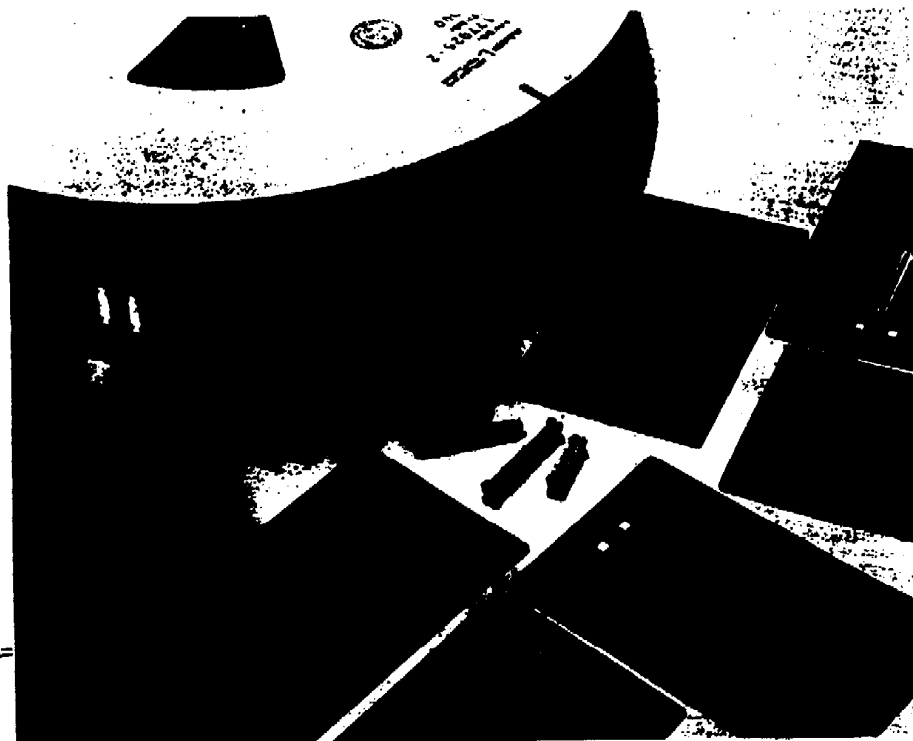
AMP Product Specification
108-5390

Performance Characteristics

Voltage Rating: 100 VAC
Current Rating: 5 amperes
Contact Resistance:
30 milliohms max. (initial)
Dielectric Withstanding Voltage:
500 VAC (1 minute)
Operating Temperature:
-40°C to +85°C (including terminal temperature rise)

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AMP is a trademark



AMP FH 0.8mm surface-mount connectors are designed for board stacking applications using subminiature connectors to meet today's electronic industry requirements for high density packaging.

It is possible to save more than 50% of the required board space when compared to conventional 1.27 [.050] centerline connectors.

FH 0.8mm connectors are ideally suited for application downsizing, such as PC's (Notebook, PDA, etc.) cellular telephones and other electronic equipment requiring miniature connector packaging.

Vertical board-mount plug and receptacle assemblies are available. By mating combinations of plug and receptacle assembly housing heights, board-to-board stack heights from 5 [.197] to 16 [.630] (in 1 [.039] increments) can be achieved.

The receptacle assemblies are preloaded with AMP's unique bellows-type spring contacts for reliable electrical connection with the plug assemblies.

Surface-mount solder tines permit fast assembly operation.

Need more information?

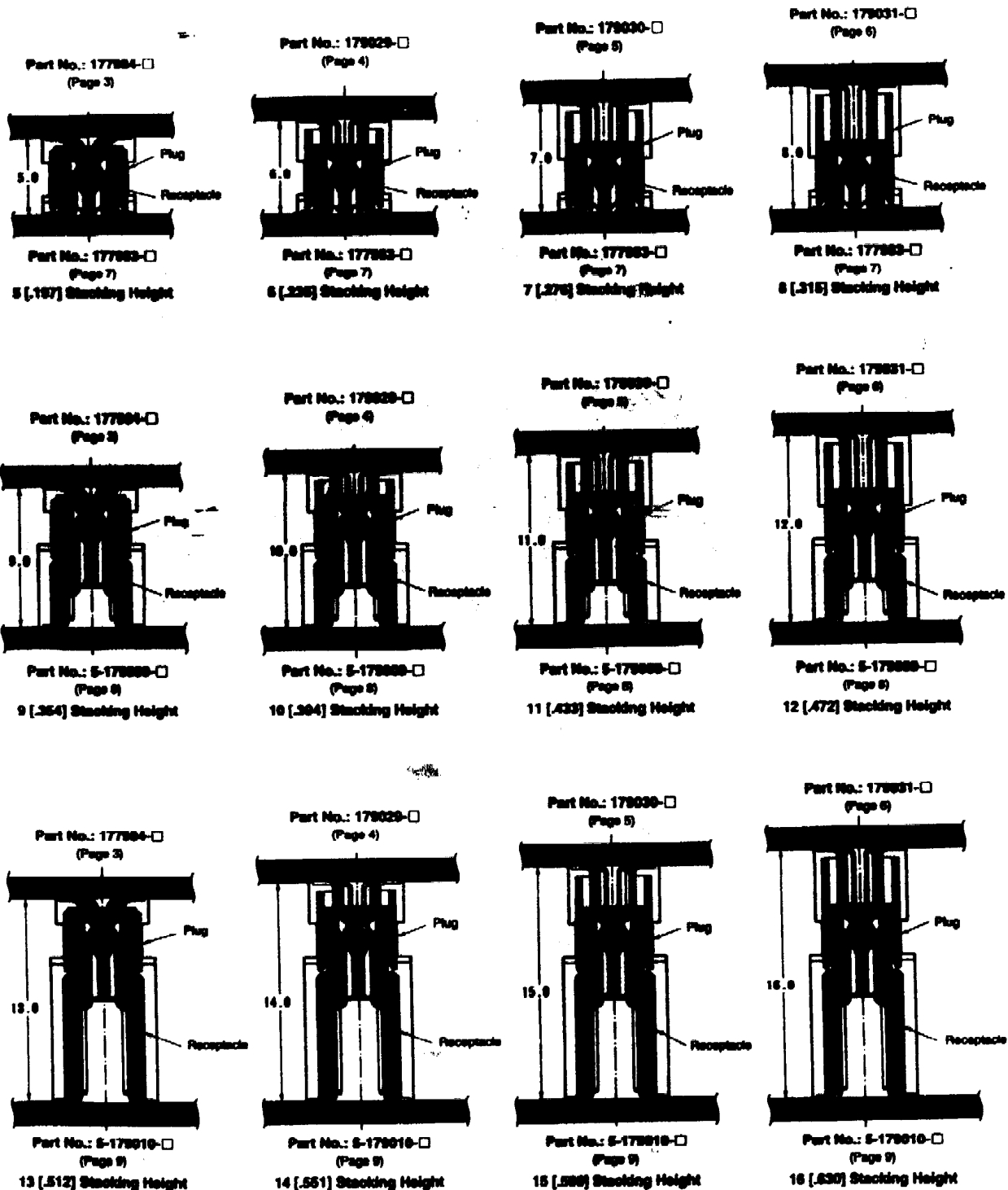
Call the AMP Product Information Center:
1-800-522-6752.

The Product Information Center is staffed with specialists well versed in all AMP products. The Center can provide you with:

- Engineering Support
- Catalogs
- Technical Documents
- Product Samples
- AMP Authorized Distributor Locations
- AMP Fax Service ...24 Hours a Day

FILE

Board-to-Board Stacking Heights (By Plug/Receptacle Assembly Combinations)



Note: For specific dash nos. of sizes 40 to 200 positions
(in 20-position increments), see pages 3 thru 9.

Vertical Plug Assemblies for 5 [.197], 9 [.354] and 13 [.512] Stacking Heights

5mm Plug

Material and Finish:

Housing — High temperature thermoplastic, natural color, 94V-0 rated

Contacts — Brass; duplex plated 0.00020 [.000008] min. gold on contact area, 0.00100 [.000039] min. tin-lead on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Related Product Data:

Performance Characteristics — page 1

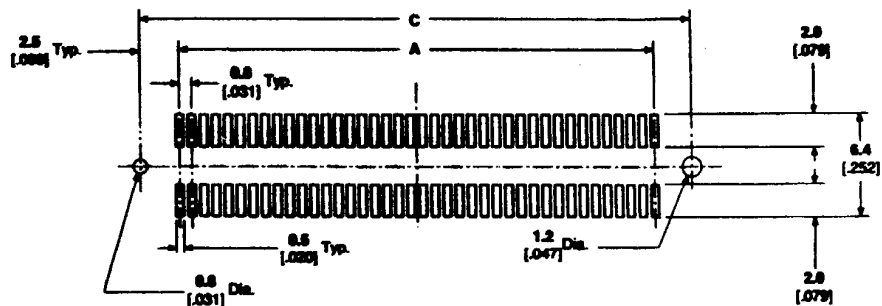
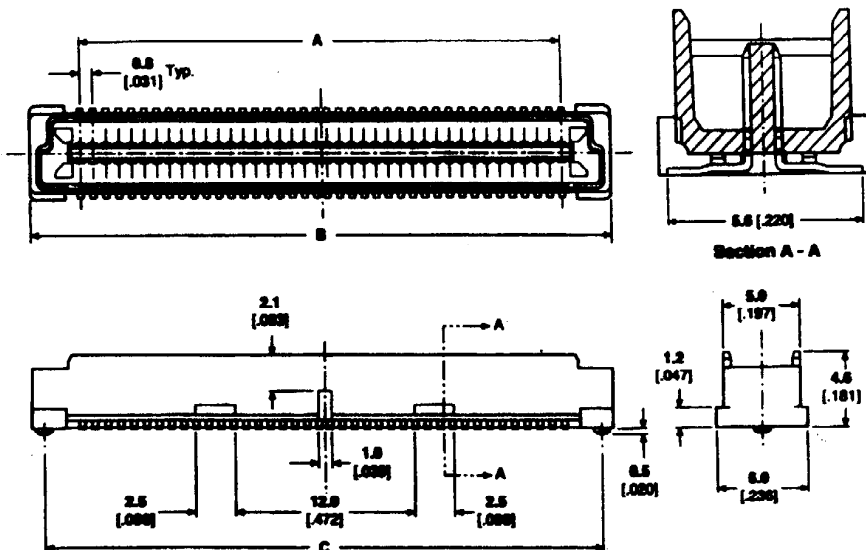
Stacking Height Combinations — page 2

Mating Receptacle Assemblies — pages 7 thru 9

Technical Document:

AMP Product Specification
108-5390

Packaging — Tube



Recommended PC Board Layout

No. of Positions	Dimensions			Plug Assembly Part Numbers	
	A	B	C	Packaged in Tubes	Packaged on Tape*
40	15.30 .598	21.80 .858	28.30 1.114	177984-1	177986-1
60	23.80 .937	29.80 1.173	35.30 1.386	177984-2	177986-2
80	31.80 1.250	37.80 1.488	43.30 1.699	177984-3	177986-3
100	39.80 1.563	45.80 1.803	51.30 2.016	177984-4	—
120	47.80 1.875	53.80 2.118	59.30 2.331	177984-5	—
140	55.80 2.187	61.80 2.433	67.30 2.646	177984-6	—
160	63.80 2.500	69.80 2.746	75.30 2.961	177984-8	—
200	79.80 3.118	85.80 3.378	91.30 3.594	1-177984-0	—

*With steel cover for automatic placement.

Vertical Plug Assemblies for 6 [.236], 10 [.394] and 14 [.551] Stacking Heights

6mm Plug

Material and Finish:

Housing — High temperature thermoplastic, natural color, 94V-0 rated
Contacts — Brass; duplex plated 0.00020 [.000008] min. gold on contact area, 0.00100 [.000039] min. tin-lead on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

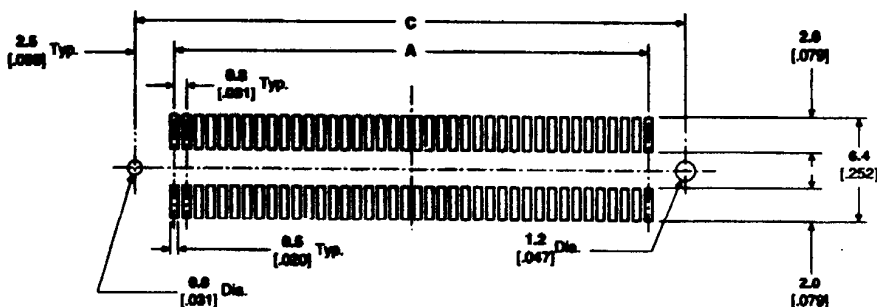
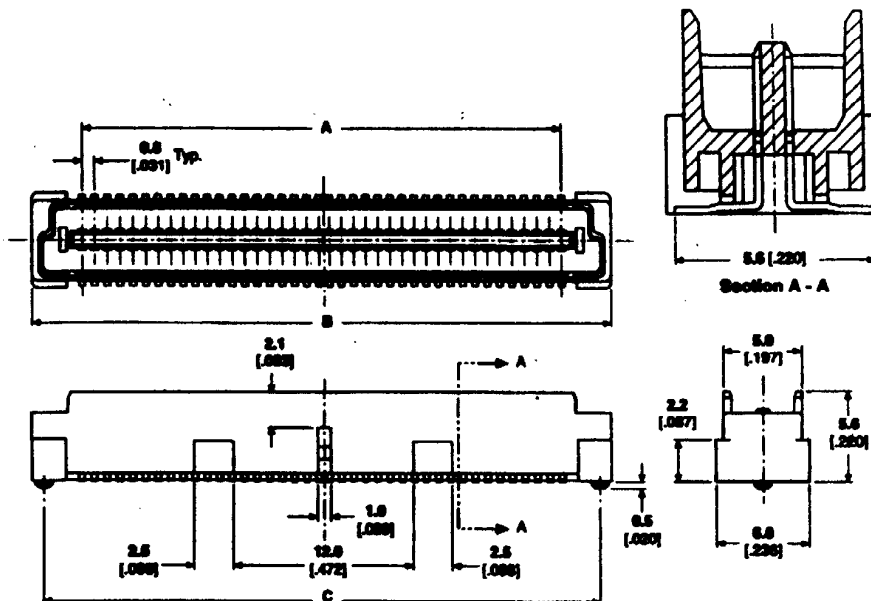
Related Product Data:

Performance Characteristics — page 1
Stacking Height Combinations — page 2
Mating Receptacle Assemblies — pages 7 thru 9

Technical Document:

AMP Product Specification
109-5390

Packaging — Tube



Recommended PC Board Layout

No. of Positions	Dimensions			Plug Assembly Part Numbers	
	A	B	C	Packaged in Tubes	Packaged on Tape*
40	16.50 .650	21.50 .850	26.50 1.043	179029-1	1-177986-1
60	26.50 1.043	31.50 1.238	36.50 1.418	179029-2	1-177986-2
80	31.50 1.238	37.50 1.480	42.50 1.685	179029-3	—
100	36.50 1.443	42.50 1.685	47.50 1.870	179029-4	—
120	42.50 1.685	48.50 1.910	53.50 2.105	179029-5	—
140	48.50 1.910	54.50 2.145	59.50 2.340	179029-6	—
160	54.50 2.145	60.50 2.385	65.50 2.575	179029-7	—

*With steel cover for automatic placement.

Vertical Plug Assemblies for 7 [.276], 11 [.433] and 15 [.590] Stacking Heights

7mm Plug

Material and Finish:

Housing — High temperature thermoplastic, natural color, 94V-0 rated

Contacts — Brass; duplex plated 0.00020 [.000008] min. gold on contact area, 0.00100 [.000039] min. tin-lead on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Related Product Data:

Performance Characteristics — page 1

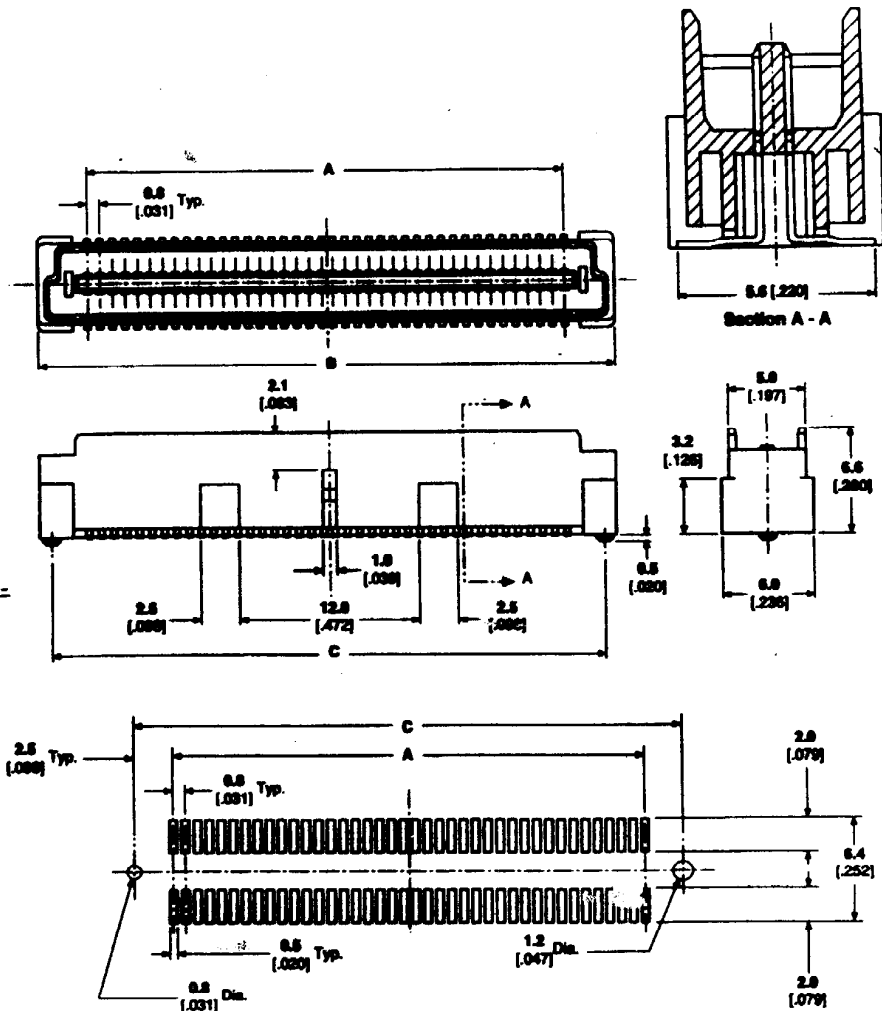
Stacking Height Combinations — page 2

Mating Receptacle Assemblies — pages 7 thru 9

Technical Document:

AMP Product Specification
108-5300

Packaging — Tube



Recommended PC Board Layout

No. of Positions	Dimensions			Plug Assembly Part Numbers	
	A	B	C	Packaged in Tubes	Packaged on Tape*
40	16.30 .986	21.20 .839	26.30 .795	179030-1	2-177986-1
60	23.30 .913	28.80 1.173	33.30 1.110	179030-2	2-177986-2
80	31.30 1.228	37.80 1.488	43.30 1.425	179030-3	—
100	39.30 1.543	45.80 1.803	51.30 1.740	179030-4	—
120	47.30 1.858	53.80 2.118	59.30 2.055	179030-5	—
140	55.30 2.173	61.80 2.433	67.30 2.370	179030-6	—
160	63.30 2.488	69.80 2.748	75.30 2.685	179030-6	—
200	79.30 3.118	85.80 3.378	91.30 3.315	1-179030-0	—

*With steel cover for automatic placement.

Vertical Plug Assemblies for 8 [.315], 12 [.472] and 16 [.630] Stacking Heights

8mm Plug

Material and Finish:

Housing — High temperature thermoplastic, natural color, 94V-0 rated
Contacts — Brass; duplex plated 0.00020 [.000008] min. gold on contact area, 0.00100 [.000039] min. tin-lead on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

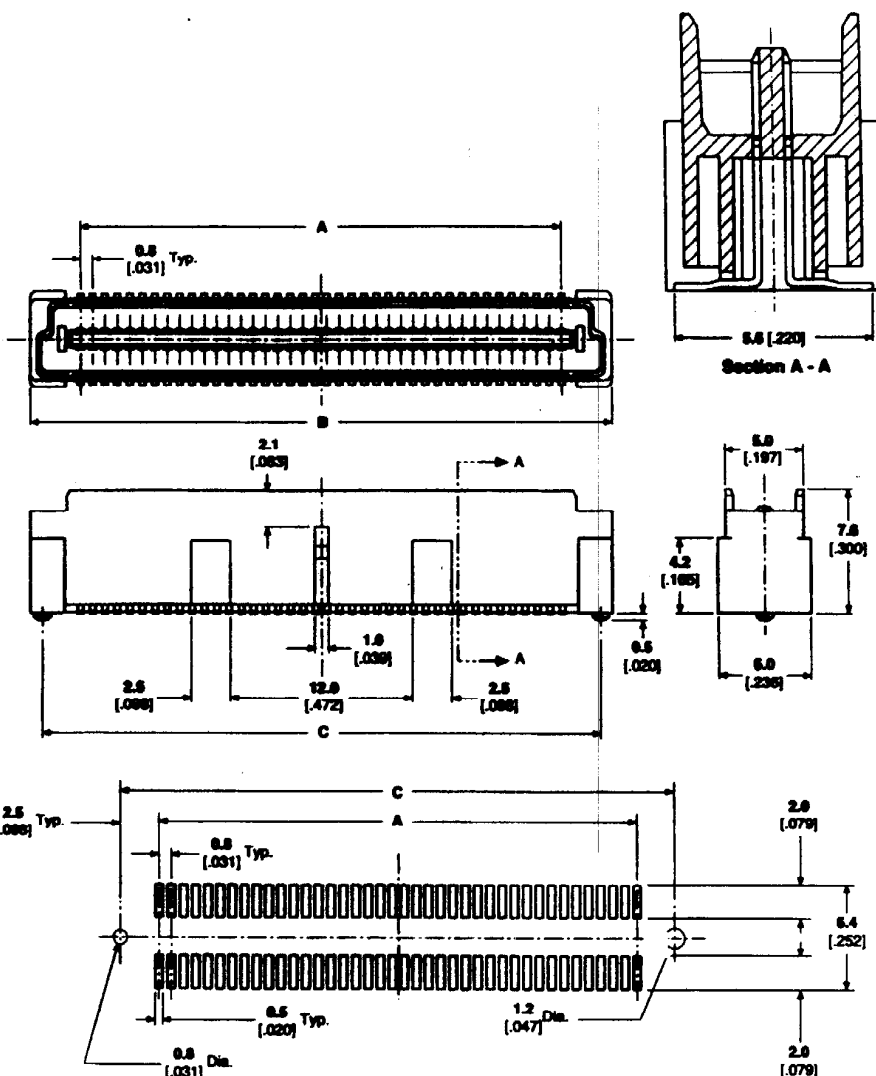
Related Product Data:

Performance Characteristics — page 1
Stacking Height Combinations — page 2
Mating Receptacle Assemblies — pages 7 thru 9

Technical Document:

AMP Product Specification
108-5390

Packaging — Tube



Recommended PC Board Layout

No. of Positions	Dimensions			Plug Assembly Part Numbers	
	A	B	C	Packaged in Tubes	Packaged on Tape*
40	15.20 .598	21.80 .858	26.20 .796	179031-1	3-177986-1
60	23.20 .913	26.80 1.173	26.20 1.110	179031-2	3-177986-2
80	31.20 1.228	37.80 1.488	36.20 1.425	179031-3	3-177986-3
120	47.20 1.858	63.80 2.118	62.20 2.055	179031-5	—
140	55.20 2.173	61.80 2.433	60.20 2.370	179031-6	—
180	71.20 2.803	77.80 3.063	76.20 3.000	179031-9	—

*With steel cover for automatic placement.

Vertical Receptacle Assemblies for 5 [.197], 6 [.236], 7 [.276] and 8 [.315] Stacking Heights

5mm Receptacle

Material and Finish:

Housing — High temperature thermoplastic, natural color, 94V-0 rated

Contacts — Beryllium copper; duplex plated 0.00020 [.000008] min. gold on contact area, 0.00100 [.000039] min. tin-lead on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Related Product Data:

Performance Characteristics — page 1

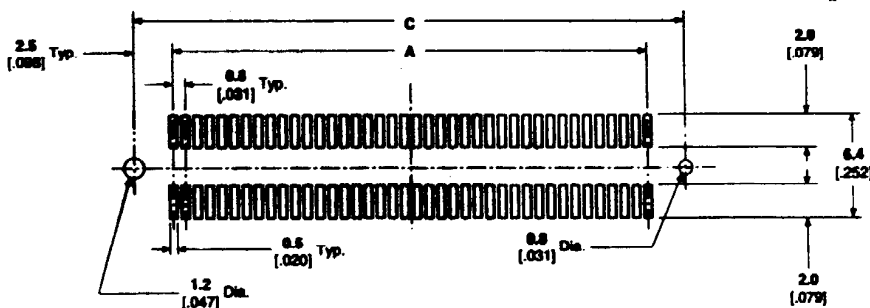
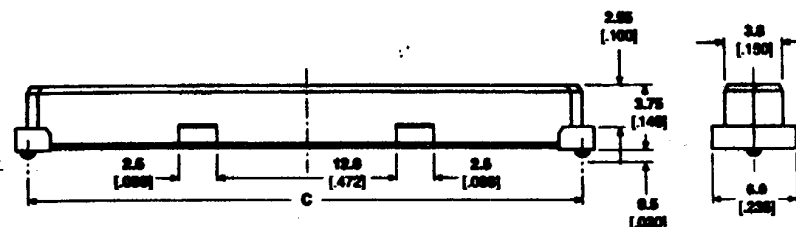
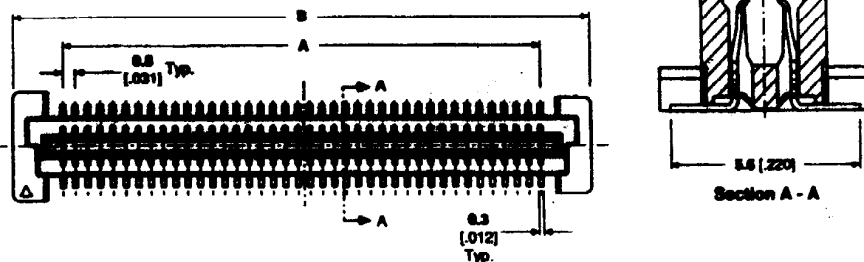
Stacking Height Combinations — page 2

Mating Plug Assemblies — pages 3 thru 6

Technical Document:

AMP Product Specification
108-5390

Packaging — Tube



Recommended PC Board Layout

No. of Positions	Dimensions			Receptacle Assembly Part Numbers	
	A	B	C	Packaged in Tubes	Packaged on Tape*
40	18.30 .598	21.80 .658	28.20 .785	177983-1	177985-1
60	22.20 .913	28.80 1.173	28.20 1.110	177983-2	177985-2
80	31.30 1.228	37.80 1.488	28.20 1.425	177983-3	177985-3
100	38.20 1.543	45.80 1.803	44.20 1.740	177983-4	—
120	47.20 1.858	53.80 2.118	52.20 2.055	177983-5	—
140	55.20 2.173	61.80 2.433	58.20 2.370	177983-6	—
160	63.20 2.488	69.80 2.748	66.20 2.605	177983-8	—
200	79.20 3.118	85.80 3.378	84.20 3.315	1-177983-0	—

*With steel cover for automatic placement.



AMP FH (Free Height) 0.8mm Surface-Mount
Connectors (Board-to-Board)

Catalog 65981
Revised 9-95

Vertical Receptacle Assemblies for 9 [.354], 10 [.394], 11 [.433] and 12 [.472] Stacking Heights

9mm Receptacle

Material and Finish:

Housing — High temperature thermoplastic, natural color, 94V-0 rated

Contacts — Beryllium copper; duplex plated 0.00020 (.000008) min. gold on contact area, 0.00100 (.000039) min. tin-lead on solder area, with entire contact underplated 0.00130 (.000051) min. nickel

Related Product Data:

Performance Characteristics — page 1

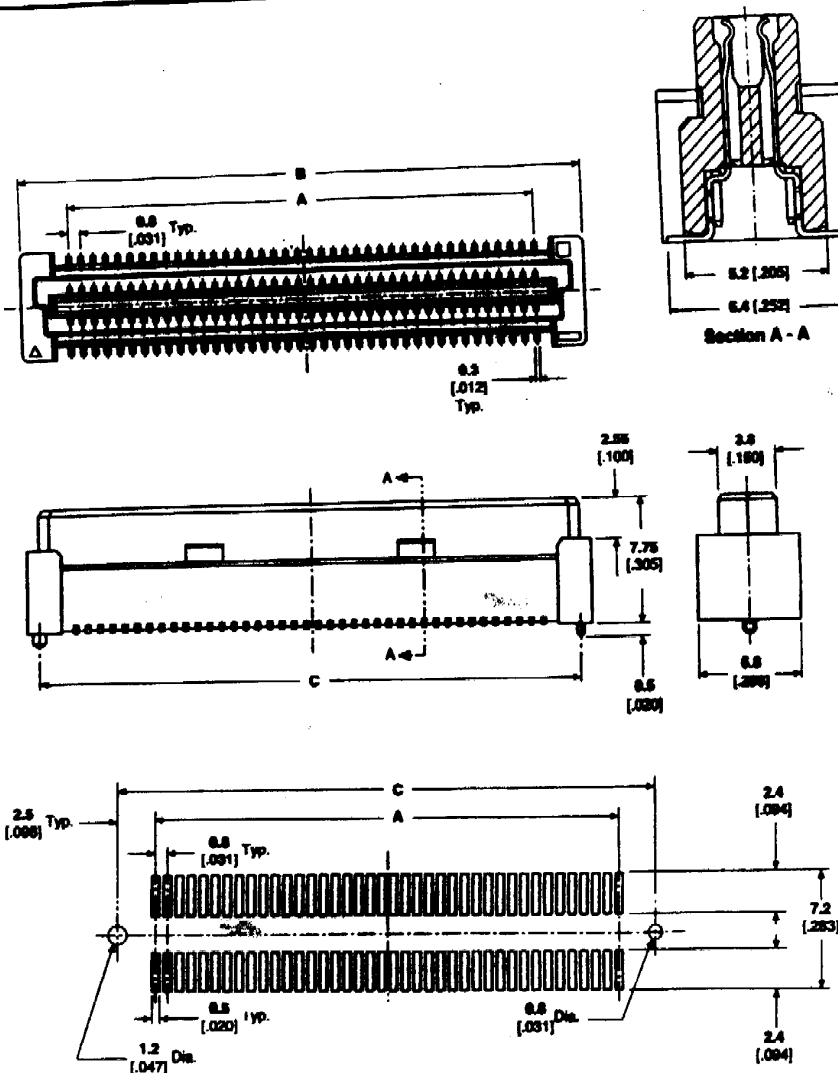
Stacking Height Combinations — page 2

Mounting Plug Assemblies — pages 3 thru 6

Technical Document:

AMP Product Specification
108-5390

Packaging — Tube



Recommended PC Board Layout

No. of Positions	Dimensions			Receptacle Assembly Part Numbers	
	A	B	C	Packaged in Tubes	Packaged on Tape*
40	15.25 .598	21.65 .852	29.35 1.155	5-179009-1	5-179180-1
60	23.25 .913	29.65 1.173	38.35 1.510	5-179009-2	5-179180-2
80	31.25 1.228	37.65 1.482	46.35 1.825	5-179009-3	5-179180-3
100	39.25 1.543	45.65 1.803	54.35 2.140	5-179009-4	—
120	47.25 1.868	53.65 2.118	62.35 2.455	5-179009-5	—
140	55.25 2.173	61.65 2.433	70.35 2.770	5-179009-6	—
160	63.25 2.488	69.65 2.748	78.35 3.085	5-179009-8	—

*With steel cover for automatic placement.

Vertical Receptacle Assemblies for 13 [.512], 14 [.551], 15 [.590] and 16 [.630] Stacking Heights

13mm Receptacle

Material and Finish:

Housing — High temperature thermoplastic, natural color, 94V-0 rated

Contacts — Beryllium copper; duplex plated 0.00020 (.000008) min. gold on contact area, 0.00100 (.000039) min. tin-lead on solder area, with entire contact underplated 0.00130 (.000051) min. nickel

Related Product Data:

Performance Characteristics — page 1

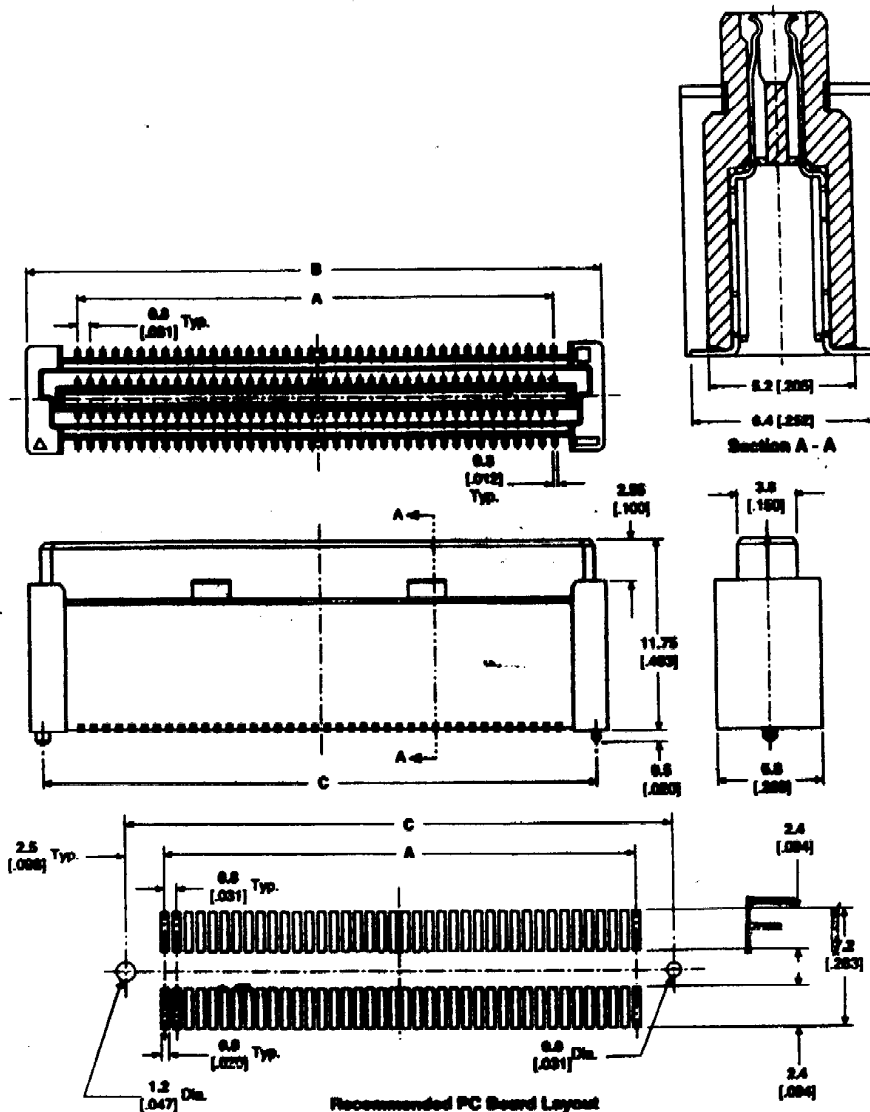
Stacking Height Combinations — page 2

Mating Plug Assemblies — pages 3 thru 6

Technical Document:

AMP Product Specification
108-5380

Packaging — Tube



No. of Positions	Dimensions			Receptacle Assembly Part Numbers
	A	B	C	
40	18.30 .900	21.50 .900	30.30 .795	5-179010-1
60	28.30 .913	30.50 1.173	39.30 1.110	5-179010-2
80	31.30 1.226	37.50 1.498	39.30 1.425	5-179010-3
100	38.30 1.543	45.50 1.808	44.30 1.740	5-179010-4
120	47.30 1.860	53.50 2.118	52.30 2.055	5-179010-5
140	55.30 2.173	61.50 2.433	60.30 2.370	5-179010-6
160	63.30 2.490	69.50 2.746	68.30 2.695	5-179010-7
180	71.30 2.803	77.50 3.053	76.30 3.000	5-179010-8
200	79.30 3.118	85.50 3.378	84.30 3.315	5-179010-9

The Americas

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Barcelona, Spain
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FAX: 34-3-201-7879

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FAX: 358-0-547-2230

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AMP of Great Britain, Ltd.

Stanmore
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FAX: 44-81-854-8234

AMP-Holland B.V.

's-Hertogenbosch
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FAX: 31-73-21-2365

AMP-Hungary Mgt. Co. Ltd.

Esztarom, Hungary
Phone: 36-333-15311
FAX: 36-333-15367

AMP Ireland, Ltd.

Dublin, Ireland
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FAX: 353-1-52-7885

AMP Italia S.p.A.

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Phone: 39-11-401-2111
FAX: 39-11-403-1118

AMP Norge AS

Rud (Oslo), Norway
Phone: 47-67-135-080
FAX: 47-67-138-898

AMP Österreich m.b.H.

Wien (Vienna), Austria
Phone: 43-1-277-97-0
FAX: 43-1-270-2881

AMP Portugal, Ltd.

Lisbon, Portugal
Phone: 351-1-387-7016
FAX: 351-1-387-7172

AMP Sweden AB

Stockholm Jakobaberg
Sweden
Phone: 46-8-580-833-00
FAX: 46-8-580-194-70

AMP (Schweiz) A.G.

Steinach, Switzerland
Phone: 41-7-147-0707
FAX: 41-7-147-0347

Wholly Owned Companies

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Phone: 617-270-5566
FAX: 617-270-5575

AMP Packaging Systems

Austin, TX, U.S.A.
Phone: 512-244-5100
FAX: 512-244-5109

Carroll Touch Inc.

Round Rock, TX, U.S.A.
Phone: 512-244-3500
FAX: 512-244-7040

Carroll Touch International

Japan Branch
Tokyo 180, Japan
Phone: 81-3-345-8231

Connectware, Inc.

Richardson, TX, U.S.A.
Phone: 214-907-1093
FAX: 214-907-1594

Kaptron, Inc.

Palo Alto, CA, U.S.A.
Phone: 415-493-8008
FAX: 415-493-8824

Matrix Science Corp.

Torrance, CA, U.S.A.
Phone: 310-328-0271
FAX: 310-328-8806

Microwave Signal, Inc.

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FAX: 301-540-8512

Precision Interconnect Corporation

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FAX: 503-620-7131

Raylen Corporation

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Asia/Pacific

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Insert 5-2: Product Specification for 6330 Micro Design-in Module

Insert 5-3: Drawing, 6330 Micro Design-in Module

Product Specification and Drawing of 6330 Micro Design-in Module are included in the following pages.

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