

# Instructions



## **P6434** **Mass Termination Probe** **070-9793-02**

There are no current European directives that apply to this product. This product provides cable and test lead connections to a test object of electronic measuring and test equipment.

### **Warning**

The servicing instructions are for use by qualified personnel only. To avoid personal injury, do not perform any servicing unless you are qualified to do so. Refer to all safety summaries prior to performing service.

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In order to obtain service under this warranty, Customer must notify Tektronix of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. Customer shall be responsible for packaging and shipping the defective product to the service center designated by Tektronix, with shipping charges prepaid. Tektronix shall pay for the return of the product to Customer if the shipment is to a location within the country in which the Tektronix service center is located. Customer shall be responsible for paying all shipping charges, duties, taxes, and any other charges for products returned to any other locations.

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# General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazards, use this product only as specified.

*Only qualified personnel should perform service procedures.*

While using this product, you may need to access other parts of the system. Read the *General Safety Summary* in other system manuals for warnings and cautions related to operating the system.

## To Avoid Fire or Personal Injury

**Connect and Disconnect Properly.** Do not connect or disconnect probes or test leads while they are connected to a voltage source.

**Observe All Terminal Ratings.** To avoid fire or shock hazard, observe all ratings and markings on the product. Consult the product manual for further ratings information before making connections to the product.

Do not apply a potential to any terminal, including the common terminal, that exceeds the maximum rating of that terminal.

**Use Proper AC Adapter.** Use only the AC adapter specified for this product.

**Do Not Operate Without Covers.** Do not operate this product with covers or panels removed.

**Use Proper Fuse.** Use only the fuse type and rating specified for this product.

**Avoid Exposed Circuitry.** Do not touch exposed connections and components when power is present.

**Do Not Operate With Suspected Failures.** If you suspect there is damage to this product, have it inspected by qualified service personnel.

**Do Not Operate in Wet/Damp Conditions.**

**Do Not Operate in an Explosive Atmosphere.**

**Keep Product Surfaces Clean and Dry.**

**Provide Proper Ventilation.** Refer to the manual's installation instructions for details on installing the product so it has proper ventilation.

## Symbols and Terms

**Terms in this Manual.** These terms may appear in this manual:



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**WARNING.** *Warning statements identify conditions or practices that could result in injury or loss of life.*

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**CAUTION.** *Caution statements identify conditions or practices that could result in damage to this product or other property.*

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**Terms on the Product.** These terms may appear on the product:

**DANGER** indicates an injury hazard immediately accessible as you read the marking.

**WARNING** indicates an injury hazard not immediately accessible as you read the marking.

**CAUTION** indicates a hazard to property including the product.

**Symbols on the Product.** The following symbols may appear on the product:



WARNING  
High Voltage



Protective Ground  
(Earth) Terminal



CAUTION  
Refer to Manual



Double  
Insulated



# Preface

These instructions cover the following topics:

- Operating basics
- Designing an interface between the P6434 probe and a system under test
- Service information
- Replaceable parts list

Information in these instructions assumes your system under test (SUT) is based on a microprocessor. If your SUT is not based on a microprocessor, you should substitute the type of device on which your system is based for “microprocessor” throughout these instructions.

For information on how to connect P6434 Mass Termination Probes to a Tektronix microprocessor support (TMS) probe adapter, refer to the instruction manual for the TMS package.

## Contacting Tektronix

Product Support	For application-oriented questions about a Tektronix measurement product, call toll free in North America: 1-800-TEK-WIDE (1-800-835-9433 ext. 2400) 6:00 a.m. – 5:00 p.m. Pacific time  Or contact us by e-mail: tm_app_supp@tektronix.com  For product support outside of North America, contact your local Tektronix distributor or sales office.
Service Support	Contact your local Tektronix distributor or sales office. Or visit our web site for a listing of worldwide service locations.  www.tektronix.com
For other information	In North America: 1-800-TEK-WIDE (1-800-835-9433) An operator will direct your call.
To write us	Tektronix, Inc. P.O. Box 1000 Wilsonville, OR 97070-1000



# Operating Basics

The P6434 Mass Termination Probe allows you to connect 34 logic analyzer channels to a microprocessor probe adapter or directly to your SUT in one fourth the physical area needed to connect standard probes. The vertical clearance dimension is less than a half inch when used with the Low-Profile Extender.

To connect directly to your SUT, you must include compatible Mictor connectors in your circuit board design. To do this, be sure you understand the requirements and conform to the guidelines for designing an interface in these instructions.

This section contains information on the following topics and tasks:

- Product description
- Applying labels
- Connecting probes to and disconnecting probes from a SUT

## Product Description

The P6434 probe can acquire data from 32 input/output signals and two clock, one clock and one qualifier, or two qualifier signals.

The probe has connectors on each end. One end is called the probe tip and connects to your SUT. The other ends are called the module ends and connect to the logic analyzer. Figure 1 shows the P6434 probe.

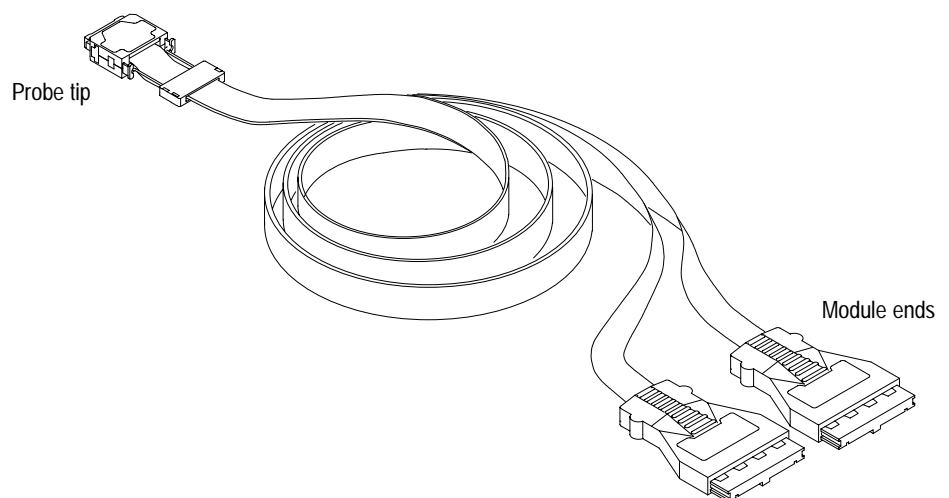


Figure 1: P6434 Mass Termination Probe

## Labels

The P6434 probe is shipped with a sheet of labels. The labels are color coded to match the probe connectors on the logic analyzer and are different shapes for the probe tip and module ends of the probe.

There are two methods you can use to apply labels to the P6434 probe: standard or custom. You need to decide which method to follow prior to applying labels.

If you are using P6434 probes with a TMS probe adapter, be sure to check the TMS instruction manual before applying labels to see which method to use.

### Standard Method

Microprocessor support packages or your SUT signal and channel assignments can follow the standard labeling scheme for P6434 probes. Table 1 shows the standard channel combinations for the probes.

**Table 1: Standard P6434 probe section and label combinations**

Probe	Pin 1 side	Color	Pin 38 side	Color
A	CK:0, A3:7-0, A2:7-0	Tan	CK:1, A1:7-0, A0:7-0	Orange
D	QUAL:0, D3:7-0, D2:7-0	Blue	CK:2, D1:7-0, D0:7-0	Yellow
C	CK:3, C3:7-0, C2:7-0	White	QUAL:1, C1:7-0, C0:7-0	Gray
E	QUAL:3, E3:7-0, E2:7-0	Green	QUAL:2, E1:7-0, E0:7-0	Violet

### Custom Method

With the custom method, the probe labels depend on the logic analyzer module being used or the probe sections assigned to each P6434 probe.

You must attach a pin 1 label to the pin 1 side of the probe and a pin 38 label to the pin 38 side. If necessary, the sheet of labels includes blanks you can use to create your own pin 1 and pin 38 side labels.

### Applying

To apply labels to the probe, follow these steps:

1. Locate the small pin 1 recess on the probe tip and apply a pin 1 label on that side. See Figure 2.
2. For standard labeling as listed in Table 1, apply the associated label to the pin 38 side of the probe tip.

For custom labeling, be careful not to use two labels with the pin 1 indicator or two labels without a pin 1 indicator on a single probe.

3. Match the color of the module end labels to the probe tip labels and apply. The module end labels go on the nonkeyed case half.

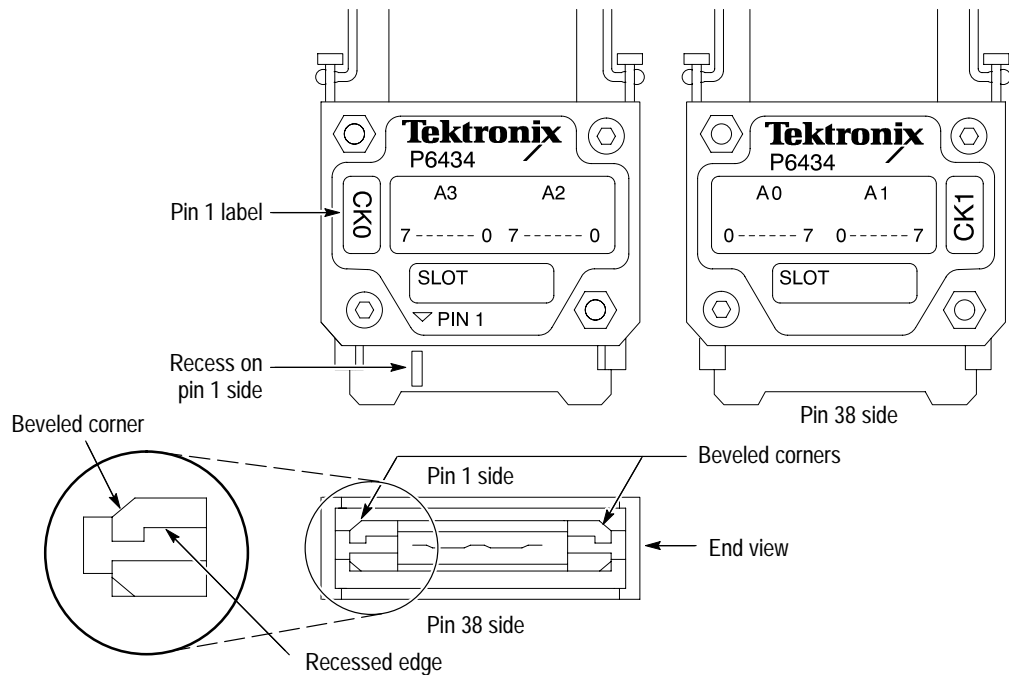


Figure 2: Applying labels

## Connecting the P6434 Probe to the SUT

The P6434 probe can connect to surface-mounted or straddle-mounted Mictor connectors. You can use the Low-Profile Extender (available as an optional accessory) to connect the probe to systems with as little as a half inch of clearance between circuit boards. You can also install optional latch housings around the connector to provide positive retention of the probe.

In the following procedures, a surface-mounted Mictor connector is shown in the figures. These procedures are the same for the straddle-mounted connector.

### Direct Connection

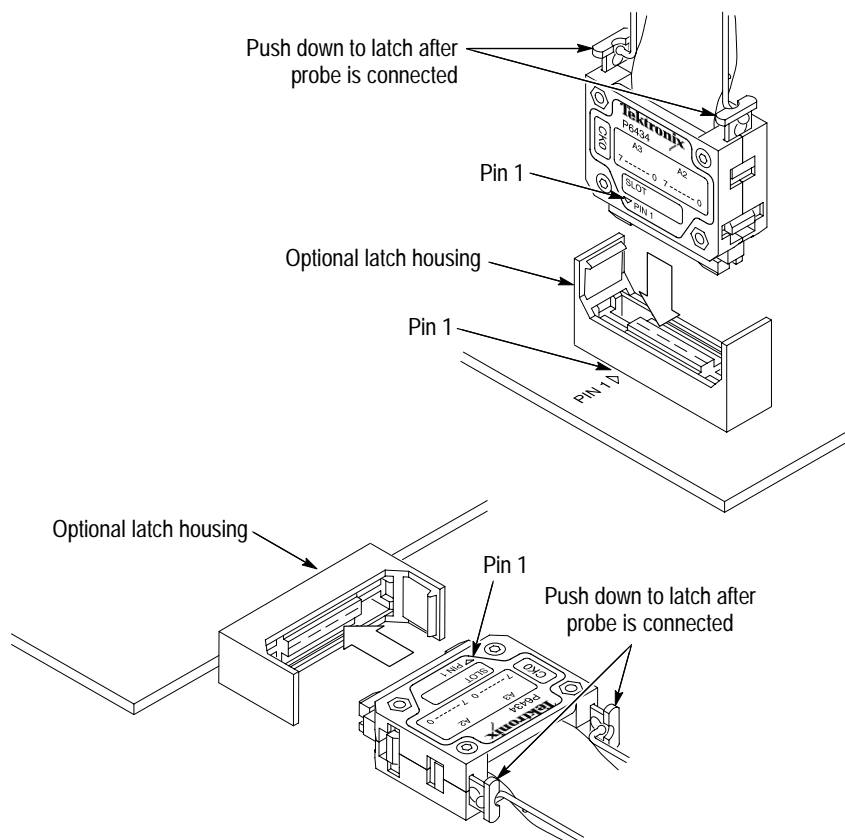
To connect the P6434 probe to a Mictor connector in your SUT (or on a TMS probe adapter), follow these steps:

1. Line up the pin 1 indicator on the probe tip with pin 1 on the connector in your SUT. The Mictor connector is keyed to prevent incorrect connections.



**CAUTION.** To avoid damaging the probe and SUT, always position the probe perpendicular to the mating connector and gently connect the probe. Incorrect handling of the probe while connecting it to the SUT can result in damage to the P6434 probe or to the mating connector in the SUT.

2. Position the probe tip perpendicular to the mating connector, and gently connect the probe as shown in Figure 3.
3. When connected, push down the latch releases on the probe to set the latch.



**Figure 3: Connecting to a surface- or straddle-mounted connector**

4. Connect the module end to the corresponding connector (match label colors) on the logic analyzer module. The module end is keyed.

### Low-Profile Extender Connection

You can use the Low-Profile Extender to connect the P6434 probe to systems with as little as a half inch of clearance between circuit boards. The extender connects to Mictor connectors with or without a latch housing.

To connect the probe using the extender, follow these steps:

1. Line up the pin 1 indicator on the low-profile end of the extender with pin 1 on the connector in your SUT. The Mictor connector is keyed to prevent incorrect connections.
2. Position the low-profile end perpendicular to the connector and gently connect the extender as shown in Figure 4.
3. To connect the P6434 probe to the other end of the extender, follow the *Direct Connection* procedure on page 3.

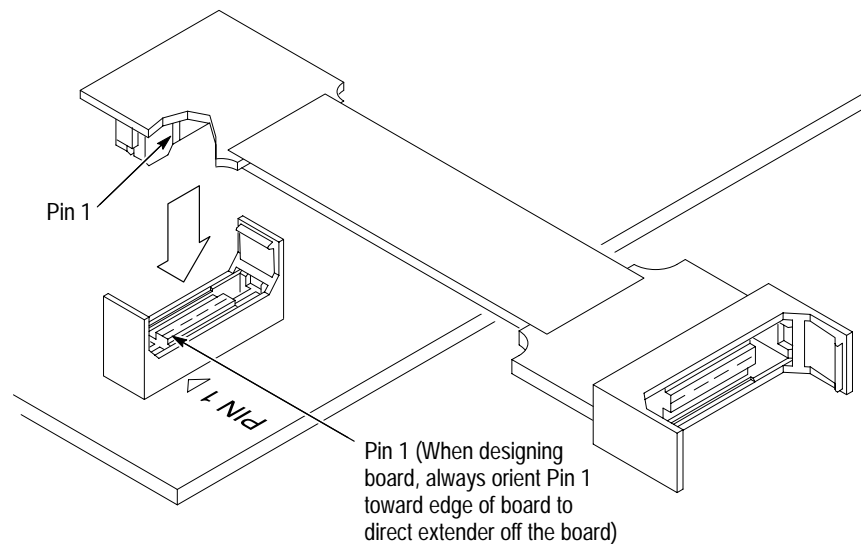


Figure 4: Connecting the Low-Profile Extender

## Disconnecting the P6434 Probe from the SUT

To disconnect the P6434 probe, follow these steps:

1. Gently pull the latch release grip to release the probe tip from the latch housing as shown in Figure 5.

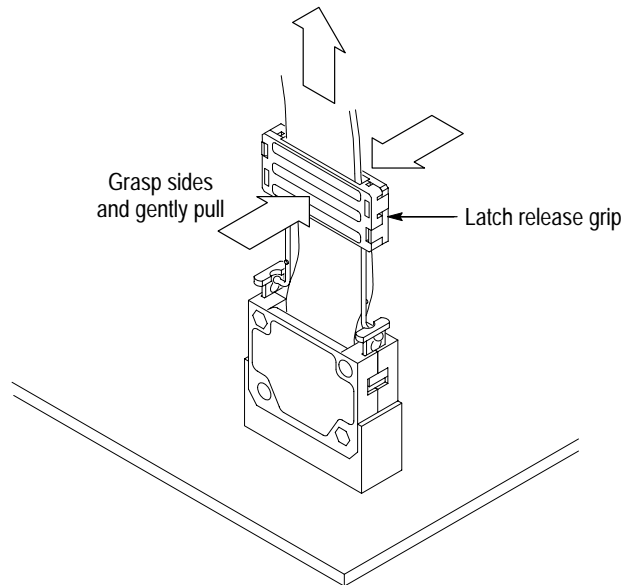


Figure 5: Releasing the probe tip from the latch housing



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**CAUTION.** To avoid damage to the probe and mating connector, hold on to the latch release grip and gently pull the probe straight out of the connector. Do not tilt the probe in any direction when disconnecting it. Tilting the probe can damage the probe and mating connector.

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2. Continue to gently pull the probe tip straight out of the mating connector using the latch release grip.

If you are using an extender, grip the corners of the circuit board end attached to the SUT, and gently pull it straight out of the connector.



# Designing an Interface Between a P6434 Probe and a SUT

This section provides you with some guidelines for designing your own P6434 probe interface on the SUT. The guidelines contain information on the following topics:

- Mictor connectors
- Dimensions and placement of connectors
- Mechanical layout and pinout of connectors
- Probe channel assignments
- Loading and equivalent circuits

## Mictor Connectors and Latch Housings

The P6434 probe contains a 38-pin Mictor connector. Table 2 lists Mictor connectors you can purchase from AMP, Inc., that are compatible with the probe, as well as the compatible latch housings that are available from Tektronix.

**Table 2: Compatible Mictor connectors**

AMP, Inc. part number	Description
767054-1*	Palladium-nickel plated, 0.054 inch long ground pins, surface mount connector (vertical receptacles)
2-767004-2	30 microinches gold plating, 0.054 inch long ground pins, surface mount connector (vertical receptacles)
767044-1*	Palladium-nickel plated, straddle mount connector (0.062 inch circuit board thickness, right-angle receptacles)
Tektronix part number	Description
105-1088-00	Latch housing; straddle mount (0.062 inch circuit board thickness)
105-1089-00	Latch housing; surface mount

\* Recommended

You can contact AMP, Inc. for more detailed information on the Mictor connectors. For the address, refer to the *Replaceable Parts* section.

You can purchase latch housing mechanisms to use with Mictor connectors. The latch housing surrounds the Mictor connector in your SUT and provides positive retention of the P6434 probe.

Figure 6 shows the dimensions of the optional latch housings.

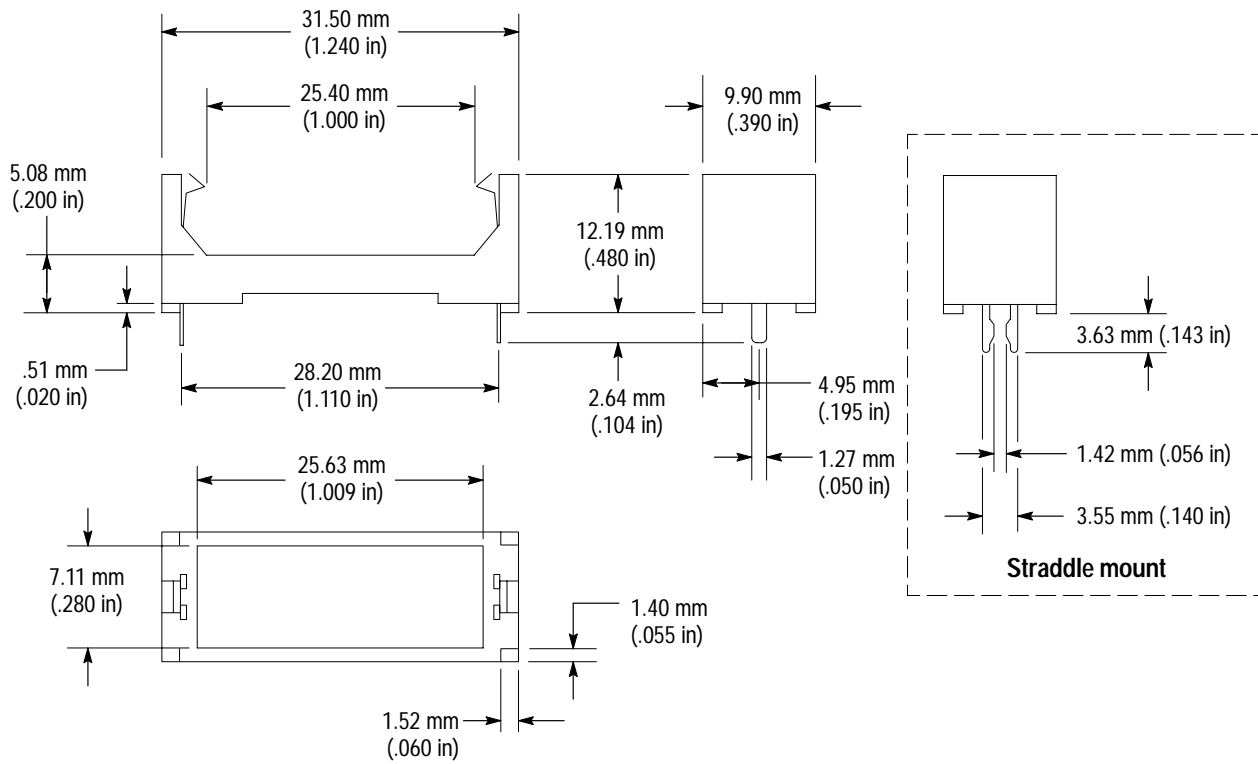


Figure 6: Latch housing dimensions

**NOTE.** Refer to the Standard Accessories list in the Replaceable Parts section for information on ordering surface-mounted or straddle-mounted latch housings.

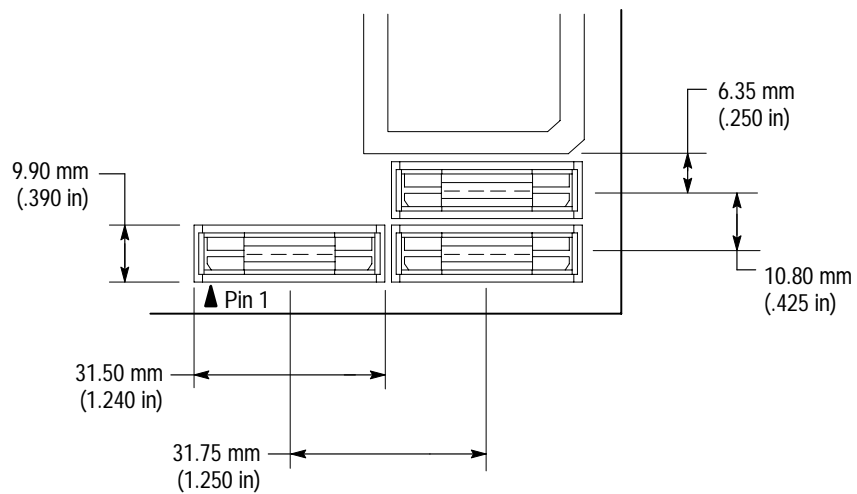
## Dimensions and Placement of Compatible Mictor Connectors

You can use compatible surface-mounted or straddle-mounted Mictor connectors in your circuit board design. The connectors should be placed as close as possible to the device under test.

The placement of Mictor connectors depends on whether you plan to connect the P6434 probe directly to the SUT or use the Low-Profile Extender with the probe.

### Direct Connection

Figure 7 shows the dimensions and minimum placement of surface-mounted connectors on a SUT. The side-to-side dimension between connectors also applies to the straddle-mounted connector.



**Figure 7: Dimensions and placement of a surface-mounted Mictor connector with latch housing**

The vertical clearance dimension for the probe is 1.25 inches. Figure 14 on page 21 shows this dimension.

### Low-Profile Extender Connection

When placing Mictor connectors in your SUT for use with an extender, you need to keep one inch of clear space on the pin 1 side from the center of the Mictor connector in your SUT. The vertical clearance for the one inch of clear space under the extender is 0.2 inches, as shown in Figure 8.

**NOTE.** Be sure to orient pin 1 on the Mictor connector in your SUT to direct the extender off the board as shown in Figure 4.

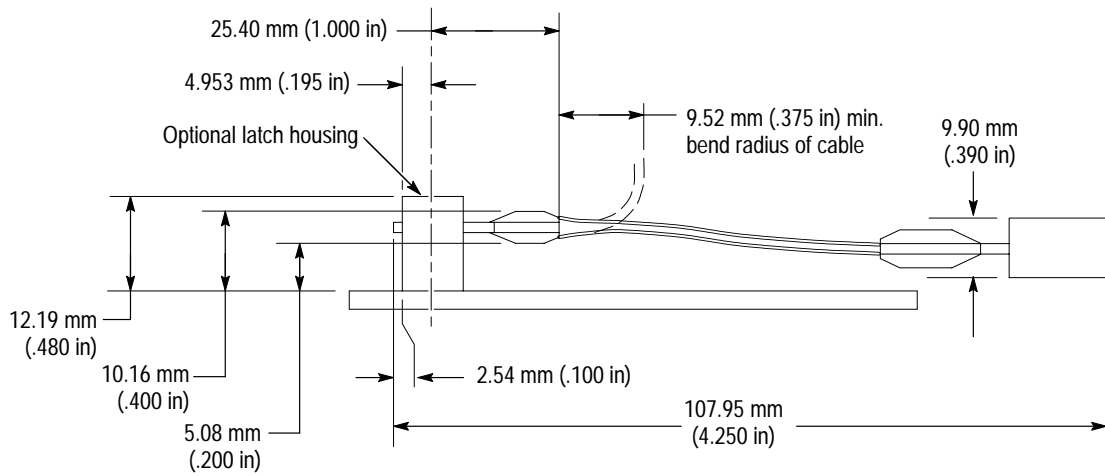


Figure 8: Side view and dimensions of the Low-Profile Extender

## Mechanical Layout and Pin Numbering Sequence of Compatible Mictor Connectors

Each compatible Mictor connector has 43 pins; pins 39 through 43 are grounded. Pins 1, 2, 37, and 38 are open. Figure 9 shows the positions and spacing between the pins, the keyhole, and the latch housing mounting holes of a surface-mounted connector. Figure 11 on page 14 shows the pin assignments.

**NOTE.** Be aware of the difference in the pin numbering sequence between the P6434 probe and the AMP, Inc. Mictor connectors. Figure 11 on page 14 illustrates the differences.

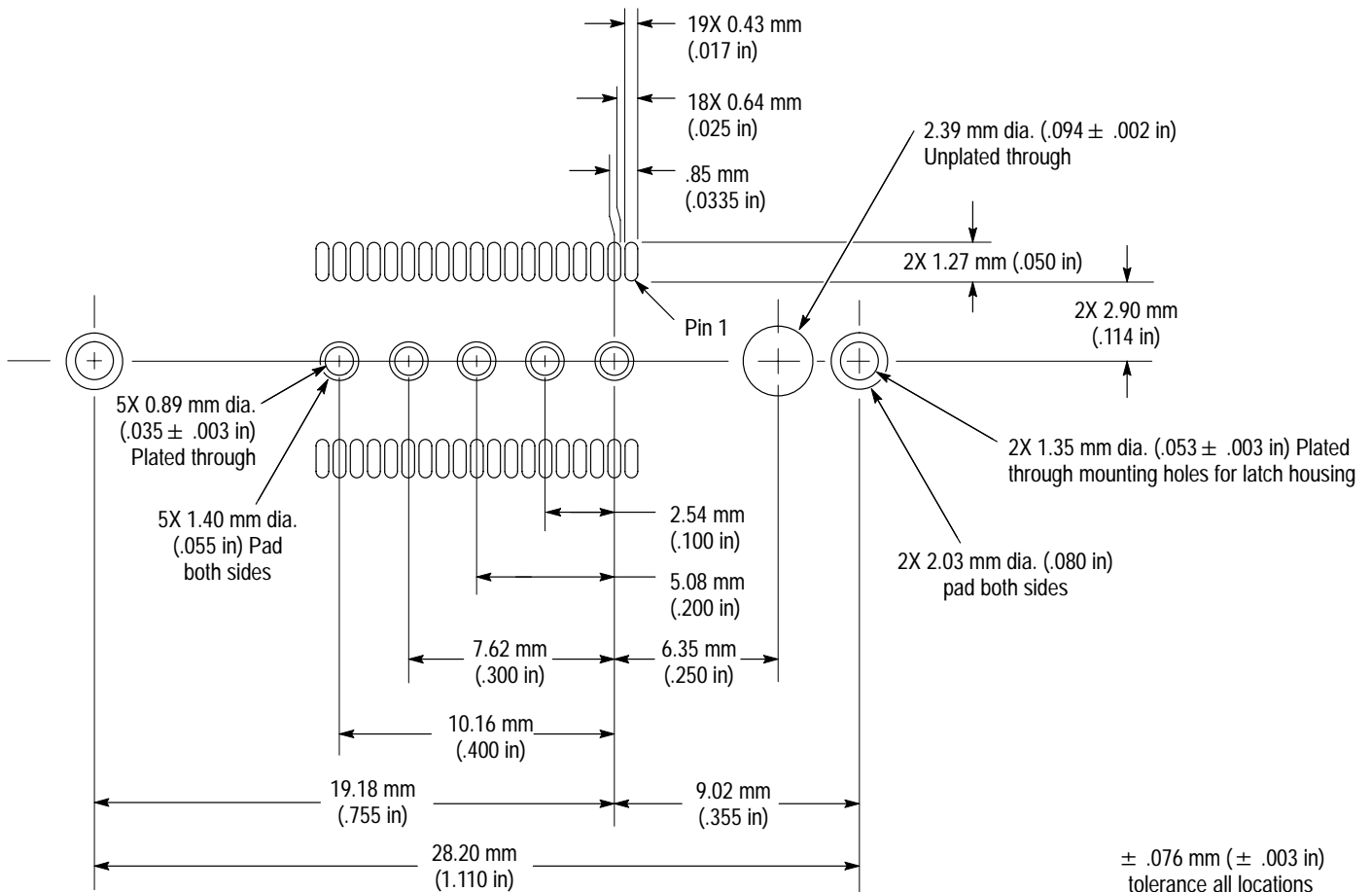


Figure 9: Surface-mounted connector layout (component side)

Figure 10 shows the positions and spacing between the pins and latch housing mounting holes of a straddle-mounted connector.

**NOTE.** The straddle-mounted connector does not have a keyhole. Be sure to position pin 1 correctly when building the SUT to maintain the correct mapping of signals from your SUT to the logic analyzer probe sections and channels.

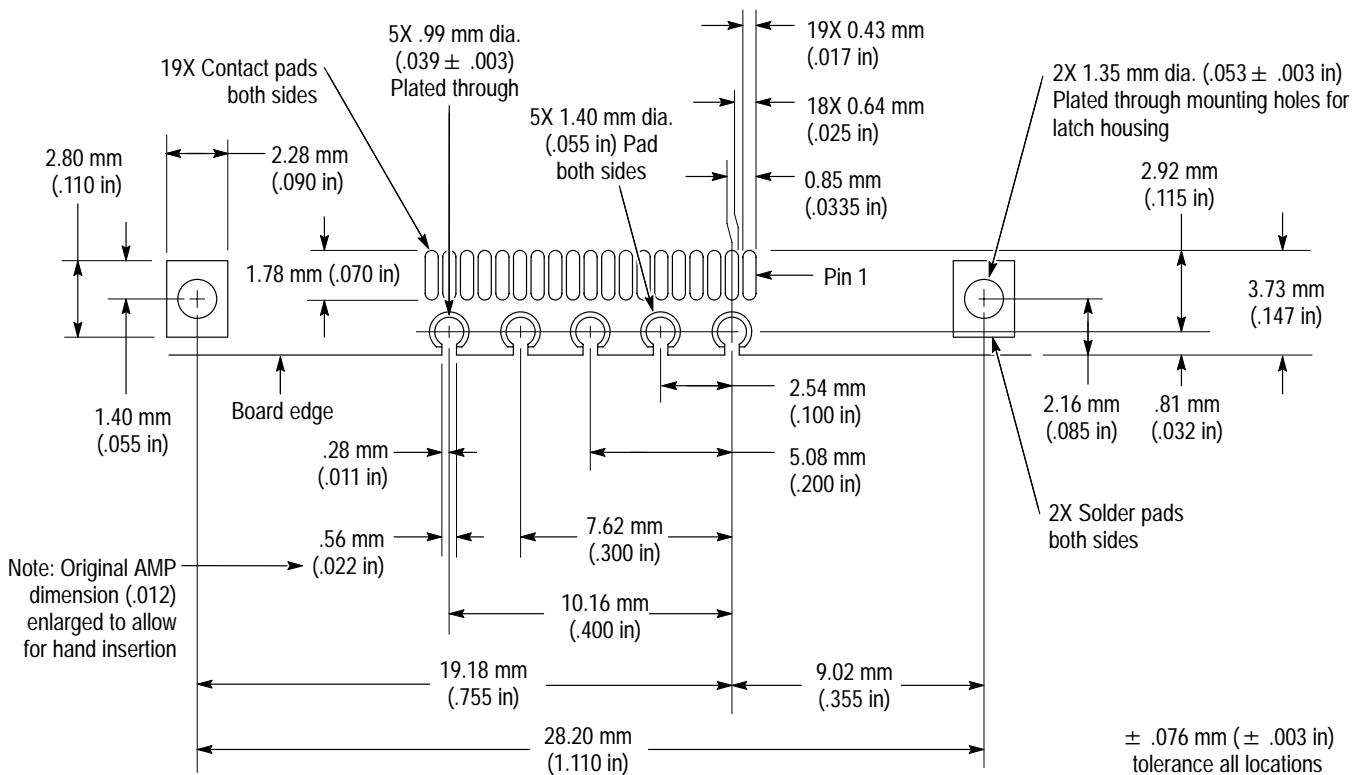


Figure 10: Straddle-mounted connector layout (component side)

Figure 11 shows the pin assignments for the surface-mounted connector. Pin assignments are the same for the straddle-mounted connector. Note the difference between the Tektronix P6434 pinout and the Mictor connector pinout.

Tektronix uses a counterclockwise pin assignment. Pin 1 is located at the top left, and pin 2 is located directly below it. Pin 20 is located on the bottom right, and pin 21 is located directly above it.

AMP, Inc. uses an odd side-even side pin assignment. Pin 1 is located at the top left, and pin 3 is located directly below it. Pin 2 is located on the top right, and pin 4 is located directly below it. Refer to Figure 11 on page 14 for the pin assignments.

**NOTE.** When designing Mictor connectors into your SUT, always verify which pin-numbering sequence your CAD system uses.

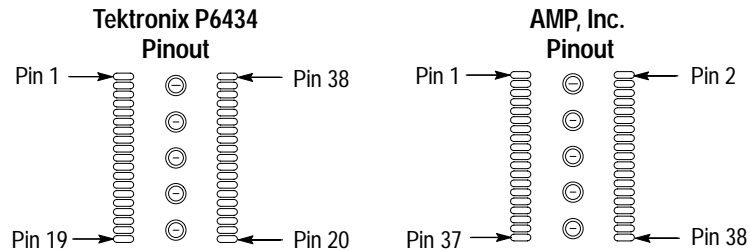


Figure 11: Mictor connector pin numbering sequences (component side)

## Probe Channel Assignments

The 17 channels to which the module end connects on the logic analyzer cannot be changed. When mapping signals from your SUT to channels on the logic analyzer, you must keep the probe section, clock, and/or qualifier channels together as shown in Table 1 on page 2 for each label color.

Each probe connector has 43 pins; pins 39 through 43 are the five ground pins. Pins 1, 2, 37, and 38 are unused, and it is recommended that they be connected to ground.

Tables 3 and 4 show the sections and channels and the P6434 probe pins to which they connect. Tables 3 and 4 also comply with the standard labeling scheme. The Mictor pin numbers are shown for reference only.

Table 3: Pin 1 side probe channel assignments

Tektronix P6434 probe pin number	AMP, Inc. Mictor pin number	Section and channel			
		A probe	C probe	D probe	E probe
3	5	CLK:0	CLK:3	Q0	Q3
4	7	A3:7	C3:7	D3:7	E3:7
5	9	A3:6	C3:6	D3:6	E3:6
6	11	A3:5	C3:5	D3:5	E3:5
7	13	A3:4	C3:4	D3:4	E3:4
8	15	A3:3	C3:3	D3:3	E3:3
9	17	A3:2	C3:2	D3:2	E3:2
10	19	A3:1	C3:1	D3:1	E3:1



Table 3: Pin 1 side probe channel assignments (cont.)

Tektronix P6434 probe pin number	AMP, Inc. Mictor pin number	Section and channel			
		A probe	C probe	D probe	E probe
11	21	A3:0	C3:0	D3:0	E3:0
12	23	A2:7	C2:7	D2:7	E2:7
13	25	A2:6	C2:6	D2:6	E2:6
14	27	A2:5	C2:5	D2:5	E2:5
15	29	A2:4	C2:4	D2:4	E2:4
16	31	A2:3	C2:3	D2:3	E2:3
17	33	A2:2	C2:2	D2:2	E2:2
18	35	A2:1	C2:1	D2:1	E2:1
19	37	A2:0	C2:0	D2:0	E2:0

Table 4: Pin 38 side probe channel assignments

Tektronix P6434 probe pin number	AMP, Inc. Mictor pin number	Section and channel			
		A probe	C probe	D probe	E probe
36	6	CLK:1	Q1	CLK:2	Q2
35	8	A1:7	C1:7	D1:7	E1:7
34	10	A1:6	C1:6	D1:6	E1:6
33	12	A1:5	C1:5	D1:5	E1:5
32	14	A1:4	C1:4	D1:4	E1:4
31	16	A1:3	C1:3	D1:3	E1:3
30	18	A1:2	C1:2	D1:2	E1:2
29	20	A1:1	C1:1	D1:1	E1:1
28	22	A1:0	C1:0	D1:0	E1:0
27	24	A0:7	C0:7	D0:7	E0:7
26	26	A0:6	C0:6	D0:6	E0:6
25	28	A0:5	C0:5	D0:5	E0:5
24	30	A0:4	C0:4	D0:4	E0:4
23	32	A0:3	C0:3	D0:3	E0:3
22	34	A0:2	C0:2	D0:2	E0:2
21	36	A0:1	C0:1	D0:1	E0:1
20	38	A0:0	C0:0	D0:0	E0:0

## Pin 1 Indicator

Be sure to place a pin 1 indicator on your circuit board during design. If you include the latch housing in your design, it will obscure the pin 1 indicator on the Mictor connector. Although the Mictor connector is keyed, you still need to know the location of pin 1 when connecting the P6434 probe.

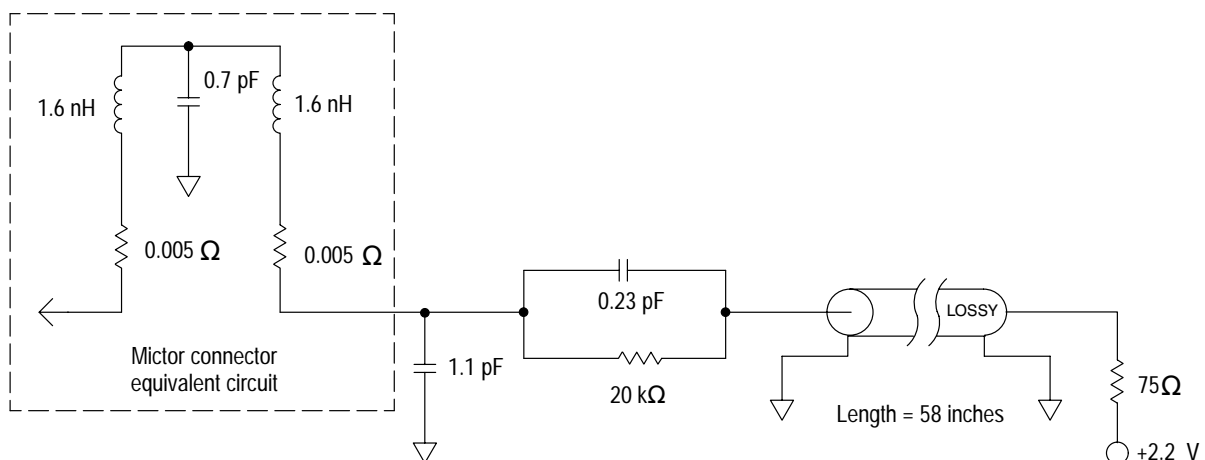
## Loading and Equivalent Circuits

The load presented to the SUT by the P6434 probe is low. The load is equivalent to a 2 pF capacitance with 20 kΩ resistance returned to a 2.2 V supply. The following approximation of the probe loading is sufficient for most circuit simulation calculations.

Figure 12 shows the equivalent circuit of the P6434 probe. Table 5 shows the values you can use to calculate characteristics of the lossy delay lines shown in the next two figures.

**Table 5: Lossy delay line values**

Characteristic	Value
C (capacitance)	1.58 pF per inch
L (inductance)	8.9 nH per inch
R (resistance)	0.067 Ω per inch
Z <sub>0</sub> (impedance)	75 Ω



**Figure 12: Equivalent circuit for the P6434 probe**

The Low-Profile Extender used with the P6434 probe increases the load. The additional load is equivalent to a 100 Ω resistor connected in series with approximately three inches of 75 Ω coaxial cable to the probe tip.

Although the extender can increase the loading significantly, using the extender might be necessary in situations where there is as little as half an inch of clearance.

The extender is useful in a SUT where signal risetimes are greater than one or two nanoseconds. Faster risetimes cause transmission line reflections on signals.

Figure 13 shows the equivalent circuit for the P6434 probe with a Low-Profile Extender.

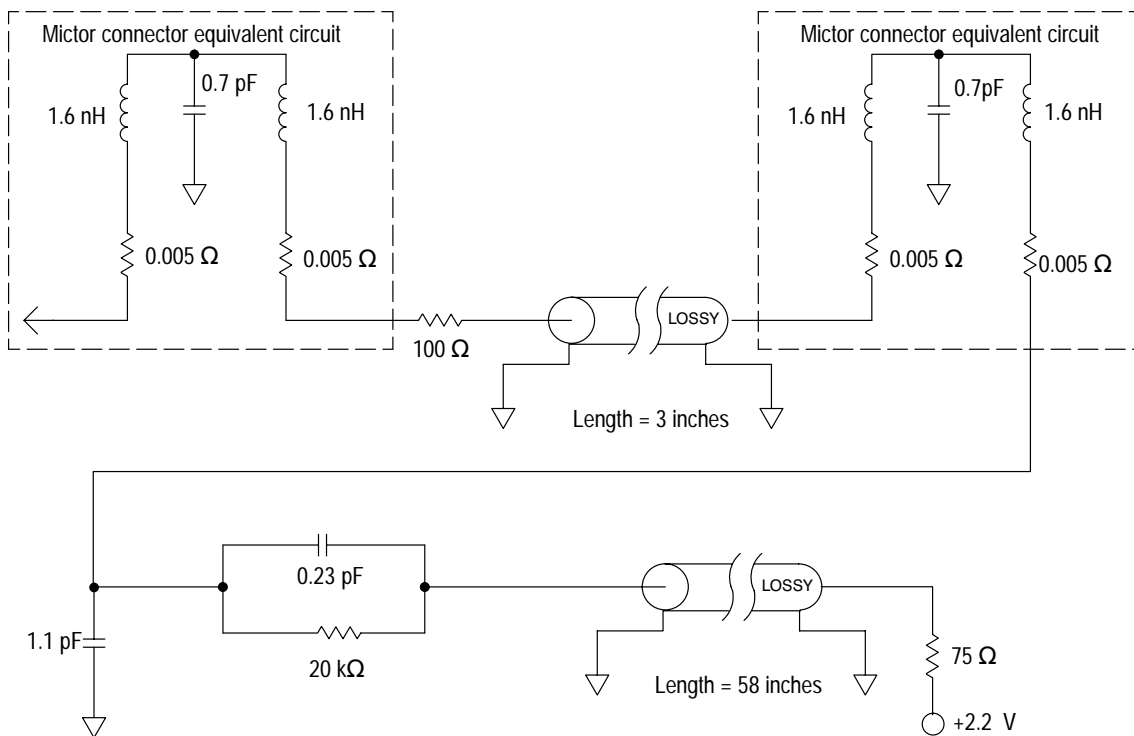


Figure 13: Equivalent circuit for the P6434 probe with a Low-Profile Extender



# Service Information

This section contains information on the following topics and tasks:

- Probe maintenance
- Probe circuit description
- Specifications
- Disassembly and reassembly procedures
- Functional verification procedure

## Maintenance

The P6434 probe does not require scheduled or periodic maintenance. To maintain good electrical contact, keep the probe free of dirt, dust, and contaminants. Also, ensure that any electrically conductive contaminants are removed.

Dirt and dust can usually be removed with a soft brush. For more extensive cleaning, use only a damp cloth. Abrasive cleaners and organic solvents should never be used.



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**CAUTION.** *To prevent damage, service the probe only in a static-free environment. The component devices contained on the P6434 probe are susceptible to static-discharge damage.*

*If the probe is connected to the SUT, grasp the ground connector on the back of the logic analyzer to discharge your stored static electricity. If the probe is not connected, touch the antistatic bag to discharge stored static electricity from the probe.*

*Always wear a grounding wrist strap, or similar device, while servicing the instrument.*

---

If you connect and disconnect the P6434 probe frequently, you should occasionally use a magnifying glass to examine the contact points on both the probe tip and on the mating connector. If contacts have been dislocated from their proper position, you can use a pair of small tweezers (such as a #3 to #5), to carefully move the contacts back into place.

## Circuit Description

The P6434 probe contains 34 sets of signal connections (32 used as data channels and two used as clock or qualifier channels). The probe tip connection is a 38-pin Mictor connector by AMP, Inc. Each signal line has a  $20\text{ k}\Omega \pm 1\%$  resistor (shunted by a  $0.23\text{ pF}$  capacitor) in series with an approximately five foot long section of  $75\ \Omega$  coaxial cable.

## Specifications

These specifications are for a P6434 probe connected between a compatible Tektronix logic analyzer and a SUT. Table 6 shows the electrical requirements of the P6434 probe.

**Table 6: Electrical specifications**

Characteristics	Requirements	
Number of input channels	34 (32 data and 2 clock/qualifier channels)	
Input impedance	$20\text{ k}\Omega \pm 1\%$ in parallel with $2\text{ pF} \pm 0.2\text{ pF}$	
Threshold accuracy	$\pm 100\text{ mV}$	
Channel-to-channel skew	<150 ps	
Delay time from probe tip to module end	7.33 ns (The approximate length of the probe is 1.6 m or 62 in.)	
Max. operating swing time	8 V peak-to-peak	
Probe overdrive	The greater of $\pm 300\text{ mV}$ or $\pm 25\%$ of signal swing	
Max. nondestructive input signal to probe	$\pm 15\text{ V}$	
Max. sync clock rate	200 MHz in full speed mode (5 ns between active clock edges)	
Min. sampling period	4 ns (0.5 ns w/MagniVu)	
Measured typical signal loading*	<b>AC load</b>	<b>DC load</b>
	$\approx 2\text{ pF}$	$\approx 20\text{ k}\Omega^*$

\* The  $20\text{ k}\Omega$  resistor is returned to +2.2 V.

Table 7 shows the environmental specifications.

**Table 7: Environmental specifications\***

Characteristic	Description
Temperature	
Maximum operating	+50° C (+122° F)†
Minimum operating	0° C (+32° F)
Non-operating	-55° C to +75° C (-67° F to +167° F)
Humidity	10 to 95% relative humidity
Altitude	
Operating	4.5 km (15,000 ft) maximum
Non-operating	15 km (50,000 ft) maximum
Electrostatic immunity	The probe is not static sensitive

\* **Designed to meet Tektronix standard 062-2847-00 class 5.**

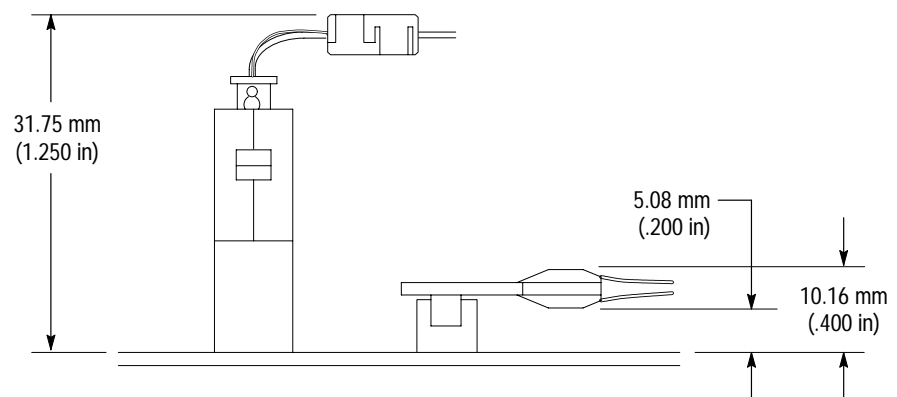
† **Not to exceed SUT thermal considerations. Forced air cooling might be required.**

Table 8 shows the certifications and compliances that apply to the P6434 probe.

**Table 8: Certifications and compliances**

EC Compliance	There are no current European Directives that apply to this product.
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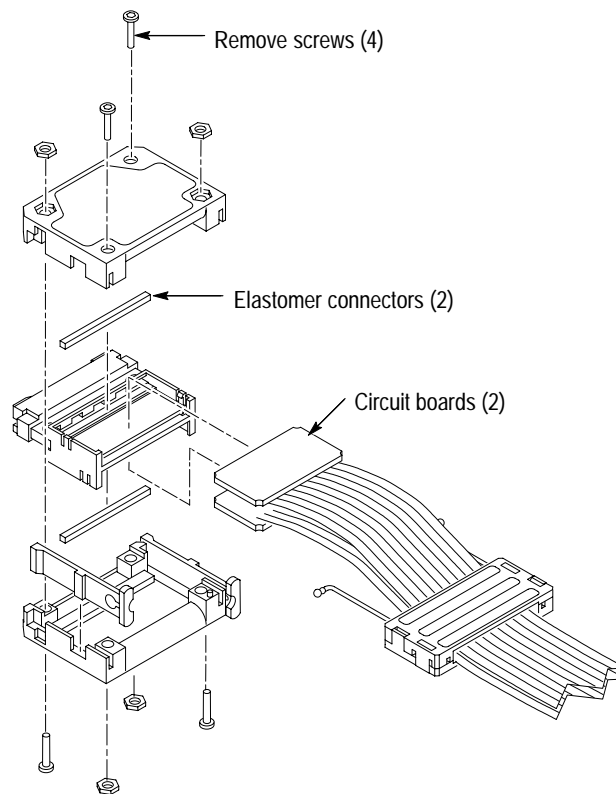
Figure 14 shows the vertical dimensions of the P6434 probe and Low-Profile Extender.

**Figure 14: Vertical dimensions of the P6434 probe and Low-Profile Extender**

## Disassembling the Probe

The following procedures describe disassembling the P6434 probe. If you are installing the connector parts replacement kit, follow the *Probe Tip* procedures on pages 22 and 25. If you are installing either of the cable replacement kits, you must also perform the *Latch Release Grip* and *Module End* procedures.

**Probe Tip** To disassemble the probe tip, follow these steps (refer to Figure 15 as a guide):



**Figure 15: Disassembling the P6434 probe tip**

1. Remove the four screws from the outside of the probe case using a .050 inch hexagonal screwdriver, and open the case halves.
2. Gently remove the two small circuit boards and cables from the plastic holder. The small circuit boards are held in place by two tab features in the plastic holder.

The circuit boards hold the elastomer connectors (which are very small) in place. When you remove the circuit boards, the elastomer connectors may fall out of the probe.





**CAUTION.** To prevent damage to the elastomer, use tweezers and handle the elastomer connectors on the flat areas adjacent to the gold plated contact pads. The elastomer connectors are very small and are susceptible to contamination by natural skin oils and mishandling.

3. Using tweezers on the flat areas adjacent to the gold plated contact pads, remove the elastomer connectors. See Figure 19 on page 26.
4. If you are installing either the pin 1 or pin 38 cable kit, follow the *Latch Release Grip* and *Module End* disassembly procedures on pages 23 and 24.
5. If you are only installing the connector parts replacement kit, follow the *Probe Tip* procedure on page 25.

### Latch Release Grip

To disassemble the latch release grip, follow these steps:

1. Use two small, flat-bladed screwdrivers in the slots opposite the tabs on each side of the grip as shown in Figure 16.
2. With thumbs placed lightly on the tabs to be released, pry the grip open by carefully levering the screwdrivers down. Do not overstress the tabs beyond deflection required to release the tabs.

When you open the latch release grip, the latch release cord comes out of the grip, thereby detaching the grip from the latch release on the probe.

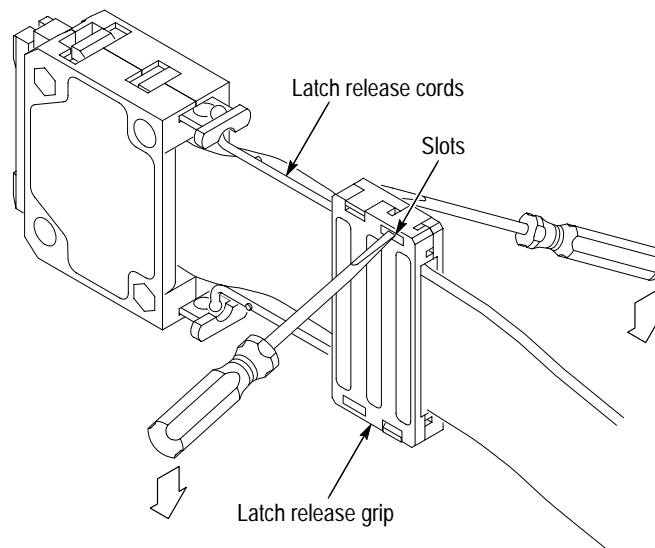
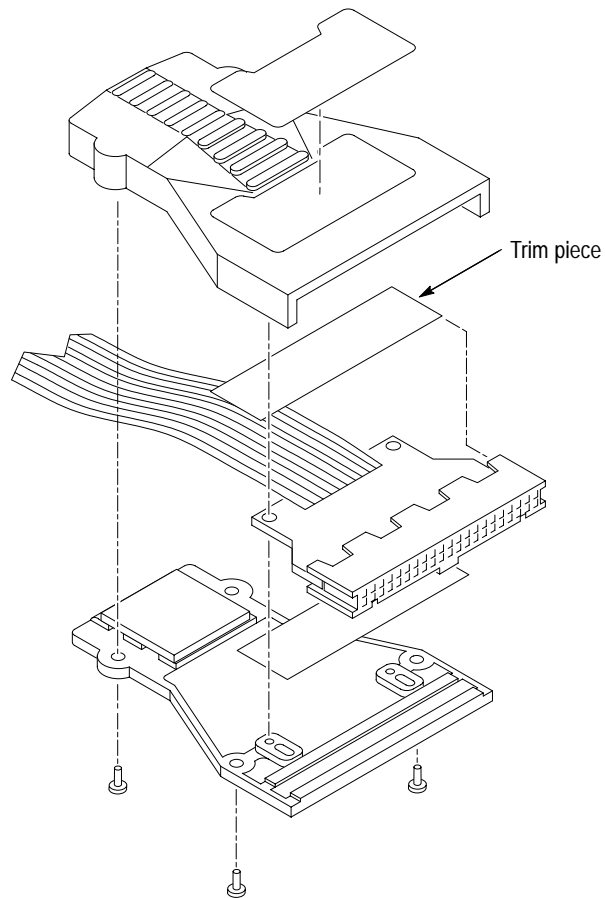


Figure 16: Disassembling the latch release grip

**Module End**

To disassemble the module end of the probe, refer to Figure 17 and follow these steps:

1. On the module end, remove the four screws from the outside of the connector housing using a .050 inch hexagonal screwdriver, and open the housing.
2. Remove the pin 1 and pin 38 cables with connectors attached.
3. Remove the trim pieces from the connector housing.



**Figure 17: Disassembling the module end**

## Reassembling the Probe

Use the following procedures to reassemble the P6434 probe.

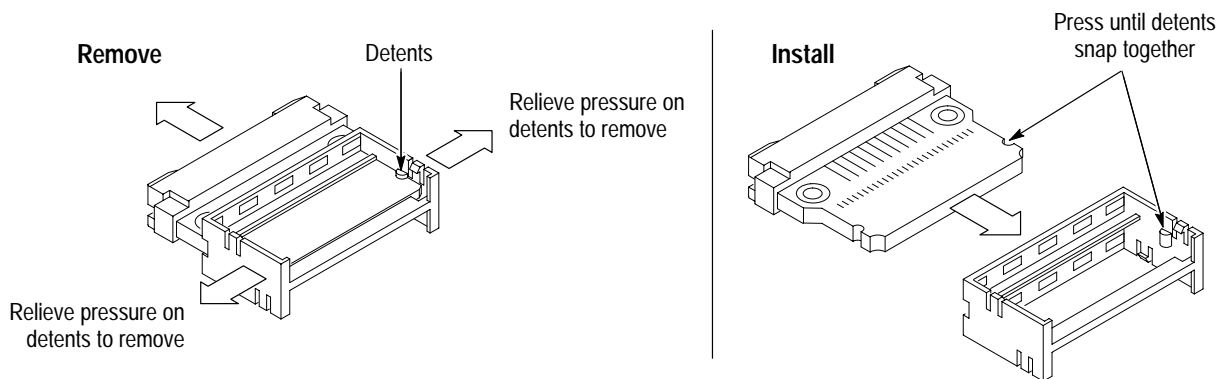
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**NOTE.** When reassembling the probe, you must use both the new board holder and both elastomer connectors included with the service kit. These components have design improvements that must be replaced as a set.

---

**Probe Tip** To reassemble the probe tip, refer to Figure 18 and follow these steps:

1. If you are reusing the Mictor connector circuit board, remove the old board holder.
2. Install the Mictor connector circuit board into the new board holder.



**Figure 18: Mictor connector circuit board and board holder**

3. Lay the Mictor board assembly on a flat surface with the pin 1 side of the connector facing up. See Figure 20 for the correct orientation.

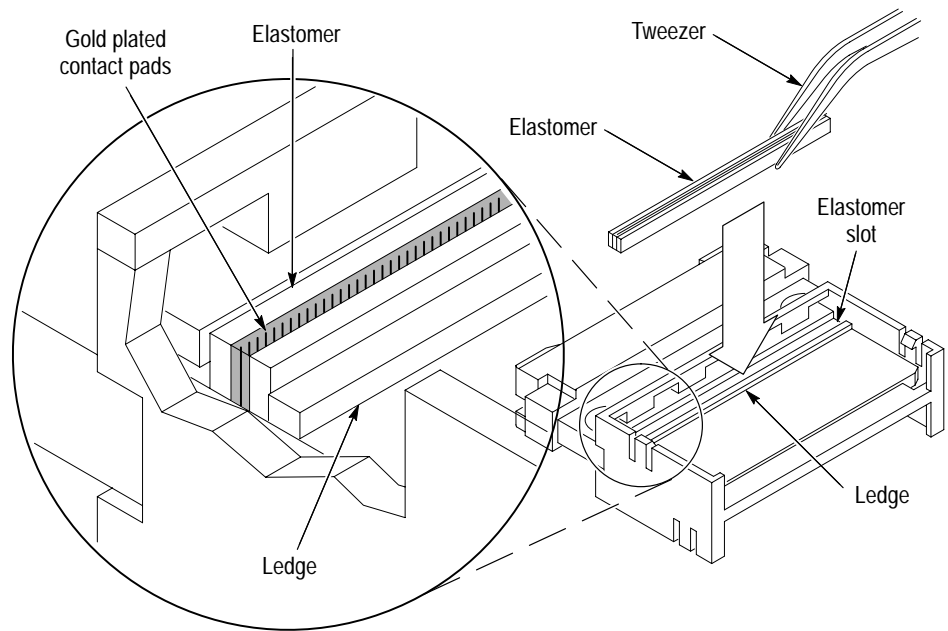



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**CAUTION.** To prevent damage to the elastomer, use tweezers and handle the elastomer connectors on the flat areas adjacent to the gold plated contact pads. The elastomer connectors are very small and are susceptible to contamination by natural skin oils and mishandling.

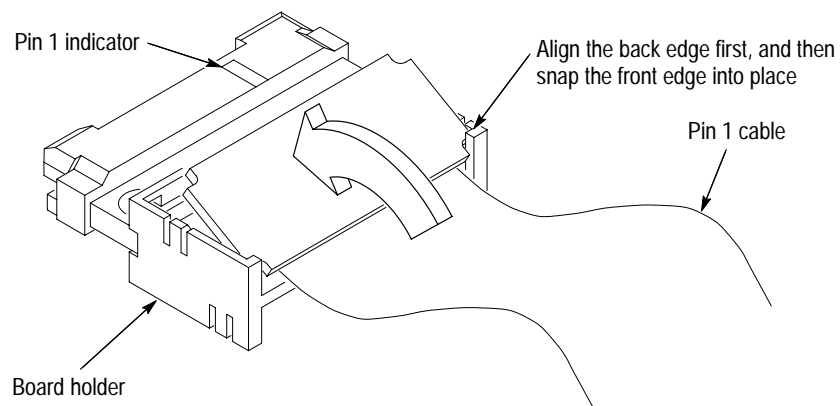
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4. Using tweezers on the flat areas on both sides of the gold plated contact pads, carefully orient the elastomer connector, and place it in the elastomer slot in the board holder as shown in Figure 19.



**Figure 19: Positioning the elastomer connector**

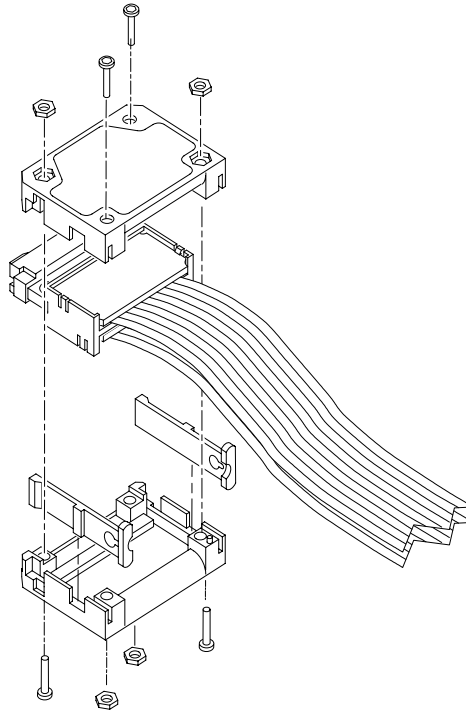
5. Place the circuit board attached to the pin 1 cable into the back (cable side) of the board holder as shown in Figure 20.
6. Press the front (connector side) of the circuit board attached to the cable down until it snaps into place in the board holder.



**Figure 20: Positioning the circuit board in the probe**

7. Turn the probe over and repeat steps 4 through 6 for the pin 38 side of the probe.

8. Position a latch release on each side of the case half. See Figure 21.



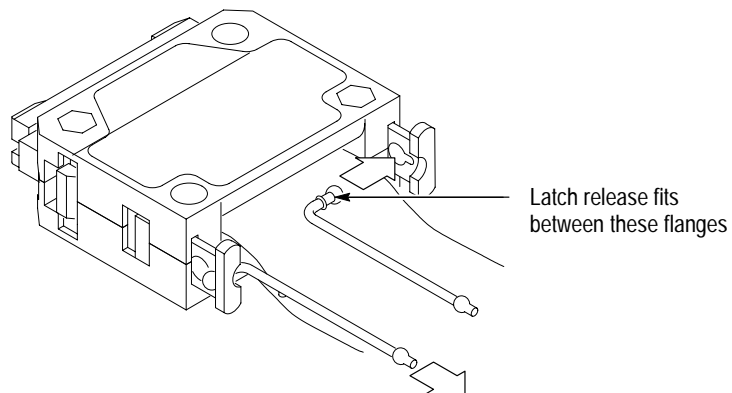
**Figure 21: Reattaching the latch releases and case halves**

9. Align the pin 1 case half with the pin 1 side of the connector, attach the case halves, and reconnect the screws as shown in Figure 21.

### **Latch Release Grip**

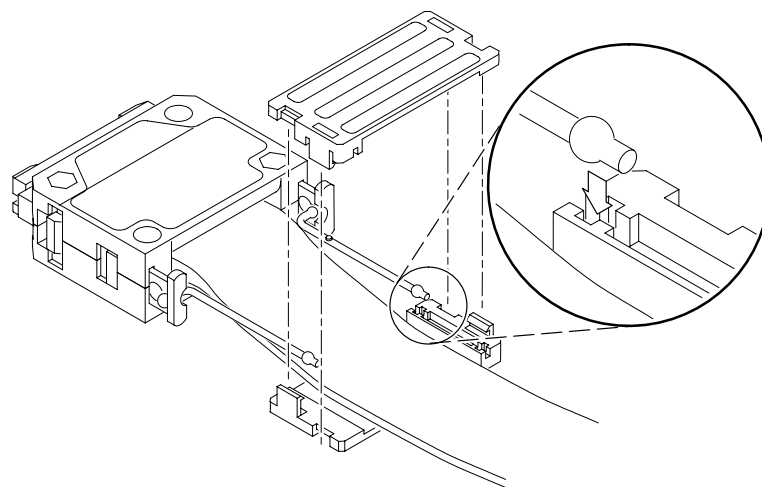
To reassemble the latch release grip, follow these steps:

1. Place the latch release cords into the latch releases as shown in Figure 22.
2. Push the latch release downward to force the latch release cord to snap through the slot and into the small hole.



**Figure 22: Reattaching the latch release cords to the latch releases**

3. Place the other end of the latch release cords into the latch release grip and reconnect the latch release grip as shown in Figure 23.



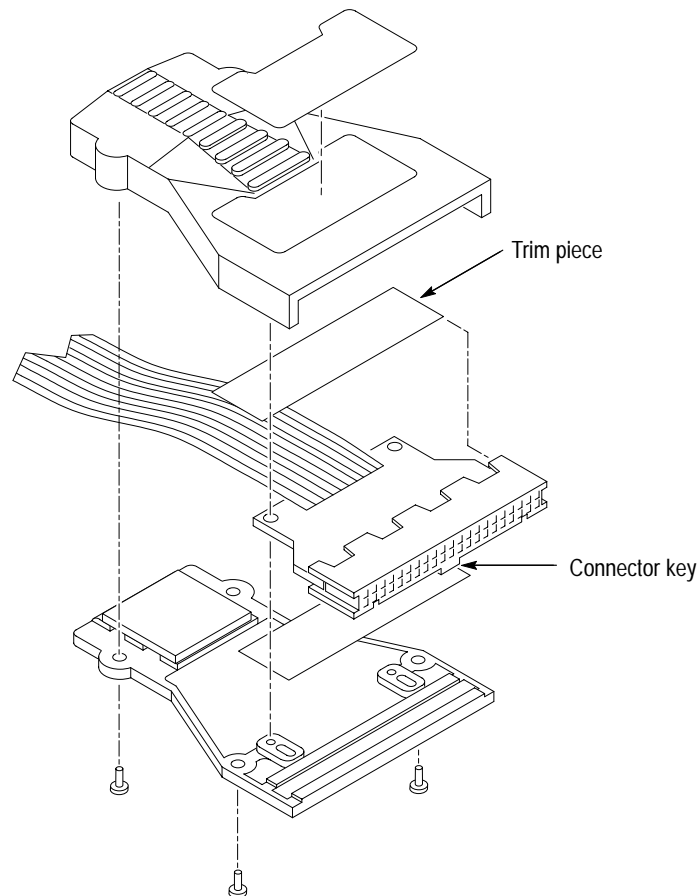
**Figure 23: Reconnecting the latch release cords to the latch release grip**

4. You may need to reapply labels. Refer to the description of *Labels* on page 2 for information on how to apply labels.

**Module End**

To reassemble the module end of the probe, follow these steps:

1. If you are installing either the pin 1 or pin 38 cable kit, follow the procedure to reassemble the probe tip.
2. On the module end, position the trim pieces in the connector housing as shown in Figure 24.



**Figure 24: Reassembling the module end**

3. Orient the nonkeyed side of the connector to the case half with the label, and position the connector in the case halves.
4. Attach the case halves and reconnect the screws as shown in Figure 24.
5. You may need to reapply labels. Refer to the description of *Labels* on page 2 for information on how to apply labels.

## Functional Verification

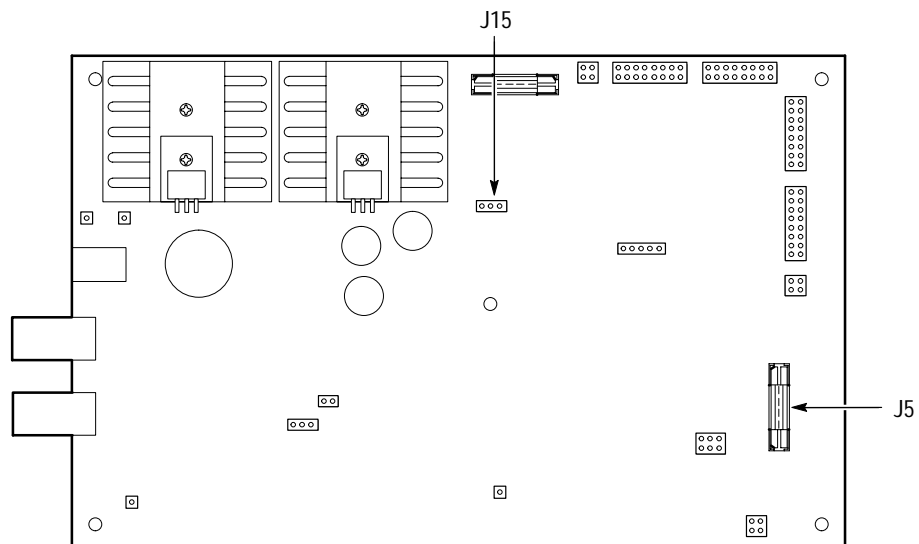
This procedure checks the basic functionality of the probe by verifying that the probes recognize signal activity at the probe tips. No calibration is necessary.

The functional verification procedure for the P6434 probe requires the following test equipment:

- Adjustment and verification test fixture, part number 671-3599-00
- Power supply for the test fixture (refer to the *Optional Accessories* list in the *Replaceable Parts* section for part number information)
- Logic analyzer mainframe
- Logic analyzer module

To perform the functional verification procedure, follow these steps:

1. Connect the module ends of the P6434 probe to the logic analyzer module.
2. Connect the probe tip to J5 on the the test fixture as shown in Figure 25.



**Figure 25: Jumper and connector locations on the test fixture**

3. Place J15 in the INT position to select the internal 50 MHz clock.
4. Connect the power adapter to the test fixture and power on the test fixture.
5. Power on the logic analyzer.
6. Verify that the logic analyzer passes the power-on diagnostics.



7. Go to the Setup menu for the logic analyzer module to which the probes are connected.
8. Click the Set Thresholds button to display the threshold settings. Set the threshold for all channels to be 0.7 volts and close the Probes Threshold dialog box.
9. Click the Show Activity button to display the Activity Indicator dialog box.
10. Verify that the Activity Indicator dialog box shows activity on all probe channels connected to the test fixture.

Figure 26 shows an example of the Activity Indicator dialog box. Note the signal activity for the clock, qualifier and data channels for the C3, C2, C1, and C0 probe sections. Also note that there is no activity on other probe sections because the probes are not connected to a signal source. (The channels are all high.)

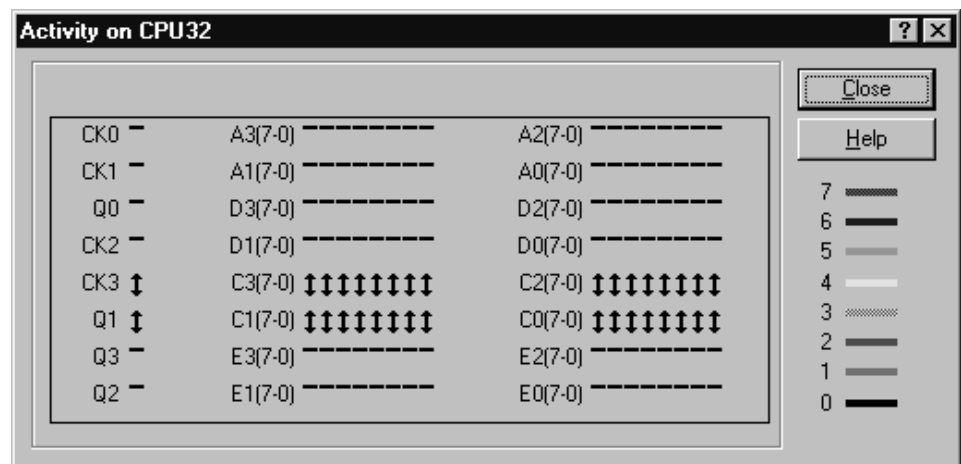


Figure 26: Example of the Activity Indicator dialog box

11. Verify that none of the connected channels are stuck high or stuck low.
12. Repeat this procedure for additional probes.

This completes the functional verification.



# Replaceable Parts

This chapter contains a list of the replaceable components for the P6434 Probe. Use this list to identify and order replacement parts.

## Parts Ordering Information

Replacement parts are available through your local Tektronix field office or representative.

Changes to Tektronix products are sometimes made to accommodate improved components as they become available and to give you the benefit of the latest improvements. Therefore, when ordering parts, it is important to include the following information in your order:

- Part number
- Instrument type or model number
- Instrument serial number
- Instrument modification number, if applicable

If you order a part that has been replaced with a different or improved part, your local Tektronix field office or representative will contact you concerning any change in part number.

## Using the Replaceable Parts List

The tabular information in the Replaceable Parts List is arranged for quick retrieval. Understanding the structure and features of the list will help you find all of the information you need for ordering replacement parts. The following table describes the content of each column in the parts list.

**Parts list column descriptions**

Column	Column name	Description
1	Figure & index number	Items in this section are referenced by figure and index numbers to the exploded view illustrations that follow.
2	Tektronix part number	Use this part number when ordering replacement parts from Tektronix.
3 and 4	Serial number	Column three indicates the serial number at which the part was first effective. Column four indicates the serial number at which the part was discontinued. No entries indicates the part is good for all serial numbers.
5	Qty	This indicates the quantity of parts used.
6	Name & description	An item name is separated from the description by a colon (:). Because of space limitations, an item name may sometimes appear as incomplete. Use the U.S. Federal Catalog handbook H6-1 for further item name identification.
7	Mfr. code	This indicates the code of the actual manufacturer of the part.
8	Mfr. part number	This indicates the actual manufacturer's or vendor's part number.

**Abbreviations**      Abbreviations conform to American National Standard ANSI Y1.1-1972.

**Chassis Parts**      Chassis-mounted parts and cable assemblies are located at the end of the Replaceable Electrical Parts List.

**Mfr. Code to Manufacturer Cross Index**      The table titled Manufacturers Cross Index shows codes, names, and addresses of manufacturers or vendors of components listed in the parts list.

## Manufacturers cross index

Mfr. code	Manufacturer	Address	City, state, zip code
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR PO BOX 500	BEAVERTON, OR 97077-0001
00779	AMP INC.	CUSTOMER SERVICE DEPT PO BOX 3608	HARRISBURG, PA 17105-3608
0GV90	GLOBTEK INC	186 VETERANS DRIVE	NORTHVALE, NJ 07647-2303
60381	PRECISION INTERCONNECT CORP.	16640 SW 72ND AVE	PORTLAND, OR 97224

## Replaceable parts list

Fig. & index number	Tektronix part number	Serial no. effective	Serial no. discont'd	Qty	Name & description	Mfr. code	Mfr. part number
25-0	010-6434-01			1	PROBE; P6434 MASS TERMINATION; 34 CHANNEL	80009	010-6434-01
	118-9479-00			1	SERVICE KIT; MECHANICAL PARTS INCLUDES:	80009	118-9479-00
-1				1	LABEL SHEET; PROBE TIP AND MODULE ENDS, P6434		
-2				4	SCREWS, #1-72 x 0.375 BUTTON HEAD		
-3				4	NUTS, #1-72 HEX		
-4				2	PROBE TIP CASE HALVES		
-9				2	PULL GRIP HALVES		
-10				1	MODULE END CASE HALF, TOP		
-11				2	TRIM, CONNECTOR HOUSING		
-12				1	MODULE END CASE HALF, BOTTOM		
-13				4	SCREWS, #2-56 x 0.187 BUTTON HEAD		
-14				2	PULL CORDS		
-15				2	LATCH RELEASES		
	118-9477-01			1	SERVICE KIT; CABLE PARTS; PIN 1 SIDE INCLUDES:	80009	118-9477-01
-5				2	ELASTOMER CONNECTORS		
-6				1	BOARD HOLDER; MOLDED		
-7				1	PIN 1 SIDE CABLE WITH CIRCUIT BOARD		
-9				2	PULL GRIP HALVES		
-14				2	PULL CORDS		
				1	KIT INSTRUCTIONS		
	118-9487-01			1	SERVICE KIT; CABLE PARTS; PIN 38 SIDE INCLUDES:	80009	118-9487-01
-5				2	ELASTOMER CONNECTORS		
-6				1	BOARD HOLDER; MOLDED		
-8				1	PIN 38 SIDE CABLE WITH CIRCUIT BOARD		
-9				2	PULL GRIP HALVES		

## Replaceable Parts

### Replaceable parts list (cont.)

Fig. & index number	Tektronix part number	Serial no. effective	Serial no. discont'd	Qty	Name & description	Mfr. code	Mfr. part number
-14				2	PULL CORDS		
				1	KIT INSTRUCTIONS		
	118-9478-01			1	SERVICE KIT; CONNECTOR PARTS INCLUDES:	80009	118-9478-01
-5				2	ELASTOMER CONNECTORS		
-6				1	BOARD HOLDER; MOLDED		
-16				1	MICTOR CONNECTOR CKT BD W MICTOR CONNECTOR		
				1	KIT INSTRUCTIONS		
					<b>STANDARD ACCESSORIES</b>		
	070-9793-02			1	MANUAL, TECH:INSTRUCTION, P6434 PROBE	80009	070-9793-02
	105-1088-0*			1	LATCH HOUSING; STRADDLE MOUNT (NOT SHOWN)	80009	105-1088-00
	105-1089-0*			1	LATCH HOUSING; SURFACE MOUNT (NOT SHOWN)	80009	105-1089-00
					<b>OPTIONAL ACCESSORIES</b>		
-17	010-0612-00			1	LOW-PROFILE EXTENDER, 4.25 INCH OVERALL	80009	010-0612-00
	671-3599-00			1	TEST FIXTURE (NOT SHOWN)	80009	671-3599-00
	119-4855-00			1	POWER SUPPLY (US):18W,WALL MOUNT,120VAC 60HZ INPUT,12VDC 1.5A OUTPUT,UNREGULATED,183CM CABLE,STR C (NOT SHOWN)	0GV90	WD1E1500C12CP
	119-4856-00			1	POWER SUPPLY (EC):18W,WALL MOUNT,220VAC 50HZ INPUT,12VDC 1.5A OUTPUT,UNREGULATED,183CM CABLE,STR C (NOT SHOWN)	0GV90	WD13E1500C12CP
	119-4859-00			1	POWER SUPPLY (JP):18W,WALL MOUNT,100VAC 60HZ INPUT,12VDC 1.5A INPUT,UNREGULATED,183CM CABLE,STR CO (NOT SHOWN)	0GV90	WD49E1500C12CP

\*Contact your Tektronix representative for pricing of larger quantities of latch housings or Precision Interconnect as listed in the manufacturers cross index.

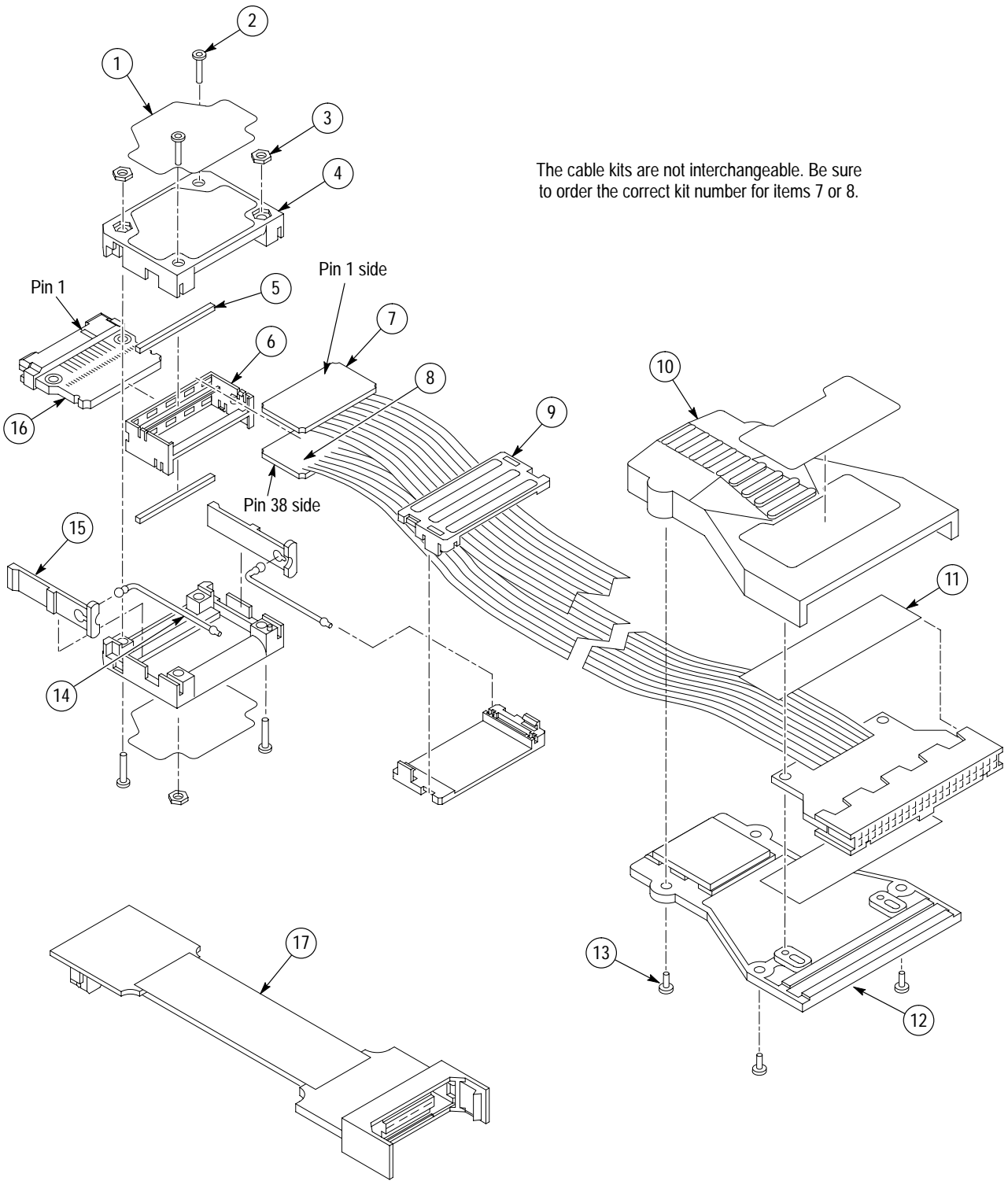


Figure 27: P6434 probe exploded view





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