P6800 Series
Logic Analyzer Probes

Instruction Manual

Tektronix

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For product information, sales, service, and technical support:
- In North America, call 1-800-833-9200.
- Worldwide, visit www.tektronix.com to find contacts in your area.

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[W2 – 15AUG04]

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Preface

This document provides information on using and servicing the P6800 series logic analyzer probes.

Related Documentation

The following table lists related documentation available for your instrument. The documentation is available on the TLA Documentation CD and on the Tektronix Web site www.Tektronix.com/manuals.

For documentation not specified in the table, contact your local Tektronix representative.

Related Documentation

Item	Purpose	Location
TLA Quick Start User Manuals	High-level operational overview	
Online Help	In-depth operation and UI help	?
Installation Quick Reference Cards	High-level installation information	
Installation Manuals	Detailed first-time installation information	
XYZs of Logic Analyzers	Logic analyzer basics	www.Tektronix.com
Declassification and Securities instructions	Data security concerns specific to sanitizing or removing memory devices from Tektronix products	www.Tektronix.com
Application notes	Collection of logic analyzer application specific notes	
Product Specifications & Performance Verification Procedures	TLA Product specifications and performance verification procedures	
TPI.NET Documentation	Detailed information for controlling the logic analyzer using .NET	
Field upgrade kits	Upgrade information for your logic analyzer	
Optional Service Manuals	Self-service documentation for modules and mainframes	

Commonly Used Terms

Refer to the following list of commonly used terms throughout the manual.

Compression Footprint   A connectorless, solderless contact between your PCB and the P6860 and P6880 Probes. Connection is obtained by applying pressure between your PCB and the probe through a Z-axis elastomer.

Differential Input Amplitude Definition   For differential signals, the magnitude of the difference voltage Vmax–Vmin (and Vmin–Vmax) must be greater than or equal to 150 mV. (See Figure i.)

Differential input (150 mV minimum swing each side, –2.5 V maximum)

V $\overline{V}$ max   1.15 V

$V = \overline{V}$
0 V Difference

$\overline{V}$

V min   1 V

Differential equivalent signal input (300 mV swing) as viewed by the logic analyzer and the analog probe output**.

150 mV

* $V_{TH} = 0\,V$ 0 V Difference   0 V

–150 mV
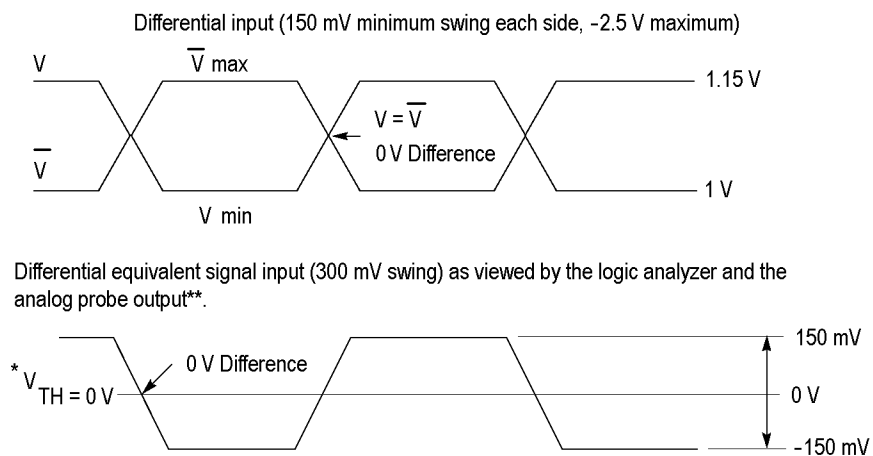
* Note: For differential inputs, the module threshold should be set to 0 V (assuming no common mode error).

** Note: See online help for further analog output details.   0141-001

Figure i: Differential input amplitude

Functional Check Procedure   Functional check procedures verify the basic functionality of the probes by confirming that the probes recognize signal activity at the probe tips.

Keepout Area   The area of the printed circuit board in which only probe components may be mounted.

Module   The unit that plugs into a mainframe which provides instrument capabilities such as logic analysis.

Module End   The end of the probe which plugs into the module unit.

PCB   An acronym for Printed Circuit Board; also known as Etched Circuit Board (ECB).

Podlet   A circuit contained in a flex lead and attached to a probe which provides square-pin connections to the circuit under test for one data acquisition channel and a reference pin.

Podlet Holder   A removable clip that groups eight individual podlets into a single 8-wide P6810 Probe assembly. This provides ease when connecting to a row of 2 x 8 2.54 mm (0.100 in) square pins.

Probe   The device that connects a module with a target system.

Module end

Way station
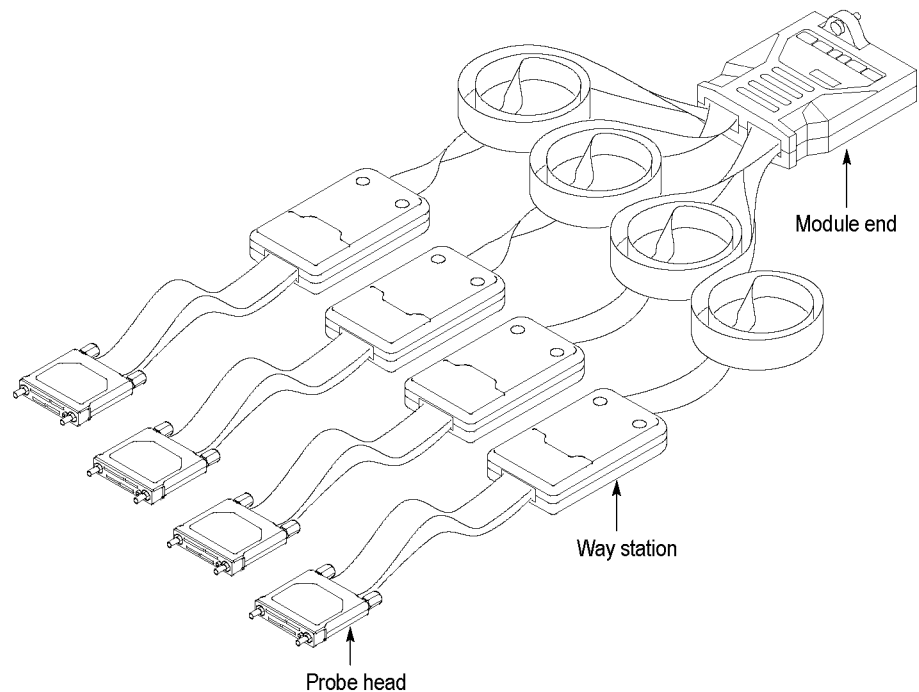
Probe head

Figure ii: Probe example

Probe Adapter   A device that connects the LA module probe to a target system.

Probe Head   The end of the probe is connected to the target system or probe adapter. (See Figure ii.)

SMT KlipChip   An interface device for attaching logic analyzer probes to components with a maximum lead diameter of 2.413 mm (0.095 in) and stackable on component lead centers of 1.27 mm (0.050 in).

Way Station   An intermediate probe part is used to connect the heads of the P6810 and P6880 Probes to a single ribbon cable. (See Figure ii.)

Z-axis eLastomer   Silicone-based material containing vertical wires that conduct only in the z-axis.

Operating Basics

This section provides a brief description of the Tektronix P6800 Logic Analyzer Probes and adapters, information on attaching color-coded probe labels, and probe and adapter connection instructions from the logic analyzer to the target system.

Product Description

The P6800 Logic Analyzer Probes connect a TLA7Axx and TLA7Bxx Series Logic Analyzer modules to a target system. The P6800 probes can be used with both TLA7Axx and TLA7Bxx modules. The P6810, P6860, and P6880 probes consist of 34 channels, while the P6864 probe consists of 17 channels.

NOTE. References to TLA7Axx Series Logic Analyzers also apply to TLA7Bxx Series Logic Analyzers unless stated.

You can connect the P6810 probe to the target system through podlet holders or leadsets. In addition, a variety of leadsets, SMT KlipChips and adapters aid in your connection to the target system.

The P6860 probe can be connected using a compression land pattern or a Mictor connector using the Mictor-on-PCB to P6434 to Compression adapter.

The P6880 probe is designed for connection only to the compression land pattern configured for differential signals. The P6880 is not compatible with either the Mictor-on-PCB to P6860 probe adapter or the Compression-on-PCB to P6434 probe adapter.

The P6864 probe can be connected through the use of the compression land pattern. Note that the P6864 is designed to minimize the needed area on the circuit board for connections when using the quarter-channel mode in the logic analyzer module.

P6810 General Purpose Probe

The P6810 Probe is a 34-channel, general purpose probe. (See Figure 1.)
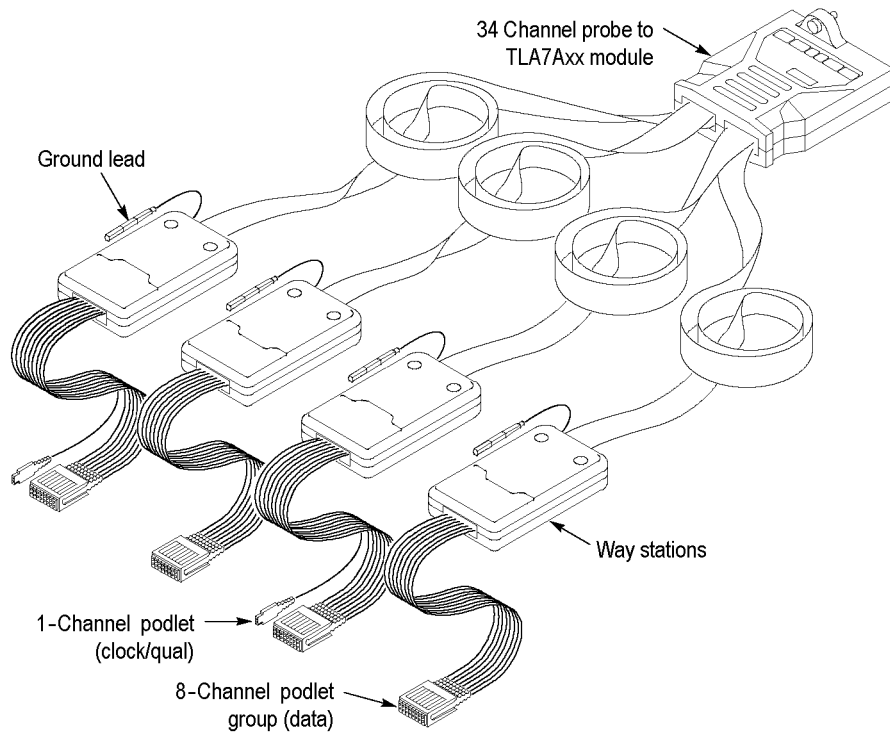
Figure 1: P6810 General Purpose probe

NOTE. Remember to connect the ground lead of the way station to the target system to improve signal integrity.

The following list details the capabilities and qualities of the P6810 Probe:

■ 34 individual active channel podlets

■ Differential and single-ended data, clock and qualification inputs

■ 2 mm (0.079 in) and 2.54 mm (0.1 in) podlet and leadset connection capability

■ Maximum nondestructive input voltage

■ Leadset support for both single-ended and differential applications

■ Podlet holder for 8-channel applications

■ Color-coded signal connectors

■ –2.5 V to +5 V input operating range

■ Minimal loading of <1 pF and 20 kΩ to ground

■ Operation in normal or inverted polarity is acceptable

■ Any common mode voltage is acceptable so long as the maximum positive voltage does not exceed +5 V and the maximum negative voltage does not exceed –2.5 V

NOTE. Single podlet input capacitance is 0.7 pF, but in a group, each podlet will have 1 pF input capacitance.

P6810 Leadset Adapters and Accessories

Leadsets enhance flexible access to the target system signals by allowing single-pin podlet connections of signals and grounds. This allows the separation of ground and signal connections, providing flexible access to the PCB and backplane connections where signals are not easily accessible together. The following leadsets and accessories accompany the P6810 General Purpose Probe.

■ **1-Channel single-ended and differential leadset.** Supports individual leadset connections to backplanes and other connection points requiring single-ended 2 mm (0.079 in) and 2.54 mm (0.1 in) connections. Both leads contain 150 Ω damping resistors in the lead tips.

■ **8-Channel single-ended leadset.** Supports individual leadset connections to backplanes and other multiple, dense, single-end connections in a 2 mm (0.079 in) and/or 2.54 mm (0.1 in) pin array. Two common ground connections for all input signals. The positive leads contain 150 Ω damping resistors and the leadset housing contains a 150 Ω damping resistor in the ground path of each channel.

■ **8-Channel differential leadset (optional accessory)**. Supports individual leadset connections to backplanes and other multiple, dense, differential connections in a 2 mm (0.079 in) and/or 2.54 mm (0.1 in) pin array. Individual + and − leads for each differential signal input. All leads contain 150 Ω damping resistors in the lead tips.

■ **SMT KlipChip.** An interface device for attaching logic analyzer probes to components with a maximum lead diameter of 2.413 mm (0.095 in) and a stackable on lead center of 1.27 mm (0.050 in).

■ **Podlet holders.** Removable clip that groups eight individual podlets into a single 8-wide probe assembly. This provides ease when connecting to a row of 2 x 8 2.54 mm (0.1 in) square pins.

1-Channel single-ended and
differential leadset

8-Channel single-ended
leadset

+ Signal

– Signal

8-Channel differential leadset
(optional)

SMT KlipChip

Podlet holder
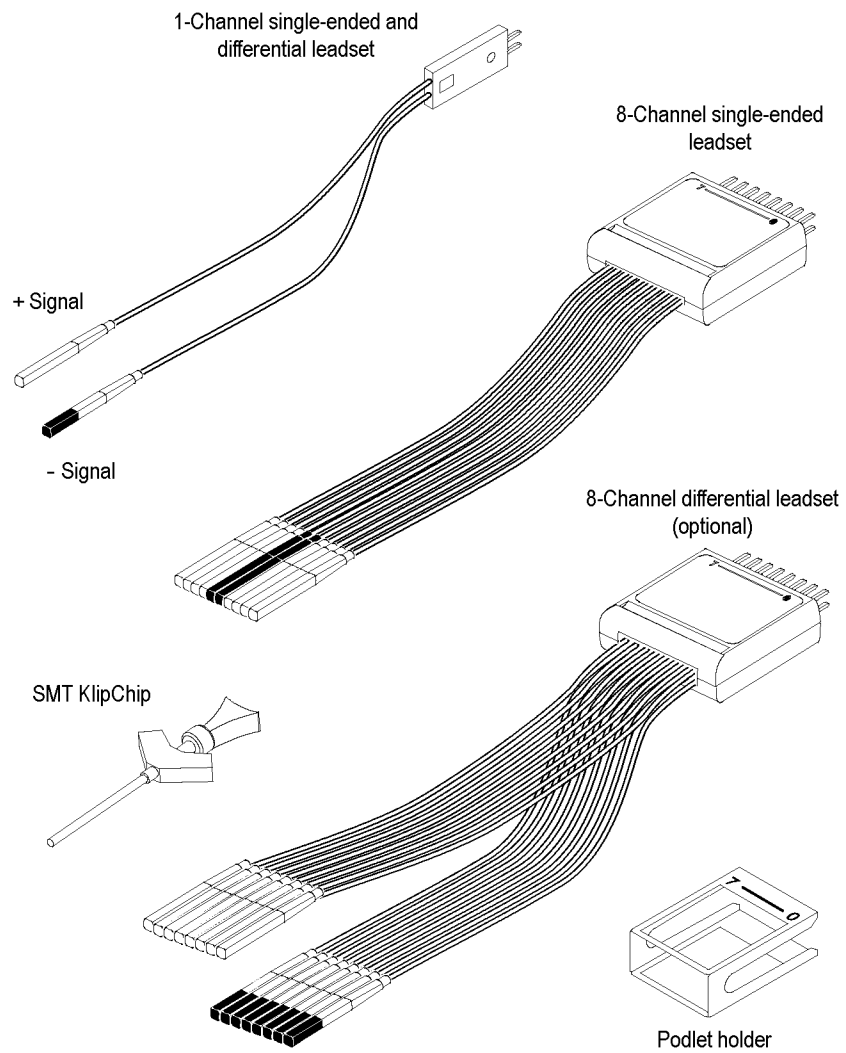
Figure 2: P6810 probe leadset adapters and accessories

P6860 High-Density Probe

The P6860 Probe is a 34-channel, high-density probe. (See Figure 3.) It consists of two independent probe heads of 17 channel connectors each (16 data and 1 clock/qualifier).
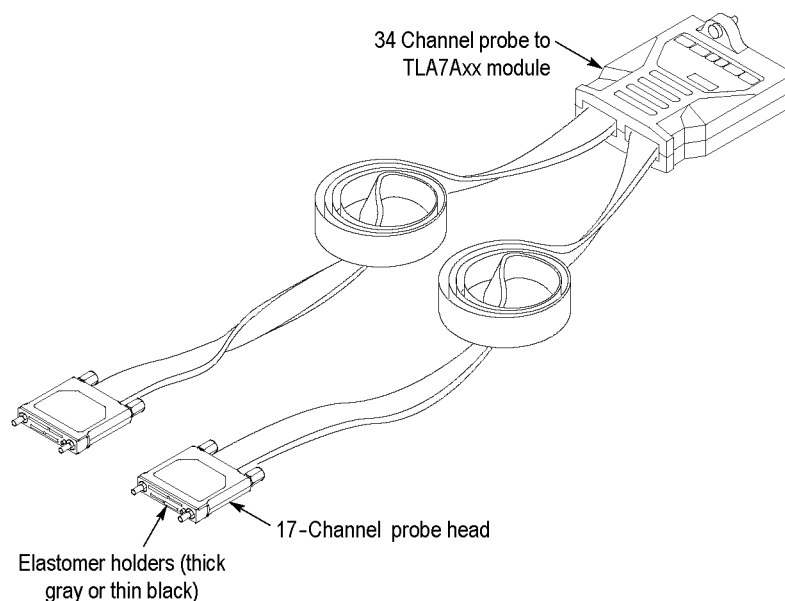
Figure 3: P6860 High-Density probe

The following list details the capabilities and qualities of the P6860 Probe:

- Differential or single-ended clock and qualification inputs

- Single-ended data inputs

- Compression contact eliminates need for built-in connector

- Land pattern supports direct signal pass-through

- Supports PCB thickness of 1.27 mm to 3.81 mm (0.050 in to 0.150 in)

- Consists of two independent probe heads of 17 channels each (16 data and 1 clock/qualifier)

- Narrow 17-channel probe head makes for easier placement and layout

- 2X mode, (for example, 1:2 demultiplexing) uses single-probe head

- 4X mode, (for example, 1:4 demultiplexing) uses one-half of the probe head

- Similar channel density to current Mictor connectors

- Color-coded keyed signal connectors

- Adapter supports Mictor-based connections

- −2.5 V to +5 V input operating range

- Minimal loading of 0.7 pF @ 20 kΩ to ground loading

■ Operation in normal or inverted polarity is acceptable (clock only)

■ Any common mode voltage is acceptable so long as the maximum positive voltage does not exceed +5 V and the maximum negative voltage does not exceed −2.5 V (clock only)

P6864 High-Density 4X Probe

The P6864 Probe is a 17-channel, high-density 4X probe. (See Figure 4.) It consists of a single independent probe head containing 17 channel connectors (16 data and 1 clock/qualifier) and two module connectors.

8 Channel probe to TLA74xx module
(one of the module end connectors
includes a clock channel)

17 Channel probe head

Elastomer holder (thick gray or thin black)
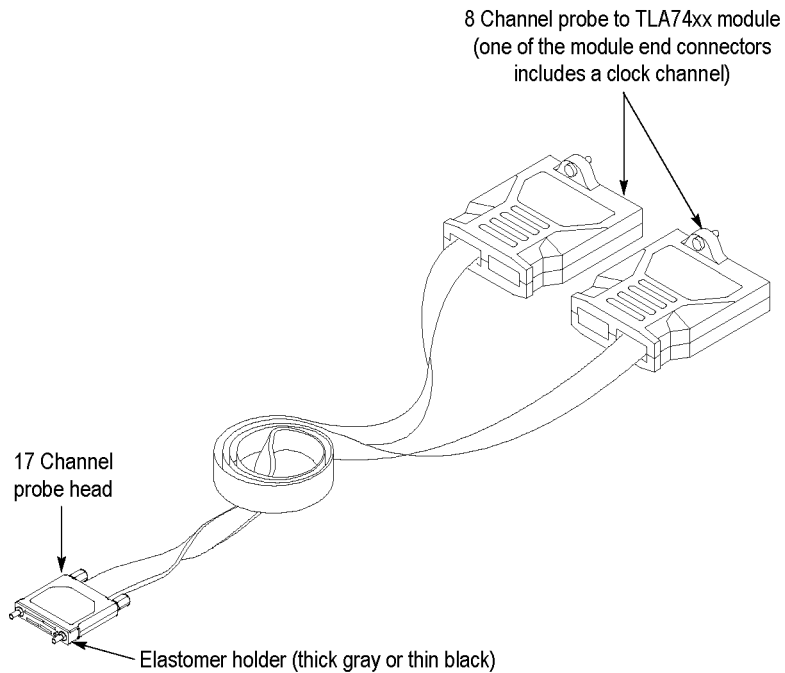
Figure 4: P6864 High-Density 4X probe

The following list details the capabilities and qualities of the P6864 probe:

■ Differential or single-ended clock and qualification inputs

■ Single-ended data inputs

■ Compression contact eliminates need for built-in connector

■ Land pattern supports direct signal pass-through

■ Supports PCB thickness of 1.27 mm to 3.81 mm (0.050 in to 0.150 in)

■ Consists of one independent probe head containing 17 channels (16 data and 1 clock/qualifier)

■ Narrow 17-channel probe head makes for increased placement and layout density when using 4X mode, (for example, 1:4 demultiplexing)

■ Color-coded keyed signal connectors

- −2.5 V to +5 V input operating range

- Minimal loading of 0.7 pF @ 20 kΩ to ground loading

- Operation in normal or inverted polarity is acceptable (clock only)

- Any common mode voltage is acceptable so long as the maximum positive voltage does not exceed +5 V and the maximum negative voltage does not exceed −2.5 V (clock only)

P6880 High-Density Differential Probe

The P6880 Probe is a 34-channel, high-density differential probe. (See Figure 5.) It consists of four independent probe heads of 8/9 channels each.
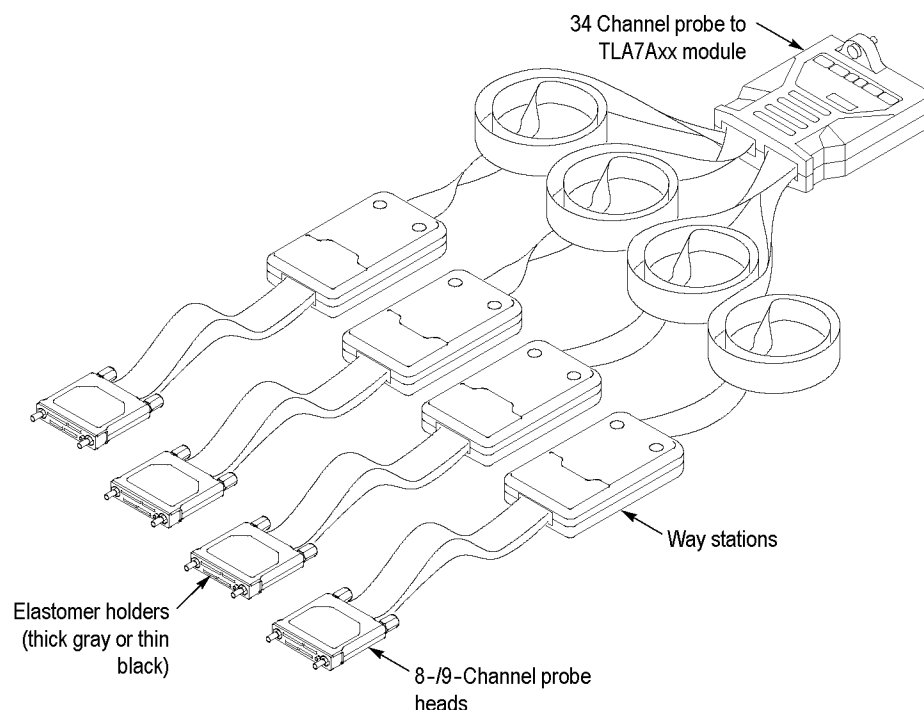
Figure 5: P6880 High-Density Differential probe

The following list details the capabilities and qualities of the P6880 Probe:

- High-density probe mechanical packaging at half the channel density in the probe head

- Differential data, clock and qualification inputs (single-ended signals may be probed if negative input is grounded)

- Same compression land pattern as High-Density Probe eliminates need for built-in connector

- Land pattern supports direct signal pass-through

- Supports PCB thickness of 1.27 mm to 3.81 mm (0.050 in to 0.150 in)

- Consists of four probe heads supporting 8/9 channels each (nine with clock/qualifier) for a total of 34 channels

- 2X mode (1:2 demultiplexing) uses two probe heads to minimize required board real estate

- 4X mode (1:4 demultiplexing) uses one probe head to minimize required board real estate

- Color-coded keyed signal connectors

- −2.5 V to +5 V input operating range

- Minimal loading of 0.7 pF @ 20 kΩ to ground loading

- Operation in normal or inverted polarity is acceptable

- Any common mode voltage is acceptable so long as the maximum positive voltage does not exceed +5 V and the maximum negative voltage does not exceed −2.5 V

NOTE. You can find more information about the P6880 probe routing and pin out in the P6880 Differential Probe Land Footprint section. (See Figure 20 on page 47.)

Mictor-on-PCB to P6860 Compression Adapter

The Mictor-on-PCB to P6860 Compression adapter allows existing microprocessor support packages and your hardware designs with embedded Mictor connectors to be connected to the P6860 High-Density Probe. (See Figure 6 on page 9.)

The CLK pin on the Mictor is connected to the CLK+ pin of the compression footprint. The CLK− pin of the compression footprint is tied to ground. This allows the differential clock input of the P6860 probe to function as a single-ended signal.

This adapter supports standard Mictor connector footprints and signal connections on older logic analyzer designs.

Differential qualification and clock signals are not supported through the Mictor-on-PCB to Compression adapter due to Mictor footprint limitations (only + side of clock and qualifier signals are supported).

The Mictor adapter adds 2.7 pF to the high-density compression probe load of 0.7 pF for a combined adapter and probe capacitance load of 3.4 pF.
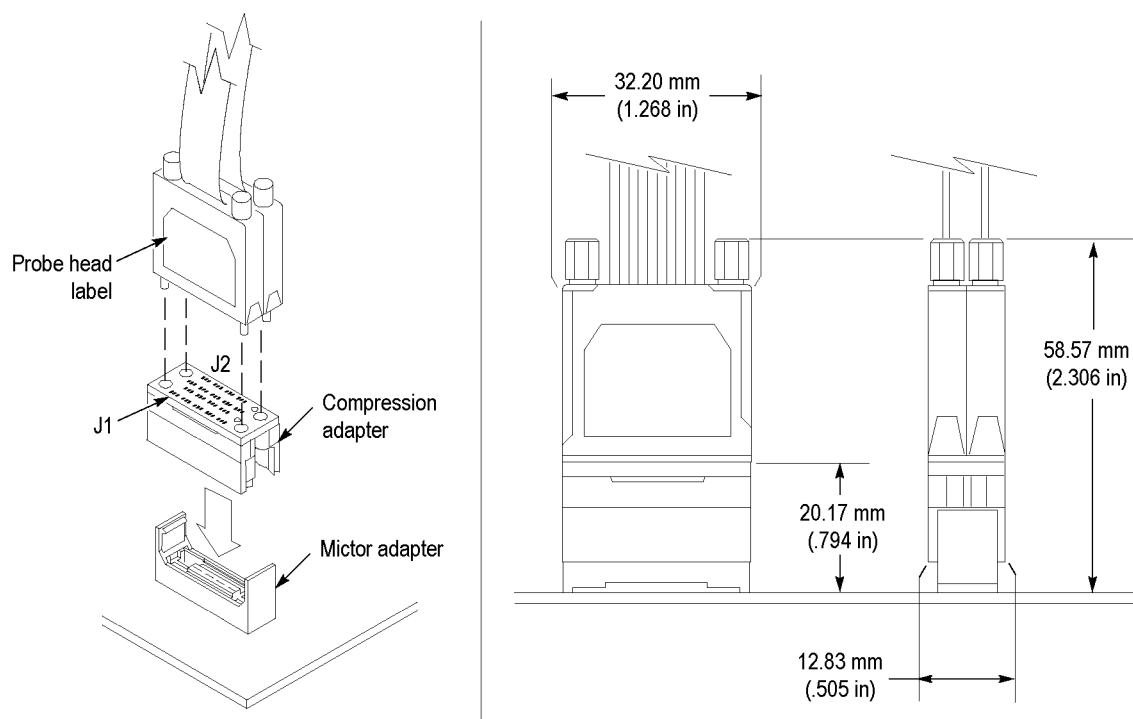
Figure 6: Mictor-on-PCB to P6860 Compression adapter

NOTE. *The compression adapter is labeled with J1 and J2 signal identifiers to assist you with correctly locating the probe heads on the compression adapter. (See Figure 6.) Each probe-head label contains channel information that you compare with information contained in the Signal-name column to determine the signal to which you connect the probe head. (See Table 13 on page 37.)*

You can find more information about comparing the clearances between the P6434 and P6800 probes in the Compression-on-PCB to P6434 Mictor Adapter section. (See Figure 8 on page 11.)

Compression-on-PCB to P6434 Mictor Adapter

The Compression-on-PCB to P6434 Mictor adapter allows the TLA5000, TLA6xx, and TLA7Lx/Mx/Nx/Px/Qx logic analyzers using a P6434 Probe to take advantage of the new compression footprint. (See Figure 7 on page 10.) This also eliminates the need for Mictor connectors in your target system.

NOTE. To use the P6434 adapter, do not install press-in nuts. However, if board thickness is > .093 in, you will need to install press-in nuts before migrating to P6800 probes.

Two different screw lengths are required to accommodate the 1.27 mm to 3.81 mm (0.050 in to 0.150 in) PCB thickness range.

This adapter requires the use of the Compression-on-PCB to P6434 Mictor adapter land footprint. (See Figure 22 on page 51.)

The Compression-on-PCB to Mictor adapter adds 1.5 pF to the P6434 probe load of 2.0 pF for a combined adapter and probe capacitance load of 3.5 pF.
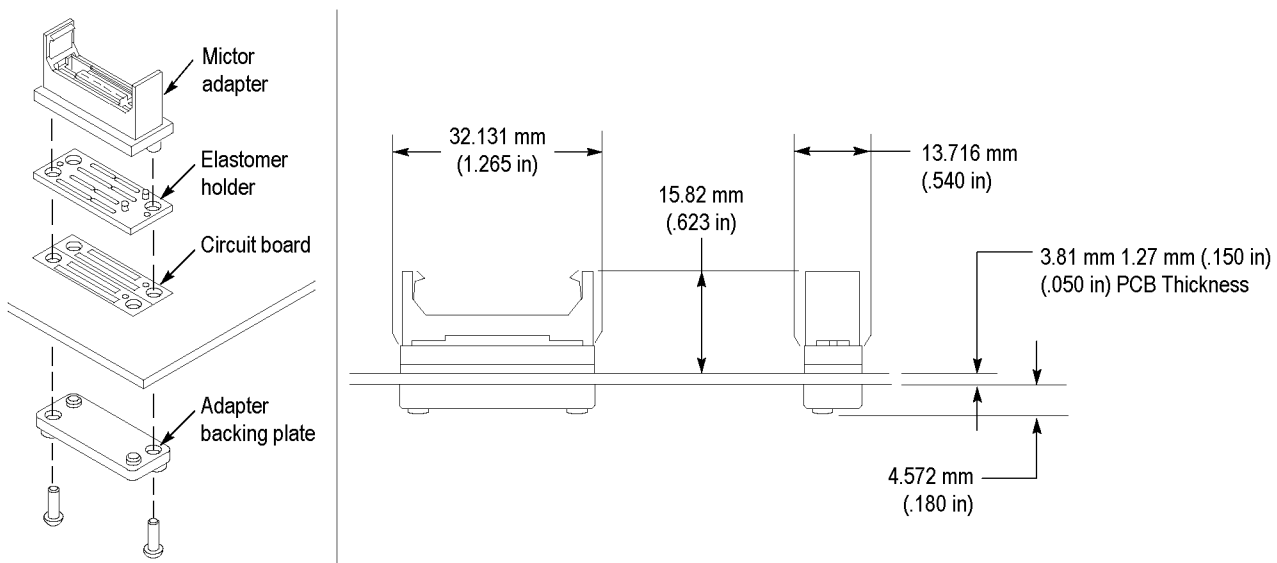
Figure 7: 34-Channel Compression-on-PCB to P6434 Mictor adapter

You can compare the clearance between the P6434 Probe connection and the P6434 Probe connection using the 34-Channel Compression-on-PCB to P6434 Mictor adapter. (See Figure 8 on page 11.) Note that the difference in clearance between the P6434 Probe connection and the P6434 Probe connection using the Compression-on-PCB to P6434 Mictor adapter is 3.68 mm (0.145 in).

NOTE. In addition to the 34-Channel Compression-on-PCB to P6434 Mictor adapter, Tektronix also offers a 17-Channel Compression to Mictor adapter. This 17-channel adapter is identical to the 34-channel adapter except that the posts that go through the circuit board are mounted such that it can connect to a single 17-channel footprint instead of two 17-channel footprints in a side-by-side configuration. See the Replaceable Parts section of this manual for an illustration of both adapters). (See Figure 38 on page 71.)
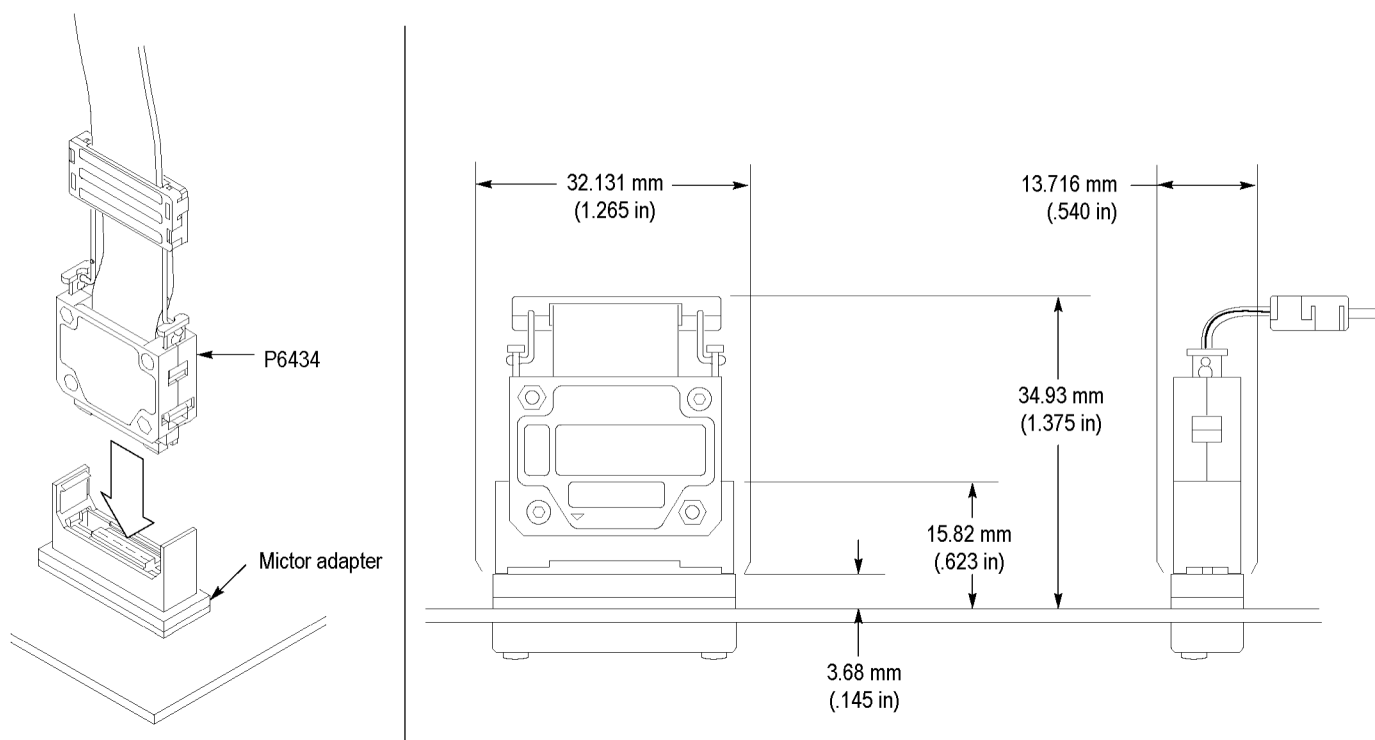
Figure 8: Clearance for probe connection using Compression-on-PCB to P6434 Mictor adapter

Attaching Probe Labels

When you purchase a TLA7Axx logic analyzer module, you receive the probes with all labels already attached.

However, if you purchase additional probes for the logic analyzer module, you will need to apply the color-coded labels. You will find a detailed description of how to attach the labels in the following instructions on the TLA Documentation CD:

- *P6810 General Purpose Logic Analyzer Probe Label Instructions*

- *P6860 High Density Logic Analyzer Probe Label Instructions*

- *P6864 High Density 4X Logic Analyzer Probe Label Instructions*

- *P6880 High Density Differential Logic Analyzer Probe Label Instructions*

Connecting the Probes to the Logic Analyzer

Connect the probes to the logic analyzer according to the following steps. (See Figure 9.)

1. Identify the beveled edges of the connector inside the module end of the probe.

2. Align the beveled edges of the connector to its mating connector on the logic analyzer module and press into place.

3. Use care to evenly tighten both screws on the module end of the probe until they are snug. First slightly tighten both screws, then snug each screw to 4 in-lbs (max).

NOTE. All P6800 series Logic Analyzer probes can be connected to the logic analyzer when it is powered on. In addition, all P6800 series Logic Analyzer probes connect to the logic analyzer in exactly the same manner.
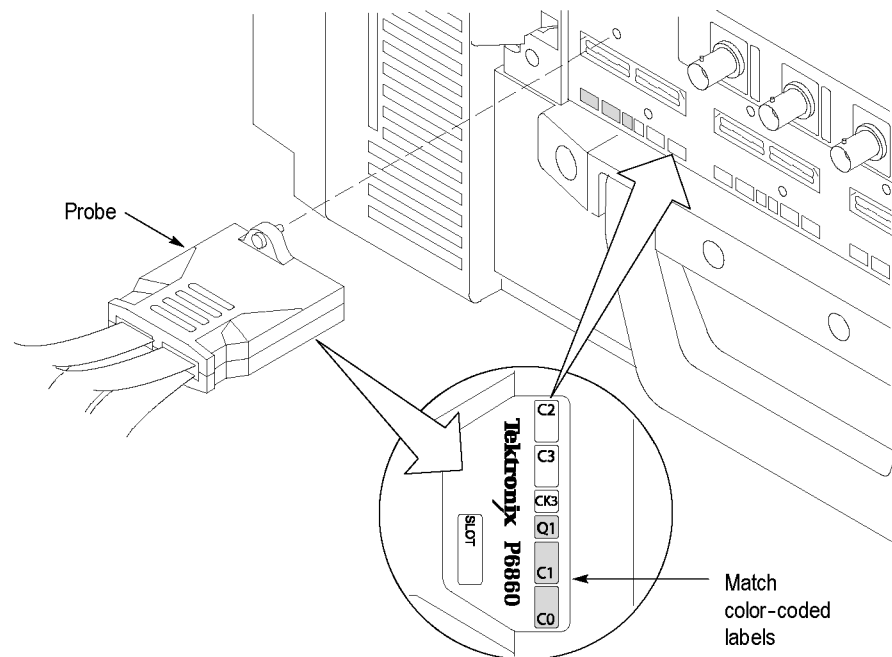
Figure 9: Connecting the probes to the logic analyzer

Cleaning the P686x and P6880 Compression Footprints

⚠ *CAUTION.* *To avoid electrical damage, always turn off the power of your target system before cleaning the compression footprint.*

Before you connect the probe to the target system, you must properly clean the compression footprints on your board. Follow these steps to clean the compression footprints:

1. Use a lint-free cloth moistened with isopropyl alcohol and gently wipe the footprint surface.

2. Remove any remaining lint using a nitrogen air gun.

NOTE. *Use alcohol sparingly and be sure that you have removed any remaining lint or residue with the nitrogen air gun.*

Cleaning the P686x and P6880 Probe Heads

Before connecting the P686x and P6880 Probes to the target system, ensure that the probe heads are free from dust, dirt, and contaminants. If necessary, clean the probe heads according to the following steps.

⚠ *CAUTION. Static discharge can damage semiconductor components in the probe head. Always wear a grounded antistatic wrist strap whenever handling the probe head. Also verify that anything to which the probe head is connected does not carry a static charge.*

NOTE. Never clean the elastomers. Always replace them instead. Refer to the Replaceable Parts section of this manual for information on ordering parts.

1. Remove the elastomer holder.

2. Moisten a cotton swab with isopropyl alcohol.

Elastomer holder
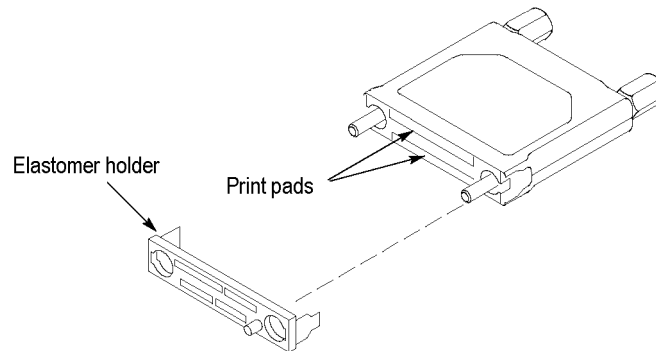
Print pads

Figure 10: Cleaning the probe heads

3. Gently wipe the edge print pads of the hybrid.

4. Remove any remaining lint using a nitrogen air gun.

5. Put the elastomer holder back in place.

⚠ *CAUTION. Be careful not to touch the elastomers to avoid damaging the probe contacts. Also, do not reverse the elastomer as this will transfer contaminants.*

Storing the P686x and P6880 Probe Heads

To protect the elastomer, it is important to properly store the probe heads when the probes are not in use. (See Figure 11.)

1. Locate the keying pin on the probe end and align it to the keying pin hole on the nut bar.

2. While holding the probe end at a perpendicular angle to the nut bar, loosely attach both probe head screws.

Safely store the probe head

Nut Bar

Nut Bar
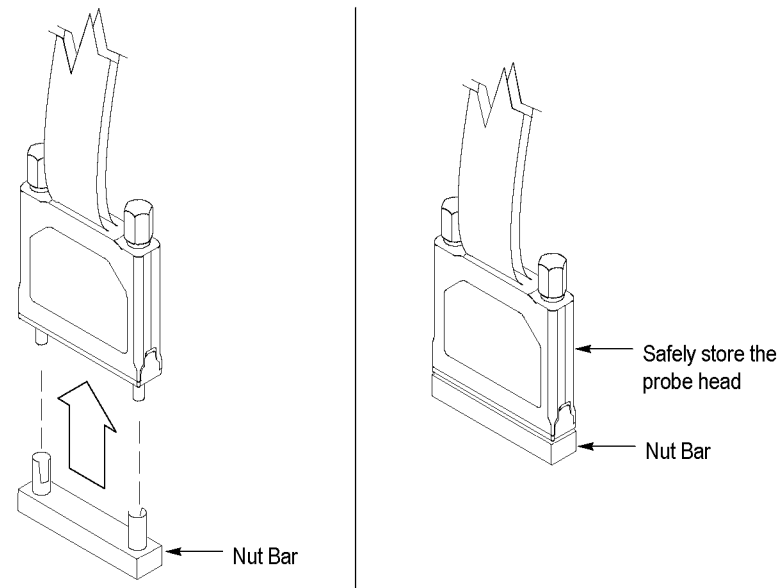
Figure 11: Storing the probe heads

Connecting the Probes to the Target System

**Connecting the P6810
General Purpose Probe**

To perform the steps that follow, connect the probe to the target system. (See Figure 12 on page 17.) You can connect the probe heads to the target system without turning off the power to the target system.

> ⚠ *CAUTION.* *To avoid damaging the probe and target system, always position the probe perpendicularly to the mating connector and then connect the probe. Incorrect handling of the probe while connecting it to the target system can result in damage to the probe or to the mating connector in the target system.*

1. Connect the probe end to the square pins on the PCB.

2. If you are using the single-ended leadset, connect the negative input to ground on the PCB. If you are using the optional differential leadset, connect the positive side of the podlet to the positive side of the signal on the PCB, and the negative side of the podlet to the negative side of the signal.

3. Connect the way station ground to ground on the PCB.
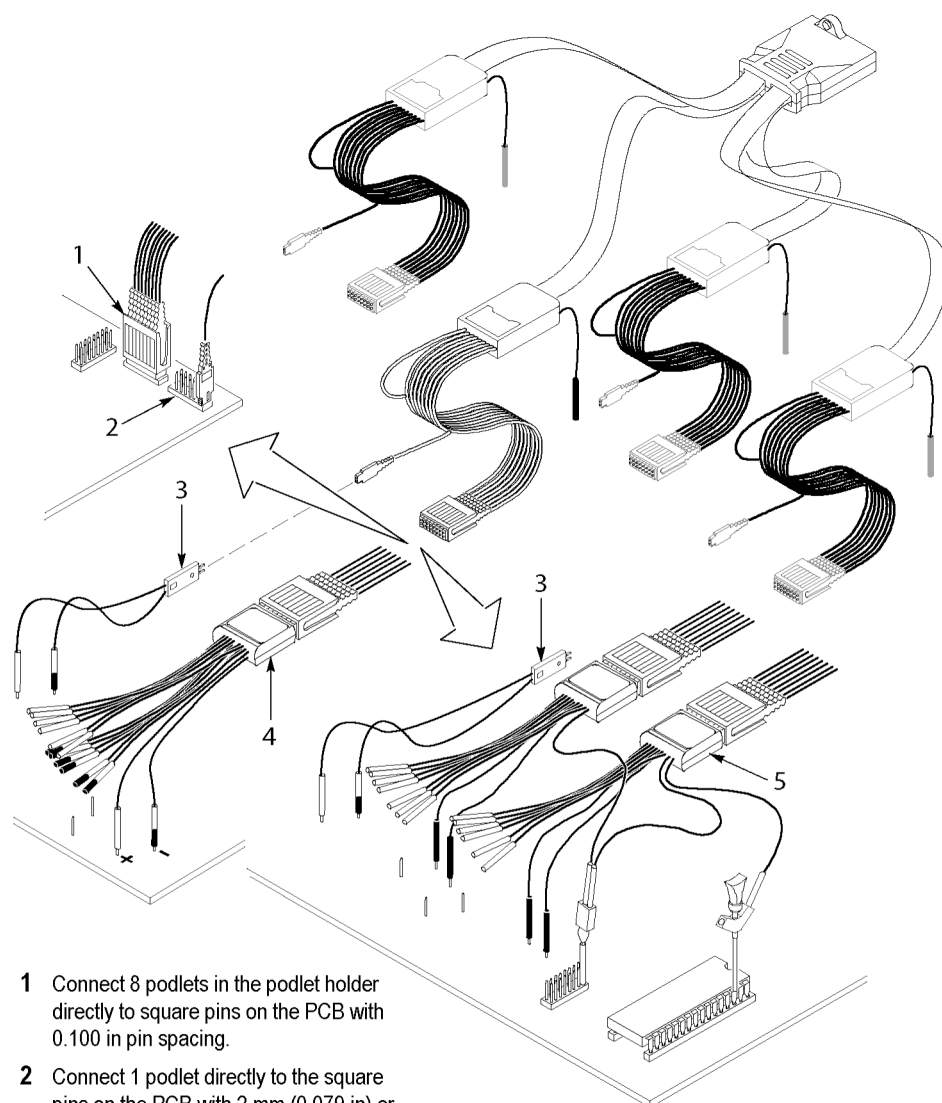
1 Connect 8 podlets in the podlet holder directly to square pins on the PCB with 0.100 in pin spacing.

2 Connect 1 podlet directly to the square pins on the PCB with 2 mm (0.079 in) or 2.54 mm (0.100 in) pin spacing.

3 Connect 1 podlet with 1 channel leadset to the square pin on the PCB with 2 mm (0.079 in) or 2.54 mm (0.100 in) pin spacing. The negative lead (half-white/half-black housing that contains a damping resistor) is connected to ground in a single-ended application lead or the minus in a differential application.

4 Connect 8 podlets in the podlet holder with an 8 channel differential leadset to the square pins on the PCB with 2 mm (0.079 in) or 2.54 mm (0.100 in) pin spacing. The negative lead (half-white/half-black housing that contains a damping resistor) is connected to the minus in a differential application.

5 Connect 8 podlets in the podlet holder with an 8 channel single-ended leadset to the square pins on the PCB with 2 mm (0.079 in) or 2.54 mm (0.100 in) pin spacing. The negative lead (total black housing that contains no damping resistor; however, the leadset housing contains a damping resistor in ground path for each channel) is connected to ground in a single-ended application lead.

Figure 12: Connecting the P6810 probe to the target system

Connecting the P686x High Density and P6880 Differential Probes

Connect the P686x High-Density and P6880 Differential Probes to the target system. (See Figure 14 on page 20.) You can connect the probes to the target system without turning off the power to the target system.

Installing the Correct Elastomer Holder. If the PCB is ≤ .093 in, use the thin elastomer holder with the nut bar. If the PCB is > .093 in, use the thick elastomer holder with the press-in nuts.

- Nut Bar

1. Press the nut bar backing plate into the two holes on the underside of the compression footprint on the PCB.

2. Locate the keying pin on the probe end and align it to the keying pin hole on the PCB.

3. While holding the probe end perpendicularly to the PCB, finger-tighten (typically, ½ in-lbs) both probe head screws until snug, not to exceed 1 in-lbs. You are encouraged to use a torque wrench to ensure proper tightness to the probe-head screws.

⚠️ *CAUTION. When attaching the probe head to the target system, you must use care to evenly tighten probe head screws until they are snug. First tighten both screws until the nut bar makes contact with the board surface, then snug each screw to 1 in-lbs (max). Under-tightening the probe head screws can result in intermittence. Over-tightening can result in damage to the elastomer holder and stripped screws.*

■ Press-in Nuts

1. Install the press-in nuts on the PCB by following the manufacturer's installation procedure. You can find more details on press-in nut installation in the following illustration. (See Figure 13 on page 19.)
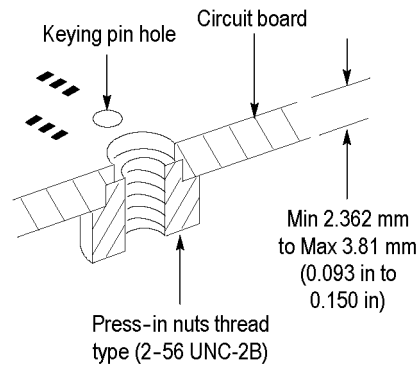
Figure 13: Press-in Nuts installation

2. Locate the keying pin on the probe end and align it to the keying pin hole on the PCB.

3. While holding the probe end perpendicularly to the PCB, finger tighten (typically, $^1/_2$ in-lbs) both probe head screws until snug, not to exceed 1 in-lbs. You are encouraged to use a torque wrench to ensure proper tightness to the probe-head screws.

> ⚠ *CAUTION. When attaching the probe head to the target system, you must use care to evenly tighten probe head screws until they are snug. First slightly tighten both screws, then snug each screw to 1 in-lbs (max). Under-tightening the probe head screws can result in intermittence. Over-tightening can result in damage to the elastomer holder and stripped screws.*
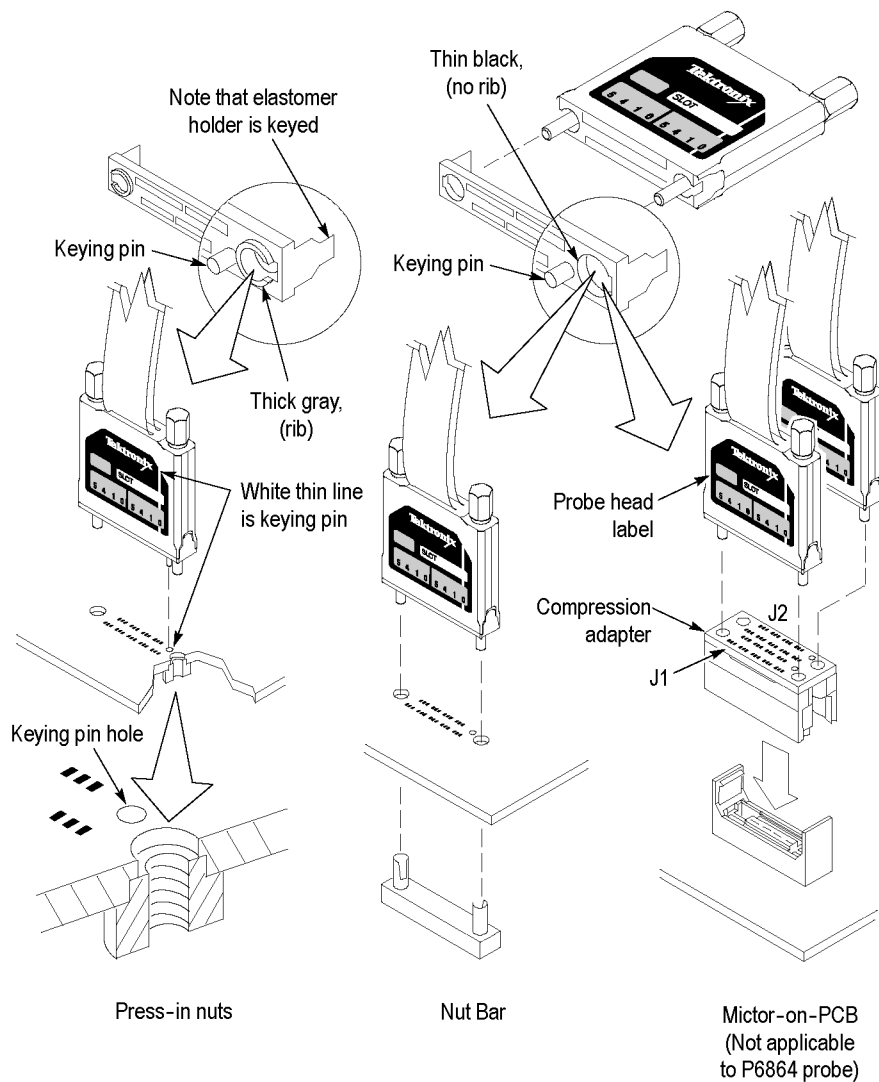
Figure 14: **Connecting the P686x and P6880 probes to the target system**

NOTE. The compression adapter is labeled with J1 and J2 signal identifiers to assist you with correctly locating the probe heads on the compression adapter. (See Figure 6 on page 9.) Each probe-head label contains channel information that you can compare with information contained in the Signal-name column to determine the signal to which you connect the probe head. (See Table 13 on page 37.)

Connecting the Mictor-on-PCB to P6860 Compression Adapter (Applies to P6860 Probe Only)

The Mictor-on-PCB to P6860 Compression adapter allows existing applications of older logic analyzer modules and probes to connect to the compression footprint. (See Figure 6 on page 9.) You can connect the adapter to the target system without turning off the target system. Connect the adapter according to the following steps.

NOTE. Be sure to use the thin elastomer holder. A thin elastomer is black and does not have the protruding rib. (See Figure 14 on page 20.)

1. While holding the first probe end perpendicularly to the adapter, place the probe end into the adapter and finger-tighten the screws until snug, not to exceed 1 in.-lbs.

2. Connect the second probe end to the adapter in the same manner.

3. Press the connected probe ends and adapter into the existing Mictor connector on the PCB.

This adapter supports standard Mictor connector footprints and signal connections on older logic analyzer designs.

The differential qualification and clock signals are not supported through the Mictor-on-PCB to P6860 Compression adapter due to the Mictor footprint limitations (only + side of clock and qualifier signals are supported).

The Mictor adapter adds 2.7 pF to the High-Density Compression probe load of 0.7 pF for a combined adapter and probe capacitance load of 3.4 pF.

Connecting the Compression-on-PCB to P6434 Mictor Adapter

The Compression-on-PCB to P6434 Mictor adapter allows you to connect the compression footprint to the Mictor connector pins used by the P6434 Probe. (See Figure 7 on page 10.) You can connect the adapter to the target system without turning off the target system. Connect the adapter according to the following steps.

NOTE. To use this adapter do not install press-in nuts. However if board thickness is >.093 in, you will need to install press-in nuts before migrating to P6800 probes.

1. Place the adapter perpendicularly on top of the compression footprint.

2. Place the backing plate on the underside of the PCB.

3. Connect the backing plate by sliding the two screws into the existing screw holes from the underside of the PCB and finger-tighten (typically, $^1/_2$ in-lbs) the screws until snug, not to exceed 1 in-lbs. You are encouraged to use a torque wrench to ensure proper tightness to the probe head screws.

⚠ **CAUTION.** *When attaching the probe head to the target system, you must use care to evenly tighten probe head screws until they are snug. First slightly tighten both screws, then snug each screw to 1 in-lbs (max). Under-tightening the probe head screws can result in intermittence. Over-tightening can result in damage to the elastomer holder and stripped screws.*

4. Plug the P6434 Probe into the adapter.

Screws of two different lengths are provided to attach the adapter to your PCB. The length of the screw you need depends on the thickness of the PCB (0.050 in to 0.150 in).

This adapter requires use of the Compression-on-PCB to P6434 Mictor adapter land footprint. For further dimensional information, refer to the *Compression-on-PCB to P6434 Mictor adapter land footprint* section. (See Figure 22 on page 51.)

Reference

This section provides reference information and specifications for the P6810 General Purpose, P6860 High-Density, P6864 High-Density 4X, and P6880 High-Density Differential Probes.

Designing an Interface Between the P6800 Probes and a Target System

Once you have determined which probe is required, use the following information to design the appropriate connector into your target system board. The following topics are in this section:

- Signal fixturing considerations
- Signal connections (signal names and land footprints)
- Mechanical considerations
- Electrical considerations

Signal Fixturing Considerations

This section contains the following information to consider for signal fixturing:

- Clocks and qualifiers
- Merged modules and source synchronous clocking
- Demultiplexing multiplexed busses
- Half-channel and quarter-channel clocking modes (Internal 2X and 4X)
- Probing analog signals
- Range recognition

Clocks and Qualifiers. Every logic analyzer has some special purpose input channels. Inputs designated as clocks can cause the analyzer to store data. Qualifier channels can be logically AND'ed and OR'ed with clocks to further define when the analyzer should latch data from the system under test. Routing the appropriate signals from our design to these inputs ensures that the logic analyzer can acquire data correctly. Unused clocks can be used as qualifier signals.

Depending on the channel width, each TLA7Axx Series logic analyzer module will have different set of clock and qualifier channels. The following table shows the clock and qualifier channel availablility for each module.

Table 1: Logic analyzer clock and qualifier availability

Module	Clock inputs				Qualifier inputs			
	CLK:0	CLK:1	CLK:2	CLK:3	QUAL:0	QUAL:1	QUAL:2	QUAL:3
TLA7AA1	✔			✔				
TLA7AA2, TLA7AB2, TLA7AC2, and TLA7BB2	✔	✔	✔	✔				
TLA7AA3, TLA7AC3, and TLA7BB3	✔	✔	✔	✔	✔	✔		
TLA7AA4, TLA7AB4, TLA7AC4, TLA7BB4, and TLA7BC4	✔	✔	✔	✔	✔	✔	✔	✔

All clock and qualifier channels are stored. The analyzer always stores the logic state of these channels every time it latches data.

Since clock and qualifier channels are stored in the analyzer memory there is no need to double probe these signals for timing analysis. When switching from state to timing analysis modes all of the clock and qualifier signals will be visible. This also allows you to route regular signals, those not needed for clocking, to these channels when they are not being used for their special purpose.

It is a good practice to take advantage of these channels to increase your options for when you will latch data. Routing several of your design's clocks and strobes to the analyzer clock inputs will provide you with a greater flexibility in the logic analyzer clocking setup menus.

As an example, look at a microprocessor with a master clock, a data strobe, and an address strobe. Routing all three of these signals to analyzer clock inputs will enable you to latch data on the processor master clock, only when data is strobed, or only when address is strobed. Some forethought in signal routing can greatly expand the ways in which you can latch and analyze data.

A microprocessor also provides a good example of signals that can be useful as qualifiers. There are often signals that indicate data reads versus data writes (R/W), signals that show when alternate bus masters have control of the processor busses (DMA), and signals that show when various memory devices are being used (ChipSel). All of these signals are good candidates for assignment to qualifier channels.

By logically AND'ing the clock with one of these qualifiers you can program the analyzer to store only data reads or data writes. Using the DMA signal as a qualifier provides a means of filtering out alternate bus master cycles. Chip selects can limit data latching to specific memory banks, I/O ports, or peripheral devices.

Merged Module Sets and Source Synchronous Clocking. TLA7Axx analyzer modules that are 102-channels or 136-channels wide can be merged together to act as a single logic analyzer with a larger channel count. Up to five modules can be merged to provide up to a 680-channel analyzer. A unique feature of the

TLA7Axx module is that it supports source synchronous clocking. Combining these two capabilities provide some additional considerations for signal routing.

Source synchronous clocking is a method which manages the skew between the system clock and the data bus by requiring the sending device to drive an actual clock or strobe signal along with the data that is very tightly coupled with it in terms of skew. The receiving device then uses this strobe to capture the data.

A variant of this scheme is being applied to large microprocessor busses, where the bus is split into smaller, more easily managed groups that each have their own dedicated strobe. Although the timing relationship between a particular clock and its associated data group is very tight, the timing between the different groups can vary greatly and changes depending on which device has control of the bus.

Many source synchronous designs use wide busses. It is not uncommon to require a set of merged logic analyzer modules to provide the channel count needed in probing larger source synchronous systems. While all of the modules in a merged set can use their clock inputs independently if needed, you must remember that there are a maximum of four clock inputs on a 136 channel wide module.

To see the importance of this we will once again use a microprocessor system as an example. A Tektronix logic analyzer processor has a 32-bit address bus and a 64-bit data bus. The data bus is split into four 16-bit subgroups that have independent source synchronous clocks. For the logic analyzer to correctly acquire data from this system it will need five clock inputs, one for the address bus and one each for the four 16-bit data bus subgroups.

To acquire both busses the analyzer would need at least 96 channels (32 address and 64 data). However, a single 102-channel card does not have the required five clock inputs. By merging two 102-channel modules into a set you can obtain the needed number of clock inputs. Route the address bus to one module in the set and route the data bus, along with its four source synchronous clocks, to the second module in the set.

Demultiplexing Multiplexed Busses. The TLA7Axx module supports both 2X and 4X demultiplexing. Each signal on a dual or quad multiplexed bus can be demultiplexed into its own logic analyzer channel. Refer to the following tables to determine which channel groups to connect to feed the test data to channels in the target system. (See Table 2.) (See Table 3.)

Table 2: 2X Demultiplexing source-to-destination channel assignments

Base connecting channel groups	Prime channels receiving target system test data					
	TLA7AA4	TLA7AA3	TLA7AA2	TLA7AA1	TLA7AB4	TLA7AB2
A3:7-0	D3:7-0	D3:7-0	C3:7-0	C3:7-0	D3:7-0	C3:7-0
A2:7-0	D2:7-0	D2:7-0	C2:7-0	C2:7-0	D2:7-0	C2:7-0
A1:7-0	D1:7-0	D1:7-0	D1:7-0	—	D1:7-0	D1:7-0
A0:7-0	D0:7-0	D0:7-0	D0:7-0	—	D0:7-0	D0:7-0
C3:7-0	C1:7-0	C1:7-0	—	—	C1:7-0	—
C2:7-0	C0:7-0	C0:7-0	—	—	C0:7-0	—
E3:7-0	E1:7-0	—	—	—	E1:7-0	—
E2:7-0	E0:7-0	—	—	—	E0:7-0	—
CLK:0	QUAL:1	QUAL:1	—	—	QUAL:1	—
CLK:1	QUAL:0	QUAL:0	—	—	QUAL:0	—
CLK:2	QUAL:3	—	—	—	QUAL:3	—
CLK:3	QUAL:2	—	—	—	QUAL:2	—

Table 3: 4X Demultiplexing source-to-destination channel assignments

Base connecting channel groups	Prime channels receiving target system test data					
	TLA7AA4	TLA7AA3	TLA7AA2	TLA7AA1	TLA7AB4	TLA7AB2
C3:7-0	C2:7-0 C1:7-0 C0:7-0	C2:7-0 C1:7-0 C0:7-0	A3:7-0 A2:7-0 C2:7-0	A3:7-0 A2:7-0 C2:7-0	C2:7-0 C1:7-0 C0:7-0	A3:7-0 A2:7-0 C2:7-0
A1:7-0	A0:7-0 D1:7-0 D0:7-0	A0:7-0 D1:7-0 D0:7-0	A0:7-0 D1:7-0 D0:7-0	—	A0:7-0 D1:7-0 D0:7-0	A0:7-0 D1:7-0 D0:7-0
A3:7-0	A2:7-0 D3:7-0 D2:7-0	A2:7-0 D3:7-0 D2:7-0	—	—	A2:7-0 D3:7-0 D2:7-0	—
E3:7-0	E2:7-0 E1:7-0 E0:7-0	—	—	—	E2:7-0 E1:7-0 E0:7-0	—
CLK:3	CLK:2 QUAL:3 QUAL:2	—	—	—	CLK:2 QUAL:3 QUAL:2	—
CLK:1	CLK:0 QUAL:1 QUAL:0	CLK:0 QUAL:1 QUAL:0	—	—	CLK:0 QUAL:1 QUAL:0	—

When demultiplexing data there is no need to connect the destination channels to the multiplexed bus. Data from the source channels are routed to the destination channels internal to the logic analyzer. You can find more information about the mapping of source channels to destination channels in the *Demultiplexing Multiplexed Busses* section. (See Table 2.) (See Table 3.)

Demultiplexing affects only the main memory for the destination channels. This means that the MagniVu memory is filled with data from whatever is connected to the demultiplexing destination channel probe inputs. This provides an opportunity to acquire high resolution MagniVu data on a few extra channels. Connecting the demultiplexing destination channels to other signals will allow viewing of their activity in the MagniVu memory but not the main memory.

Half-Channel and Quarter-Channel Clocking Modes. Half-channel clocking mode provides double the normal 500 MHz sample rate on one half of the channels. By trading half of the analyzers channels the remaining channels can be sampled at a 1 GHz rate with double the memory depth. Quarter-channel clocking mode provides quadruple the normal 500 MHz sample rate on one fourth of the channels. By trading three-fourths of the analyzers channels the remaining channels can be sampled at a 2 GHz rate with quadruple the memory depth.

For both of the high resolution timing modes use the same demultiplexing channel routing. (See Table 2.) (See Table 3.) By taking care to assign critical signals to the demultiplexing source channels you can obtain extra timing resolution where most needed. Since demultiplexing affects only the main memory you will still have the MagniVu data available for all of the signals that are disconnected from the main memory when you switch to the high resolution timing modes.

Probing Analog Signals. TLA7Axx module provides visibility of analog signals with iView. iView routes the actual signal seen by each channel's probe through a high bandwidth path to an analog multiplexer inside of the logic analyzer module. From the logic analyzer interface you can route any input channel to one of the four output connectors on the module. By connecting the analyzer iView analog probe outputs to your oscilloscope you can see the analog characteristics of any signal probed by the logic analyzer.

Sometimes there are analog signals that would be convenient to have fixtured for easier probing. Signals such as A/D Converter inputs, D/A Converter outputs, low voltage power supplies, termination voltages, and oscillator outputs are just a few examples. Routing these signals to unused logic analyzer inputs provides a quick method of viewing their activity without ever picking up a oscilloscope probe.

Take care to ensure that such signals are voltage limited and will not exceed the maximum nondestructive input voltage for the logic analyzer probes of ±15 Vpeak.

Range Recognition. When using range recognizers, the probe groups and probe channels must be in hardware order. Probe groups must be used from the most-significant probe group to the least-significant probe group based on the following order:

C3 C2 C1 C0 E3 E2 E1 E0 A3 A2 D3 D2 A1 A0 D1 D0 Q3 Q2 Q1 Q0 CK3 CK2 CK1 CK0

Probe channels must be from the most-significant channel to the least-significant channel based on the following order:

7 6 5 4 3 2 1 0

The above example assumes a 136-channel LA module. The missing channels in LA modules with fewer than 136 channels are ignored. With merged modules, range recognition extends across the first three modules: the master module contains the most-significant channels.

Signal Names

For more information on signal connections for the P6810, P6860, P6864, and P6880 Probes, refer to the tables starting on this page. Match the alpha character that precedes the channel identifier (for example, E3:7) to the probe head label. This will simplify probe connections to the logic analyzer when you use the following tables.

Table 4: P6810 Probe signal connections on 136- and 102-channel modules for probe 4 and probe 3

Signal name	Podlet	Probe 4 way station for 136-channel module only				Probe 3 way station for 136- and 102-channel modules			
Clk/Qual	Clk/Qual	Q3-		Q2-		CK0-		Q0-	
Clk/Qual+	Clk/Qual	Q3+		Q2+		CK0+		Q0+	
Data 7-	7	E3:7-	E2:7-	E1:7-	E0:7-	A3:7-	A2:7-	D3:7-	D2:7-
Data 7+	7	E3:7+	E2:7+	E1:7+	E0:7+	A3:7+	A2:7+	D3:7+	D2:7+
Data 6-	6	E3:6-	E2:6-	E1:6-	E0:6-	A3:6-	A2:6-	D3:6-	D2:6-
Data 6+	6	E3:6+	E2:6+	E1:6+	E0:6+	A3:6+	A2:6+	D3:6+	D2:6+
Data 5-	5	E3:5-	E2:5-	E1:5-	E0:5-	A3:5-	A2:5-	D3:5-	D2:5-
Data 5+	5	E3:5+	E2:5+	E1:5+	E0:5+	A3:5+	A2:5+	D3:5+	D2:5+
Data 4-	4	E3:4-	E2:4-	E1:4-	E0:4-	A3:4-	A2:4-	D3:4-	D2:4-
Data 4+	4	E3:4+	E2:4+	E1:4+	E0:4+	A3:4+	A2:4+	D3:4+	D2:4+
Data 3-	3	E3:3-	E2:3-	E1:3-	E0:3-	A3:3-	A2:3-	D3:3-	D2:3-
Data 3+	3	E3:3+	E2:3+	E1:3+	E0:3+	A3:3+	A2:3+	D3:3+	D2:3+
Data 2-	2	E3:2-	E2:2-	E1:2-	E0:2-	A3:2-	A2:2-	D3:2-	D2:2-
Data 2+	2	E3:2+	E2:2+	E1:2+	E0:2+	A3:2+	A2:2+	D3:2+	D2:2+
Data 1-	1	E3:1-	E2:1-	E1:1-	E0:1-	A3:1-	A2:1-	D3:1-	D2:1-
Data 1+	1	E3:1+	E2:1+	E1:1+	E0:1+	A3:1+	A2:1+	D3:1+	D2:1+
Data 0-	0	E3:0-	E2:0-	E1:0-	E0:0-	A3:0-	A2:0-	D3:0-	D2:0-
Data 0+	0	E3:0+	E2:0+	E1:0+	E0:0+	A3:0+	A2:0+	D3:0+	D2:0+

You can find more information on 2X and 4X demultiplexing channel assignments in the *Demultiplexing Multplexed Buses* section. (See Table 2 on page 26.) (See Table 3 on page 26.)

Any differential input, either the differential clock/qualifiers on the P686x High-density Probe, or all differential data and clock/qualifiers on the P6810 General Purpose Differential Probe and P6880 High-density Differential Probe, may have their negative input pin grounded and be used as a single-ended input.

Table 5: P6810 Probe signal connections on 102- and 136-channel modules for probe 2 and probe 1

Signal name	Podlet	Probe 2 way station for 136- and 102-channel modules				Probe 1 way station for 136- and 102-channel modules			
Clk/Qual-	Clk/Qual-	CK1-		CK2-		CK3-		Q1-	
Clk/Qual+	Clk/Qual+	CK1+		CK2+		CK3+		Q1+	
Data 7-	7	A1:7-	A0:7-	D1:7-	D0:7-	C3:7-	C2:7-	C1:7-	C0:7-
Data 7+	7	A1:7+	A0:7+	D1:7+	D0:7+	C3:7+	C2:7+	C1:7+	C0:7+
Data 6-	6	A1:6-	A0:6-	D1:6-	D0:6-	C3:6-	C2:6-	C1:6-	C0:6-
Data 6+	6	A1:6+	A0:6+	D1:6+	D0:6+	C3:6+	C2:6+	C1:6+	C0:6+
Data 5-	5	A1:5-	A0:5-	D1:5-	D0:5-	C3:5-	C2:5-	C1:5-	C0:5-
Data 5+	5	A1:5+	A0:5+	D1:5+	D0:5+	C3:5+	C2:5+	C1:5+	C0:5+
Data 4-	4	A1:4-	A0:4-	D1:4-	D0:4-	C3:4-	C2:4-	C1:4-	C0:4-
Data 4+	4	A1:4+	A0:4+	D1:4+	D0:4+	C3:4+	C2:4+	C1:4+	C0:4+
Data 2+	2	A1:2+	A0:2+	D1:2+	D0:2+	C3:2+	C2:2+	C1:2+	C0:2+
Data 3-	3	A1:3-	A0:3-	D1:3-	D0:3-	C3:3-	C2:3-	C1:3-	C0:3-
Data 3+	3	A1:3+	A0:3+	D1:3+	D0:3+	C3:3+	C2:3+	C1:3+	C0:3+
Data 2-	2	A1:2-	A0:2-	D1:2-	D0:2-	C3:2-	C2:2-	C1:2-	C0:2-
Data 1-	1	A1:1-	A0:1-	D1:1-	D0:1-	C3:1-	C2:1-	C1:1-	C0:1-
Data 1+	1	A1:1+	A0:1+	D1:1+	D0:1+	C3:1+	C2:1+	C1:1+	C0:1+
Data 0-	0	A1:0-	A0:0-	D1:0-	D0:0-	C3:0-	C2:0-	C1:0-	C0:0-
Data 0+	0	A1:0+	A0:0+	D1:0+	D0:0+	C3:0+	C2:0+	C1:0+	C0:0+

You can find more information on 2X and 4X demultiplexing channel assignments in the *Demultiplexing Multplexed Buses* section. (See Table 2 on page 26.) (See Table 3 on page 26.)

Any differential input, either the differential clock/qualifiers on the P686x High-density Probe, or all differential data and clock/qualifiers on the P6810 General Purpose Differential Probe and P6880 High-density Differential Probe, may have their negative input pin grounded and be used as a single-ended input.

Table 6: P6810 Probe signal connections on 68- and 34-channel modules

Signal name	Podlet	Probe 2 way station for 68-channel module only				Probe 1 way station for 34-channel module only		
Clk/Qual	Clk/Qual	CK1-		CK2-		CK3-		
Clk/Qual+	Clk/Qual	CK1+		CK2+		CK3+		
Data 7-	7	A1:7-	A0:7-	D1:7-	D0:7-	C3:7-	C2:7-	A2:7-
Data 7+	7	A1:7+	A0:7+	D1:7+	D0:7+	C3:7+	C2:7+	A2:7+
Data 6-	6	A1:6-	A0:6-	D1:6-	D0:6-	C3:6-	C2:6-	A2:6-
Data 6+	6	A1:6+	A0:6+	D1:6+	D0:6+	C3:6+	C2:6+	A2:6+
Data 5-	5	A1:5-	A0:5-	D1:5-	D0:5-	C3:5-	C2:5-	A2:5-
Data 5+	5	A1:5+	A0:5+	D1:5+	D0:5+	C3:5+	C2:5+	A2:5+
Data 4-	4	A1:4-	A0:4-	D1:4-	D0:4-	C3:4-	C2:4-	A2:4-
Data 4+	4	A1:4+	A0:4+	D1:4+	D0:4+	C3:4+	C2:4+	A2:4+
Data 3-	3	A1:3-	A0:3-	D1:3-	D0:3-	C3:3-	C2:3-	A2:3-
Data 3+	3	A1:3+	A0:3+	D1:3+	D0:3+	C3:3+	C2:3+	A2:3+
Data 2-	2	A1:2-	A0:2-	D1:2-	D0:2-	C3:2-	C2:2-	A2:2-
Data 2+	2	A1:2+	A0:2+	D1:2+	D0:2+	C3:2+	C2:2+	A2:2+
Data 1-	1	A1:1-	A0:1-	D1:1-	D0:1-	C3:1-	C2:1-	A2:1-
Data 1+	1	A1:1+	A0:1+	D1:1+	D0:1+	C3:1+	C2:1+	A2:1+
Data 0-	0	A1:0-	A0:0-	D1:0-	D0:0-	C3:0-	C2:0-	A2:0-
Data 0+	0	A1:0+	A0:0+	D1:0+	D0:0+	C3:0+	C2:0+	A2:0+

You can find more information on 2X and 4X demultiplexing channel assignments in the *Demultiplexing Multplexed Buses* section. (See Table 2 on page 26.) (See Table 3 on page 26.)

Any differential input, either the differential clock/qualifiers on the P686x High-density Probe, or all differential data and clock/qualifiers on the P6810 General Purpose Differential Probe and P6880 High-density Differential Probe, may have their negative input pin grounded and be used as a single-ended input.

Table 7: P6860 High-Density Probe channel mapping on 136- and 102-channel modules

Signal name	Pad name	Probe 4 head for 136-channel module only		Probe 3 head for 136- and 102-channel modules					
Clk/Qual-	A15	Q3-	Q2-	CK0-	Q0-	CK1-	CK2-	CK3-	Q1-
GND	A14	GND	GND	GND	GND	GND	GND	GND	GND
Clk/Qual+	A13	Q3+	Q2+	CK0+	Q0+	CK1+	CK2+	CK3+	Q1+
Data 15	B12	E3:7	E1:7	A3:7	D3:7	A1:7	D1:7	C3:7	C1:7
GND	B11	GND	GND	GND	GND	GND	GND	GND	GND
Data 14	B10	E3:6	E1:6	A3:6	D3:6	A1:6	D1:6	C3:6	C1:6
Data 13	A12	E3:5	E1:5	A3:5	D3:5	A1:5	D1:5	C3:5	C1:5
GND	A11	GND	GND	GND	GND	GND	GND	GND	GND
Data 12	A10	E3:4	E1:4	A3:4	D3:4	A1:4	D1:4	C3:4	C1:4
Data 11	B9	E3:3	E1:3	A3:3	D3:3	A1:3	D1:3	C3:3	C1:3
GND	B8	GND	GND	GND	GND	GND	GND	GND	GND
Data 10	B7	E3:2	E1:2	A3:2	D3:2	A1:2	D1:2	C3:2	C1:2
Data 9	A9	E3:1	E1:1	A3:1	D3:1	A1:1	D1:1	C3:1	C1:1
GND	A8	GND	GND	GND	GND	GND	GND	GND	GND
Data 8	A7	E3:0	E1:0	A3:0	D3:0	A1:0	D1:0	C3:0	C1:0
Data 7	B6	E2:7	E0:7	A2:7	D2:7	A0:7	D0:7	C2:7	C0:7
GND	B5	GND	GND	GND	GND	GND	GND	GND	GND
Data 6	B4	E2:6	E0:6	A2:6	D2:6	A0:6	D0:6	C2:6	C0:6
Data 5	A6	E2:5	E0:5	A2:5	D2:5	A0:5	D0:5	C2:5	C0:5
GND	A5	GND	GND	GND	GND	GND	GND	GND	GND
Data 4	A4	E2:4	E0:4	A2:4	D2:4	A0:4	D0:4	C2:4	C0:4
Data 3	B3	E2:3	E0:3	A2:3	D2:3	A0:3	D0:3	C2:3	C0:3
GND	B2	GND	GND	GND	GND	GND	GND	GND	GND
Data 2	B1	E2:2	E0:2	A2:2	D2:2	A0:2	D0:2	C2:2	C0:2
Data 1	A3	E2:1	E0:1	A2:1	D2:1	A0:1	D0:1	C2:1	C0:1
GND	A2	GND	GND	GND	GND	GND	GND	GND	GND
Data 0	A1	E2:0	E0:0	A2:0	D2:0	A0:0	D0:0	C2:0	C0:0

You can find more information on 2X and 4X demultiplexing channel assignments in the *Demultiplexing Multplexed Buses* section. (See Table 2 on page 26.) (See Table 3 on page 26.)

Any differential input, either the differential clock/qualifiers on the P686x High-density Probe, or all differential data and clock/qualifiers on the P6810 General Purpose Differential Probe and P6880 High-density Differential Probe, may have their negative input pin grounded and be used as a single-ended input.

Table 8: P6860 High-Density Probe channel mapping on 68- and 34-channel modules

Signal name	Pad name	Probe 2 head for 68-channel module only		Probe 1 head for 34-channel module only	
Clk/Qual-	A15	CK1-	CK2-	CK3-	CK0-
GND	A14	GND	GND	GND	GND
Clk/Qual+	A13	CK1	CK2	CK3	CK0
Data 15	B12	A1:7	D1:7	C3:7	A3:7
GND	B11	GND	GND	GND	GND
Data 14	B10	A1:6	D1:6	C3:6	A3:6
Data 13	A12	A1:5	D1:5	C3:5	A3:5
GND	A11	GND	GND	GND	GND
Data 12	A10	A1:4	D1:4	C3:4	A3:4
Data 11	B9	A1:3	D1:3	C3:3	A3:3
GND	B8	GND	GND	GND	GND
Data 10	B7	A1:2	D1:2	C3:2	A3:2
Data 9	A9	A1:1	D1:1	C3:1	A3:1
GND	A8	GND	GND	GND	GND
Data 8	A7	A1:0	D1:0	C3:0	A3:0
Data 7	B6	A0:7	D0:7	C2:7	A2:7
GND	B5	GND	GND	GND	GND
Data 6	B4	A0:6	D0:6	C2:6	A2:6
Data 5	A6	A0:5	D0:5	C2:5	A2:5
GND	A5	GND	GND	GND	GND
Data 4	A4	A0:4	D0:4	C2:4	A2:4
Data 3	B3	A0:3	D0:3	C2:3	A2:3
GND	B2	GND	GND	GND	GND
Data 2	B1	A0:2	D0:2	C2:2	A2:2
Data 1	A3	A0:1	D0:1	C2:1	A2:1
GND	A2	GND	GND	GND	GND
Data 0	A1	A0:0	D0:0	C2:0	A2:0

You can find more information about 2X and 4X demultiplexing channel assignments in the *Demultiplexing Multplexed Buses* section. (See Table 2 on page 26.) (See Table 3 on page 26.)

Any differential input, either the differential clock/qualifiers on the P686x High-density Probe, or all differential data and clock/qualifiers on the P6810 General Purpose Differential Probe and P6880 High-density Differential Probe, may have their negative input pin grounded and be used as a single-ended input.

Table 9: P6864 High-Density 4X Probe channel mapping on 34-, 68-, 102- and 136-channel modules

Land pattern		34- and 68-channel module probe labeling	102- and 136-channel module probe labeling	
Signal name	Pad name	Probe	Probe 1	Probe 2
Clk/Qual -	A15	CK3-	CK3-	CK1-
Gnd	A14	GND	GND	GND
Clk/Qual +	A13	CK3+	CK3+	CK1+
D15	B12	A1-0 [1]	E3-0 [2]	A3-0
Gnd	B11	GND	GND	GND
D14	B10	A1-1 [1]	E3-1	A3-1
D13	A12	C3-7	C3-7	A1-7
Gnd	A11	GND	GND	GND
D12	A10	C3-6	C3-6	A1-6
D11	B9	A1-2 [1]	E3-2 [2]	A3-2
Gnd	B8	GND	GND	GND
D10	B7	A1-3 [1]	E3-3 [2]	A3-3
D9	A9	C3-5	C3-5	A1-5
Gnd	A8	GND	GND	GND
D8	A7	C3-4	C3-4	A1-4
D7	B6	A1-4 [1]	E3-4 [2]	A3-4
Gnd	B5	GND	GND	GND
D6	B4	A1-5 [1]	E3-5 [2]	A3-5
D5	A6	C3-3	C3-3	A1-3
Gnd	A5	GND	GND	GND
D4	A4	C3-2	C3-2	A1-2
D3	B3	A1-6 [1]	E3-6 [2]	A3-6
Gnd	B2	GND	GND	GND
D2	B1	A1-7 [1]	E3-7 [2]	A3-7
D1	A3	C3-1	C3-1	A1-1
Gnd	A2	GND	GND	GND
D0	A1	C3-0	C3-0	A1-0

[1]   Unavailable with a 34 channel module

[2]   Unavailable with a 102 channel module

NOTE. The P6864 probe is usable in 4X demultiplex mode only

Table 10: P6880 High-Density Differential Probe channel mapping on 136- and 102-channel modules for probe 4 and probe 3

Signal name	Pad name	Probe 4 head for 136-channel module only				Probe 3 head for 102-channel module only			
Clk/Qual-	A15	Q3-		Q2-		CK0-		Q0-	
GND	A14	GND	GND	GND	GND	GND	GND	GND	GND
Clk/Qual+	A13	Q3+		Q2+		CK0+		Q0+	
Data 7+	B12	E3:7+	E2:7+	E1:7+	E0:7+	A3:7+	A2:7+	D3:7+	D2:7+
GND	B11	GND	GND	GND	GND	GND	GND	GND	GND
Data 7-	B10	E3:7-	E2:7-	E1:7-	E0:7-	A3:7-	A2:7-	D3:7-	D2:7-
Data 6-	A12	E3:6-	E2:6-	E1:6-	E0:6-	A3:6-	A2:6-	D3:6-	D2:6-
GND	A11	GND	GND	GND	GND	GND	GND	GND	GND
Data 6+	A10	E3:6+	E2:6+	E1:6+	E0:6+	A3:6+	A2:6+	D3:6+	D2:6+
Data 5+	B9	E3:5+	E2:5+	E1:5+	E0:5+	A3:5+	A2:5+	D3:5+	D2:5+
GND	B8	GND	GND	GND	GND	GND	GND	GND	GND
Data 5-	B7	E3:5-	E2:5-	E1:5-	E0:5-	A3:5-	A2:5-	D3:5-	D2:5-
Data 4-	A9	E3:4-	E2:4-	E1:4-	E0:4-	A3:4-	A2:4-	D3:4-	D2:4-
GND	A8	GND	GND	GND	GND	GND	GND	GND	GND
Data 4+	A7	E3:4+	E2:4+	E1:4+	E0:4+	A3:4+	A2:4+	D3:4+	D2:4+
Data 3+	B6	E3:3+	E2:3+	E1:3+	E0:3+	A3:3+	A2:3+	D3:3+	D2:3+
GND	B5	GND	GND	GND	GND	GND	GND	GND	GND
Data 3-	B4	E3:3-	E2:3-	E1:3-	E0:3-	A3:3-	A2:3-	D3:3-	D2:3-
Data 2-	A6	E3:2-	E2:2-	E1:2-	E0:2-	A3:2-	A2:2-	D3:2-	D2:2-
GND	A5	GND	GND	GND	GND	GND	GND	GND	GND
Data 2+	A4	E3:2+	E2:2+	E1:2+	E0:2+	A3:2+	A2:2+	D3:2+	D2:2+
Data 1+	B3	E3:1+	E2:1+	E1:1+	E0:1+	A3:1+	A2:1+	D3:1+	D2:1+
GND	B2	GND	GND	GND	GND	GND	GND	GND	GND
Data 1-	B1	E3:1-	E2:1-	E1:1-	E0:1-	A3:1-	A2:1-	D3:1-	D2:1-
Data 0-	A3	E3:0-	E2:0-	E1:0-	E0:0-	A3:0-	A2:0-	D3:0-	D2:0-
GND	A2	GND	GND	GND	GND	GND	GND	GND	GND
Data 0+	A1	E3:0+	E2:0+	E1:0+	E0:0+	A3:0+	A2:0+	D3:0+	D2:0+

You can find more information about 2X and 4X demultiplexing channel assignments in the *Demultiplexing Multplexed Buses* section. (See Table 2 on page 26.) (See Table 3 on page 26.)

Any differential input, either the differential clock/qualifiers on the P686x High-density Probe, or all differential data and clock/qualifiers on the P6810 General Purpose Differential Probe and P6880 High-density Differential Probe, may have their negative input pin grounded and be used as a single-ended input.

Table 11: P6880 High-Density Differential Probe channel mapping on 136- and 102-channel modules for probe 2 and probe 1

Signal name	Pad name	Probe 2 head				Probe 1 head			
Clk/Qual-	A15	CK1-		CK2-		CK3-		Q1-	
GND	A14	GND	GND	GND	GND	GND	GND	GND	GND
Clk/Qual+	A13	CK1+		CK2+		CK3+		Q1+	
Data 7+	B12	A1:7+	A0:7+	D1:7+	D0:7+	C3:7+	C2:7+	C1:7+	C0:7+
GND	B11	GND	GND	GND	GND	GND	GND	GND	GND
Data 7-	B10	A1:7-	A0:7-	D1:7-	D0:7-	C3:7-	C2:7-	C1:7-	C0:7-
Data 6-	A12	A1:6-	A0:6-	D1:6-	D0:6-	C3:6-	C2:6-	C1:6-	C0:6-
GND	A11	GND	GND	GND	GND	GND	GND	GND	GND
Data 6+	A10	A1:6+	A0:6+	D1:6+	D0:6+	C3:6+	C2:6+	C1:6+	C0:6+
Data 5+	B9	A1:5+	A0:5+	D1:5+	D0:5+	C3:5+	C2:5+	C1:5+	C0:5+
GND	B8	GND	GND	GND	GND	GND	GND	GND	GND
Data 5-	B7	A1:5-	A0:5-	D1:5-	D0:5-	C3:5-	C2:5-	C1:5-	C0:5-
Data 4-	A9	A1:4-	A0:4-	D1:4-	D0:4-	C3:4-	C2:4-	C1:4-	C0:4-
GND	A8	GND	GND	GND	GND	GND	GND	GND	GND
Data 4+	A7	A1:4+	A0:4+	D1:4+	D0:4+	C3:4+	C2:4+	C1:4+	C0:4+
Data 3+	B6	A1:3+	A0:3+	D1:3+	D0:3+	C3:3+	C2:3+	C1:3+	C0:3+
GND	B5	GND	GND	GND	GND	GND	GND	GND	GND
Data 3-	B4	A1:3-	A0:3-	D1:3-	D0:3-	C3:3-	C2:3-	C1:3-	C0:3-
Data 2-	A6	A1:2-	A0:2-	D1:2-	D0:2-	C3:2-	C2:2-	C1:2-	C0:2-
GND	A5	GND	GND	GND	GND	GND	GND	GND	GND
Data 2+	A4	A1:2+	A0:2+	D1:2+	D0:2+	C3:2+	C2:2+	C1:2+	C0:2+
Data 1+	B3	A1:1+	A0:1+	D1:1+	D0:1+	C3:1+	C2:1+	C1:1+	C0:1+
GND	B2	GND	GND	GND	GND	GND	GND	GND	GND
Data 1-	B1	A1:1-	A0:1-	D1:1-	D0:1-	C3:1-	C2:1-	C1:1-	C0:1-
Data 0-	A3	A1:0-	A0:0-	D1:0-	D0:0-	C3:0-	C2:0-	C1:0-	C0:0-
GND	A2	GND	GND	GND	GND	GND	GND	GND	GND
Data 0+	A1	A1:0+	A0:0+	D1:0+	D0:0+	C3:0+	C2:0+	C1:0+	C0:0+

You can find more information about 2X and 4X demultiplexing channel assignments in the *Demultiplexing Multplexed Buses* section. (See Table 2 on page 26.) (See Table 3 on page 26.)

Any differential input, either the differential clock/qualifiers on the P686x High-density Probe, or all differential data and clock/qualifiers on the P6810 General Purpose Differential Probe and P6880 High-density Differential Probe, may have their negative input pin grounded and be used as a single-ended input.

Table 12: P6880 High-Density Differential Probe channel mapping on 68- and 34-channel modules

Signal name	Pad name	Probe 2 head for 68-channel module only				Probe 1 head 34-channel module only			
Clk/Qual-	A15	CK1-		CK2-		CK3-		CK0-	
GND	A14	GND	GND	GND	GND	GND	GND	GND	GND
Clk/Qual+	A13	CK1-		CK2-		CK3+		CK0+	
Data 7+	B12	A1:7+	A0:7+	D1:7+	D0:7+	C3:7+	C2:7+	A3:7+	A2:7+
GND	B11	GND	GND	GND	GND	GND	GND	GND	GND
Data 7-	B10	A1:7-	A0:7-	D1:7-	D0:7-	C3:7-	C2:7-	A3:7-	A2:7-
Data 6-	A12	A1:6-	A0:6-	D1:6-	D0:6-	C3:6-	C2:6-	A3:6-	A2:6-
GND	A11	GND	GND	GND	GND	GND	GND	GND	GND
Data 6+	A10	A1:6+	A0:6+	D1:6+	D0:6+	C3:6+	C2:6+	A3:6+	A2:6+
Data 5+	B9	A1:5+	A0:5+	D1:5+	D0:5+	C3:5+	C2:5+	A3:5+	A2:5+
GND	B8	GND	GND	GND	GND	GND	GND	GND	GND
Data 5-	B7	A1:5-	A0:5-	D1:5-	D0:5-	C3:5-	C2:5-	A3:5-	A2:5-
Data 4-	A9	A1:4-	A0:4-	D1:4-	D0:4-	C3:4-	C2:4-	A3:4-	A2:4-
GND	A8	GND	GND	GND	GND	GND	GND	GND	GND
Data 4+	A7	A1:4+	A0:4+	D1:4+	D0:4+	C3:4+	C2:4+	A3:4+	A2:4+
Data 3+	B6	A1:3+	A0:3+	D1:3+	D0:3+	C3:3+	C2:3+	A3:3+	A2:3+
GND	B5	GND	GND	GND	GND	GND	GND	GND	GND
Data 3-	B4	A1:3-	A0:3-	D1:3-	D0:3-	C3:3-	C2:3-	A3:3-	A2:3-
Data 2-	A6	A1:2-	A0:2-	D1:2-	D0:2-	C3:2-	C2:2-	A3:2-	A2:2-
GND	A5	GND	GND	GND	GND	GND	GND	GND	GND
Data 2+	A4	A1:2+	A0:2+	D1:2+	D0:2+	C3:2+	C2:2+	A3:2+	A2:2+
Data 1+	B3	A1:1+	A0:1+	D1:1+	D0:1+	C3:1+	C2:1+	A3:1+	A2:1+
GND	B2	GND	GND	GND	GND	GND	GND	GND	GND
Data 1-	B1	A1:1-	A0:1-	D1:1-	D0:1-	C3:1-	C2:1-	A3:1-	A2:1-
Data 0-	A3	A1:0-	A0:0-	D1:0-	D0:0-	C3:0-	C2:0-	A3:0-	A2:0-
GND	A2	GND	GND	GND	GND	GND	GND	GND	GND
Data 0+	A1	A1:0+	A0:0+	D1:0+	D0:0+	C3:0+	C2:0+	A3:0+	A2:0+

You can find more information about 2X and 4X demultiplexing channel assignments in the *Demultiplexing Multplexed Buses* section. (See Table 2 on page 26.) (See Table 3 on page 26.)

Any differential input, either the differential clock/qualifiers on the P686x High-density Probe, or all differential data and clock/qualifiers on the P6810 General Purpose Differential Probe and P6880 High-density Differential Probe, may have their negative input pin grounded and be used as a single-ended input.

Table 13: Channel mapping for 136- and 102-channel modules

Compression		Mictor	136-channel module only	136- and 102-channel modules		
Signal name	Pad name	Mictor pin number	Adapter 4/ probe head 4	Adapter 3/ probe head 3	Adapter 2/ probe head 2	Adapter 1/ probe head 1
J1 Clk/Qual-	A15	NC	NC	NC	NC	NC
GND	A14	GND	GND	GND	GND	GND
J1 Clk/Qual+	A13	5	Q3	Q0	CK0	CK3
J1 Data 15	B12	7	E3:7	D3:7	A3:7	C3:7
GND	B11	GND	GND	GND	GND	GND
J1 Data 14	B10	9	E3:6	D3:6	A3:6	C3:6
J1 Data 13	A12	11	E3:5	D3:5	A3:5	C3:5
GND	A11	GND	GND	GND	GND	GND
J1 Data 12	A10	13	E3:4	D3:4	A3:4	C3:4
J1 Data 11	B9	15	E3:3	D3:3	A3:3	C3:3
GND	B8	GND	GND	GND	GND	GND
J1 Data 10	B7	17	E3:2	D3:2	A3:2	C3:2
J1 Data 9	A9	19	E3:1	D3:1	A3:1	C3:1
GND	A8	GND	GND	GND	GND	GND
J1 Data 8	A7	21	E3:0	D3:0	A3:0	C3:0
J1 Data 7	B6	23	E2:7	D2:7	A2:7	C2:7
GND	B5	GND	GND	GND	GND	GND
J1 Data 6	B4	25	E2:6	D2:6	A2:6	C2:6
J1 Data 5	A6	27	E2:5	D2:5	A2:5	C2:5
GND	A5	GND	GND	GND	GND	GND
J1 Data 4	A4	29	E2:4	D2:4	A2:4	C2:4
J1 Data 3	B3	31	E2:3	D2:3	A2:3	C2:3
GND	B2	GND	GND	GND	GND	GND
J1 Data 2	B1	33	E2:2	D2:2	A2:2	C2:2
J1 Data 1	A3	35	E2:1	D2:1	A2:1	C2:1
GND	A2	GND	GND	GND	GND	GND
J1 Data 0	A1	37	E2:0	D2:0	A2:0	C2:0
J2 Clk/Qual-	A15	NC	NC	NC	NC	NC
GND	A14	GND	GND	GND	GND	GND
J2 Clk/Qual+	A13	6	Q2	CK2	CK1	Q1
J2 Data 15	B12	8	E1:7	D1:7	A1:7	C1:7
GND	B11	GND	GND	GND	GND	GND
J2 Data 14	B10	10	E1:6	D1:6	A1:6	C1:6
J2 Data 13	A12	12	E1:5	D1:5	A1:5	C1:5

Table 13: Channel mapping for 136- and 102-channel modules (cont.)

Compression		Mictor	136-channel module only	136- and 102-channel modules		
Signal name	Pad name	Mictor pin number	Adapter 4/ probe head 4	Adapter 3/ probe head 3	Adapter 2/ probe head 2	Adapter 1/ probe head 1
GND	A11	GND	GND	GND	GND	GND
J2 Data 12	A10	14	E1:4	D1:4	A1:4	C1:4
J2 Data 11	B9	16	E1:3	D1:3	A1:3	C1:3
GND	B8	GND	GND	GND	GND	GND
J2 Data 10	B7	18	E1:2	D1:2	A1:2	C1:2
J2 Data 9	A9	20	E1:1	D1:1	A1:1	C1:1
GND	A8	GND	GND	GND	GND	GND
J2 Data 8	A7	22	E1:0	D1:0	A1:0	C1:0
J2 Data 7	B6	24	E0:7	D0:7	A0:7	C0:7
GND	B5	GND	GND	GND	GND	GND
J2 Data 6	B4	26	E0:6	D0:6	A0:6	C0:6
J2 Data 5	A6	28	E0:5	D0:5	A0:5	C0:5
GND	A5	GND	GND	GND	GND	GND
J2 Data 4	A4	30	E0:4	D0:4	A0:4	C0:4
J2 Data 3	B3	32	E0:3	D0:3	A0:3	C0:3
GND	B2	GND	GND	GND	GND	GND
J2 Data 2	B1	34	E0:2	D0:2	A0:2	C0:2
J2 Data 1	A3	36	E0:1	D0:1	A0:1	C0:1
GND	A2	GND	GND	GND	GND	GND
J2 Data 0	A1	38	E0:0	D0:0	A0:0	C0:0

You can find more information about 2X and 4X demultiplexing channel assignments in the *Demultiplexing Multplexed Buses* section. (See Table 2 on page 26.) (See Table 3 on page 26.)

Any differential input, either the differential clock/qualifiers on the P686x High-density Probe, or all differential data and clock/qualifiers on the P6810 General Purpose Differential Probe and P6880 High-density Differential Probe, may have their negative input pin grounded and be used as a single-ended input.

Table 14: Channel mapping for 68-channel module

Compression land pattern		Mictor land pattern	Channel module	
Signal name	Pad name	Mictor pin number	Adapter 1/ probe head 1	Adapter 2/ probe head 1
J1 Clk/Qual-	A15	NC	NC	NC
GND	A14	GND	GND	GND

Table 14: Channel mapping for 68-channel module (cont.)

Compression land pattern		Mictor land pattern	Channel module	
Signal name	Pad name	Mictor pin number	Adapter 1/ probe head 1	Adapter 2/ probe head 1
J1 Clk/Qual+	A13	5	CK0	CK3
J1 Data 15	B12	7	A3:7	C3:7
GND	B11	GND	GND	GND
J1 Data 14	B10	9	A3:6	C3:6
J1 Data 13	A12	11	A3:5	C3:5
GND	A11	GND	GND	GND
J1 Data 12	A10	13	A3:4	C3:4
J1 Data 11	B9	15	A3:3	C3:3
GND	B8	GND	GND	GND
J1 Data 10	B7	17	A3:2	C3:2
J1 Data 9	A9	19	A3:1	C3:1
GND	A8	GND	GND	GND
J1 Data 8	A7	21	A3:0	C3:0
J1 Data 7	B6	23	A2:7	C2:7
GND	B5	GND	GND	GND
J1 Data 6	B4	25	A2:6	C2:6
J1 Data 5	A6	27	A2:5	C2:5
GND	A5	GND	GND	GND
J1 Data 4	A4	29	A2:4	C2:4
J1 Data 3	B3	31	A2:3	C2:3
GND	B2	GND	GND	GND
J1 Data 2	B1	33	A2:2	C2:2
J1 Data 1	A3	35	A2:1	C2:1
GND	A2	GND	GND	GND
J1 Data 0	A1	37	A2:0	C2:0
J2 Clk/Qual+	A15	NC	NC	NC
GND	A14	GND	GND	GND
J2 Clk/Qual+	A13	6	CK1	CK2
J2 Data 15	B12	8	A1:7	D1:7
GND	B11	GND	GND	GND
J2 Data 14	B10	10	A1:6	D1:6
J2 Data 13	A12	12	A1:5	D1:5
GND	A11	GND	GND	GND
J2 Data 12	A10	14	A1:4	D1:4
J2 Data 11	B9	16	A1:3	D1:3

Table 14: Channel mapping for 68-channel module (cont.)

Compression land pattern		Mictor land pattern	Channel module	
Signal name	Pad name	Mictor pin number	Adapter 1/ probe head 1	Adapter 2/ probe head 1
GND	B8	GND	GND	GND
J2 Data 10	B7	18	A1:2	D1:2
J2 Data 9	A9	20	A1:1	D1:1
GND	A8	GND	GND	GND
J2 Data 8	A7	22	A1:0	D1:0
J2 Data 7	B6	24	A0:7	D0:7
GND	B5	GND	GND	GND
J2 Data 6	B4	26	A0:6	D0:6
J2 Data 5	A6	28	A0:5	D0:5
GND	A5	GND	GND	GND
J2 Data 4	A4	30	A0:4	D0:4
J2 Data 3	B3	32	A0:3	D0:3
GND	B2	GND	GND	GND
J2 Data 2	B1	34	A0:2	D0:2
J2 Data 1	A3	36	A0:1	D0:1
GND	A2	GND	GND	GND
J2 Data 0	A1	38	A0:0	D0:0

You can find more information about 2X and 4X demultiplexing channel assignments in the *Demultiplexing Multplexed Buses* section.

Any differential input, either the differential clock/qualifiers on the P686x High-density Probe, or all differential data and clock/qualifiers on the P6810 General Purpose Differential Probe and P6880 High-density Differential Probe, may have their negative input pin grounded and be used as a single-ended input.

Table 15: Channel mapping for 34-channel module

Compression land pattern		Mictor land pattern	Channel module
Signal name	Pad name	Mictor pin number	Adapter 1/probe head 1
J1 Clk/Qual-	A15	NC	NC
GND	A14	GND	GND
J1 Clk/Qual+	A13	5	CK3
J1 Data 15	B12	7	C3:7
GND	B11	GND	GND
J1 Data 14	B10	9	C3:6
J1 Data 13	A12	11	C3:5
GND	A11	GND	GND
J1 Data 12	A10	13	C3:4
J1 Data 11	B9	15	C3:3
GND	B8	GND	GND
J1 Data 10	B7	17	C3:2
J1 Data 9	A9	19	C3:1
GND	A8	GND	GND
J1 Data 8	A7	21	C3:0
J1 Data 7	B6	23	C2:7
GND	B5	GND	GND
J1 Data 6	B4	25	C2:6
J1 Data 5	A6	27	C2:5
GND	A5	GND	GND
J1 Data 4	A4	29	C2:4
J1 Data 3	B3	31	C2:3
GND	B2	GND	GND
J1 Data 2	B1	33	C2:2
J1 Data 1	A3	35	C2:1
GND	A2	GND	GND
J1 Data 0	A1	37	C2:0
J2 Clk/Qual+	A15	NC	NC
GND	A14	GND	GND
J2 Clk/Qual+	A13	6	CK0
J2 Data 15	B12	8	A3:7
GND	B11	GND	GND
J2 Data 14	B10	10	A3:6
J2 Data 13	A12	12	A3:5
GND	A11	GND	GND
J2 Data 12	A10	14	A3:4

Table 15: Channel mapping for 34-channel module (cont.)

Compression land pattern		Mictor land pattern	Channel module
Signal name	Pad name	Mictor pin number	Adapter 1/probe head 1
J2 Data 11	B9	16	A3:3
GND	B8	GND	GND
J2 Data 10	B7	18	A3:2
J2 Data 9	A9	20	A3:1
GND	A8	GND	GND
J2 Data 8	A7	22	A3:0
J2 Data 7	B6	24	A2:7
GND	B5	GND	GND
J2 Data 6	B4	26	A2:6
J2 Data 5	A6	28	A2:5
GND	A5	GND	GND
J2 Data 4	A4	30	A2:4
J2 Data 3	B3	32	A2:3
GND	B2	GND	GND
J2 Data 2	B1	34	A2:2
J2 Data 1	A3	36	A2:1
GND	A2	GND	GND
J2 Data 0	A1	38	A2:0

You can find more information about 2X and 4X demultiplexing channel assignments in the *Demultiplexing Multplexed Buses* section. (See Table 2 on page 26.) (See Table 3 on page 26.)

Any differential input, either the differential clock/qualifiers on the P686x High-density Probe, or all differential data and clock/qualifiers on the P6810 General Purpose Differential Probe and P6880 High-density Differential Probe, may have their negative input pin grounded and be used as a single-ended input.

Special Considerations for the Adapters. Consider the following issues when you use either the Compression-on-PCB to P6434 Mictor adapter or the Mictor-on-PCB to P6860 Compression adapters.

■ Use of the Compression-on-PCB to P6434 Mictor and Mictor-on-PCB to P6860 Compression adapters on existing 68- and 34-channel embedded configurations and supports may require exchanging the P6860 Probe heads or P6434 module connector ends to accommodate all older Tektronix logic analyzer signal connection alternatives. For additional information on P6434 and P6800 probe-to-module orientation refer to the following:

■ *P6810 General Purpose Logic Analyzer Probe Label Instructions*

■ *P6860 High Density Logic Analyzer Probe Label Instructions*

- *P6880 High Density Differential Logic Analyzer Probe Label Instructions*

- *P6864 High Density 4X Logic Analyzer Probe Label Instructions*

- *P6434 Probe Label Instructions*

- On the Compression-on-PCB to P6434 Mictor adapter, the negative side of the differential clock/qualifiers are left floating (N/C) to allow a differential clock signal to be connected to the compression footprint and still be probed by a P6434. However, the P6434 will only see the CLK+ side of the differential line. This also allows the P6860 Probes to be connected in the future and provide true differential clock/qualifier support.

- On the Mictor-on-PCB to P6860 Compression adapter, the negative side of the differential clock/qualifier inputs on the compression connection side are internally grounded to support viewing the single-ended clock/qualifier inputs supported by the P6434 Probe and older Tektronix logic analyzers.

Land Footprints The following section shows the land footprints for the P6810, P686x, and P6880 Probes. These figures contain the signal to land pattern assignments.

P6810 Probe Land Footprint. The P6810 General Purpose Probe land footprint. (See Figure 15.) Pin spacing allows for spacing tolerance between 8-channel podlet holder and clock/qualifier podlet configurations. Negative inputs of differential signals may be grounded to support single-ended signal inputs.

Pin spacing between 8-channel podlet groups and clock/qual podlets

Section names		Clock channel
Orange probe	A0	A1	CK1
Brown probe	A2	A3	CK0
Gray probe	C0	C1	Q1
White probe	C2	C3	CK3
Yellow probe	D0	D1	CK2
Blue probe	D2	D3	Q0
Violet probe	E0	E1	Q2
Green probe	E2	E3	Q3

16 Channels plus one clock - grouping footprint

8-Channel probe footprint with 8-channel podlet grouper attached

Single podlet footprint
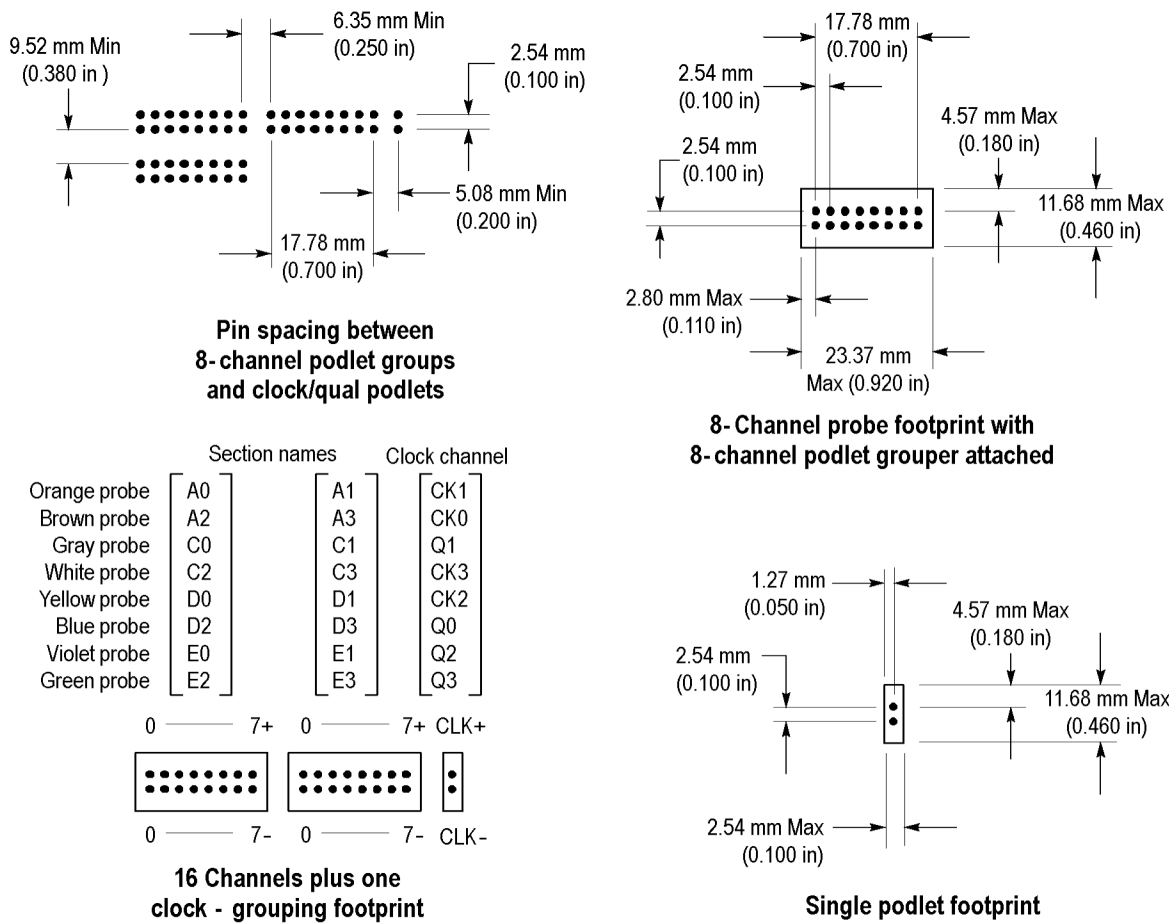
All dimensions are per standard IPC tolerance, which is 0.004 inches

Figure 15: P6810 General-Purpose probe land footprint

P686x Probe Land Footprint. The following two figures show the land footprint for the P686x High-Density Probe and an example of the High-Density Probe land footprint in a typical pass-through signal path layout configuration. (See Figure 16 on page 45.) This type of configuration optimizes minimal probe loading. An example layout of the High-Density Compression and Mictor land footprints is also shown. (See Figure 18 on page 46.)

Probe head #2

Probe head #1
(Not applicable to
P6864 probe)
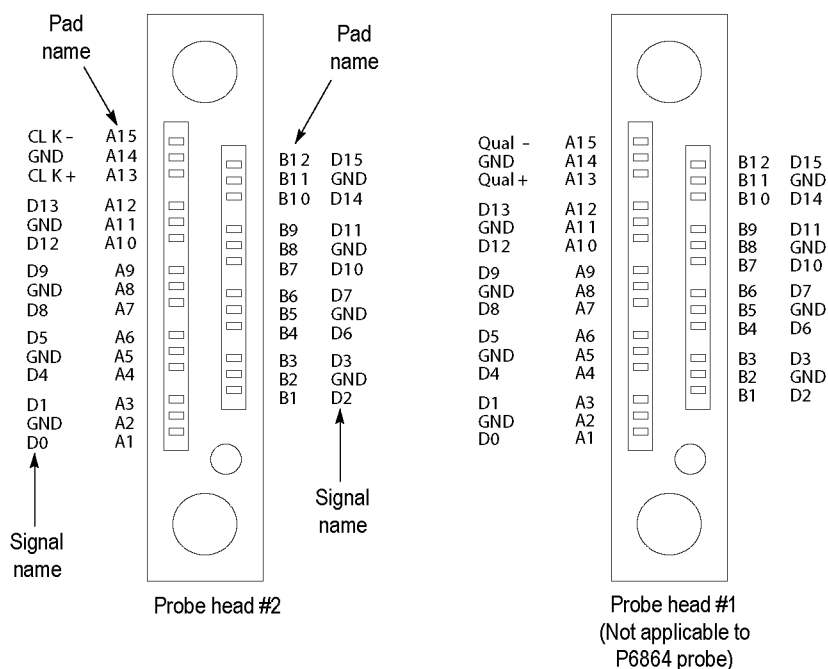
Figure 16: P686x High-Density probe land footprint

Signal Name	Pad Name	Signal Name	Pad Name
CLK/ Qual –	A15	GND	A14
CLK/ Qual +	A13		
Data 15	B12	GND	B11
Data 14	B10		
Data 13	A12	GND	A11
Data 12	A10		
Data 11	B9	GND	B8
Data 10	B7		
Data 9	A9	GND	A8
Data 8	A7		
Data 7	B6	GND	B5
Data 6	B4		
Data 5	A6	GND	A5
Data 4	A4		
Data 3	B3	GND	B2
Data 2	B1		
Data 1	A3	GND	A2
Data 0 (LSB)	A1		
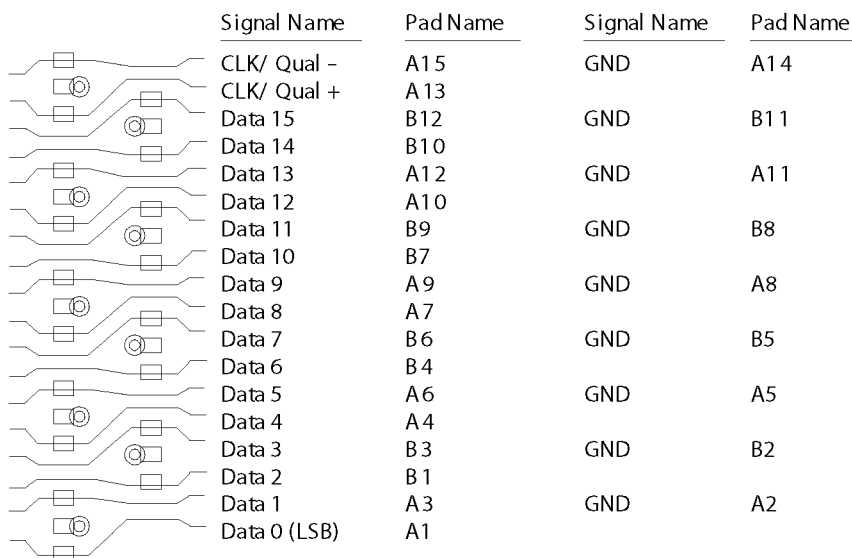
Figure 17: High-Density probe land footprint in a typical pass-through signal path layout configuration
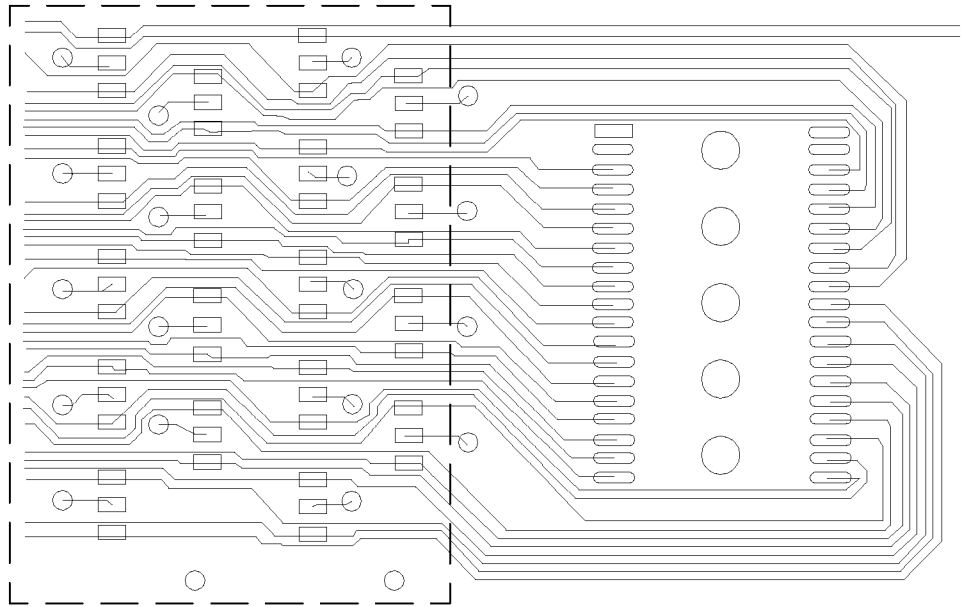
Figure 18: Example layouts of the High-Density compression compared to the mictor land footprints

P6880 Differential Probe Land Footprint. The following two figures show the land footprint for the P6880 High-Density Differential Probe and an example of the High-Density Differential Probe land footprint in a typical pass-through signal path layout configuration. (See Figure 19 on page 47.) (See Figure 20 on page 47.)

NOTE. Because the land pattern is the same between P6880 and P6860 probes, you can also use the P6860 probe to look at both sides of the differential signal using two separate input channels on the P6860 probe.
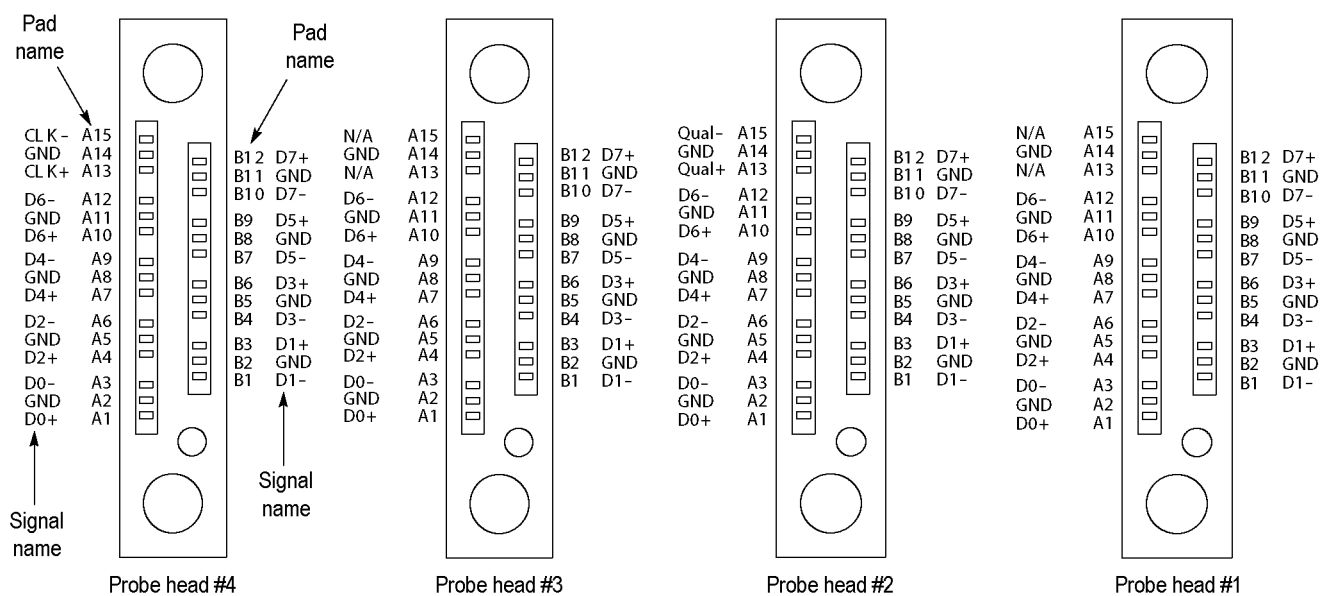
Figure 19: P6880 Differential probe land footprint

Figure 20: High-Density Differential probe land footprint in a typical pass-through signal path layout configuration

Mechanical Considerations

This section provides information on compression land footprint requirements and physical attachment requirements.

The PCB holes, in general, do not have an impact upon the integrity of your signals when the signals routed around the holes have the corresponding return current plane immediately below the signal trace for the entire signal path from driver to receiver.

NOTE. For optimum signal integrity, there should be a continuous, uninterrupted ground return plane along the entire signal path.

Land Footprint Requirements for the P686x and P6880 Probes. The compression land footprint requirements of the P686x and P6880 Probes are shown in the illustration. (See Figure 21.)

32.13 mm
(1.265 in)

25.65 mm (1.010 in)

21.49 mm (.846 in)
19.48 mm (.767 in)

15.82 mm (.623 in)

12.17 mm (.479 in)

8.51 mm (.335 in)
6.50 mm (.256 in)

3.68 mm (.145 in)

6.35 mm (0.250 in) X 32.13 mm (1.265 in)
Frontside component keepout area.

1.70 mm (0.067 in) diameter

2X 3.50 mm (0.138 in)
diameter thin PCB with nut bar.

6.35 mm
(0.250 in)

4X 1.16 mm (0.046 in)

5X 1.16 mm (0.046 in)

3.18 mm (0.125 in)
1.14 mm (0.045 in)
.000

3.18 mm (0.125 in)

6.35 mm (.250-in) X 32.13 mm (1.265-in)
Backside component keepout area for Nut Bar
version, press-in nut clearance only required
on press-in nut version.

2X 3.73 mm (0.147 in) diameter
thick PCB with press in nut.

22.81 mm (.898 in)
20.80 mm (.819 in)

17.15 mm (.675 in)

13.49 mm (.531 in)

9.83 mm (.387 in)

6.17 mm (.243 in)
4.17 mm (.164 in)

.000

3.25 mm (.128 in)

3X 0.41 mm (0.016 in)

0.25 mm (0.010 in)

3X 0.81 mm (0.032 in)

0.25 mm (0.010 in)

0.91 mm (0.036 in)

.000

0.91 mm (0.036 in)

* 2 X 5.72 mm (0.225 in)
diameter component and run
keepout backside layers.

* 2 X 4.57 mm (0.180 in)
diameter internal/topside
layers when using press-in nut.

* The need for additional keepout area depends on
the requirements of both your PCB manufacturer and
your outsourced PCB assembly manufacturer.

All dimensions are per standard IPC
tolerance, which is   0.004 inches

Position B12

Position B1

White silk-screen bar to indicate
directional keying hole (easier
orientation identification).

Probe body keepout

Position A15

Position A1

Via Keepout

Figure 21: Land footprint requirements for the P686x and P6880 probes (top view)

Special Considerations

⚠ **WARNING.** *To avoid personal injury due to electric shock, always turn off the power on your target system before cleaning the compression footprint.*

- Cleanliness is important for a reliable connection. (See page 13, *Cleaning the P686x and P6880 Compression Footprints*.)

- Line boxes around the pin groupings are the via keepout areas (not part of the actual land footprint).

- Solder mask is required between all land pads in the component keepout area.

- All signal runs in the keepout areas are required to maintain PCB and solder mask tolerances to ensure that no exposed runs or metal exist between pads. This requirement avoids the risk of shorting signal runs.

- Solder mask hardness of at least 8H (pencil hardness) and thickness of at least 0.0762 mm to 0.1270 mm (0.0003 to 0.0005 in) has been verified for several hundred cycles without appreciable wear from the compression contact cycling.

- The compression land footprint design was verified on the immersion gold process.

Land Footprint Requirements for the Compression-on-PCB to P6434 Mictor Adapter. The following two figures show the land footprint requirements of the Compression-on-PCB to P6434 Mictor adapter. (See Figure 22 on page 51.) (See Figure 23 on page 51.) This compression adapter converts from the new compression footprint to the existing P6434 Mictor-based 34-channel probe.

Refer to the *P6434 Mass Termination Probe Manual* for the Mictor land footprint specification. The recommended channel mappings for the Compression-on-PCB to P6434 Mictor adapter and Mictor-on-PCB to Compression adapter is listed. (See Table 13 on page 37.)
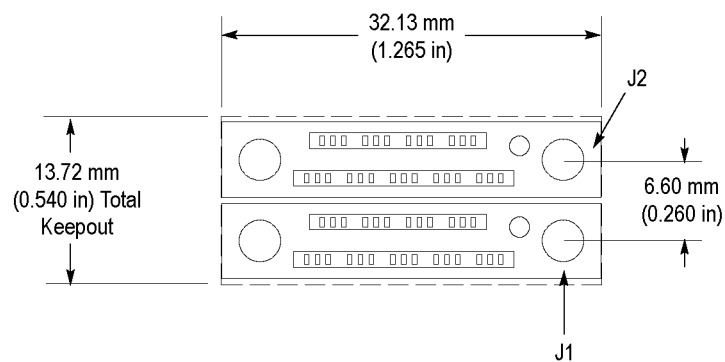
Figure 22: Land footprint requirements for the 34-channel Compression-on-PCB to P6434 Mictor adapter
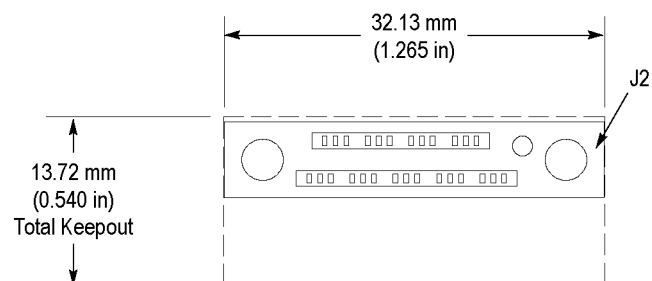
Figure 23: Land footprint requirements for the 17-channel Compression-on-PCB to P6434 Mictor adapter

Special Considerations

■ Two compression land footprints must be spaced as per the mechanical dimensions specified to support the compression adapter.

■ Placement of the compression land footprints is only constrained with use of the compression adapter, not in normal usage of the TLA7Axx logic analyzer with a High-Density Probe.

■ The P6434 Probe and older logic analyzer modules do not support differential signals. Therefore, the compression adapter cannot be used to support differential signals beyond capturing each side of the differential signal independently in a single-ended manner.

■ The compression adapter will add capacitance to the P6434 Probe input capacitance. The Mictor adapter adds 2.7 pF to the High-Density Compression probe load of 0.7 pF for a combined adapter capacitance load of 3.4 pF.

■ The TLA7Axx logic analyzer with the P6860 High-Density Probe will connect directly to the compression land footprint to support high performance data capture and viewing needs.

■ The TLA7Axx logic analyzer with the P6880 High-Density Differential Probe will also connect directly to the compression land footprint to support high performance differential signal capture and viewing needs.

Physical Attachment Requirements for the P6810 Probe. The physical dimensions of the P6810 General Purpose Probe. (See Figure 24.)
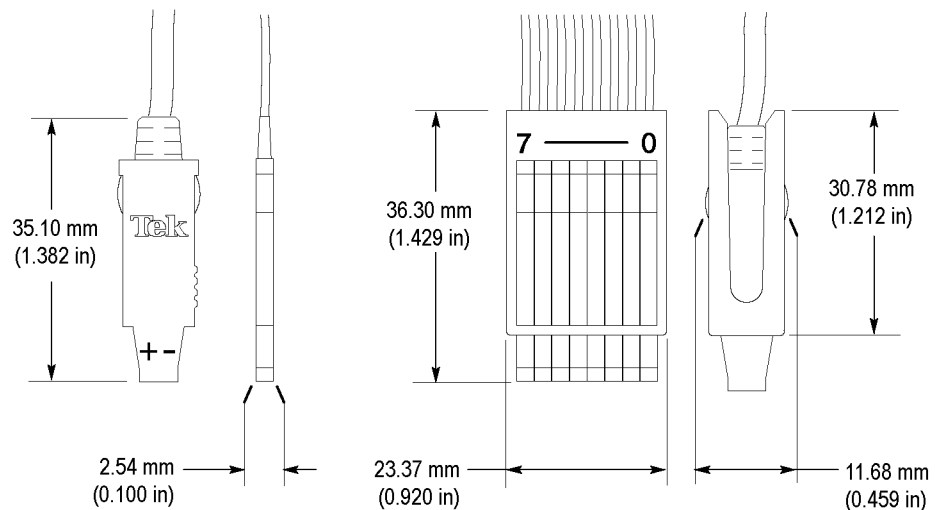
Figure 24: Physical attachment requirements for the P6810 probe

Physical Attachment Requirements for the P686x and P6880 Probes. The connector-less P686x High-Density Probe and P6880 High-Density Differential Probe interconnects are designed to accommodate PCB thickness ranging from 1.27 mm to 3.81 mm (0.050 in to 0.150 in). To accommodate this range, there are two versions of the design.

■ Nut bar–If the PCB thickness is 1.27 mm to 2.36 mm (0.050 in to 0.093 in), use the nut bar with the thin elastomer. (See Figure 25.)

■ Press-in nut–If the PCB thickness is 2.36 mm to 3.81 mm (0.093 in to 0.150 in), use the press-in nut with the thick elastomer. (See Figure 26 on page 54.)
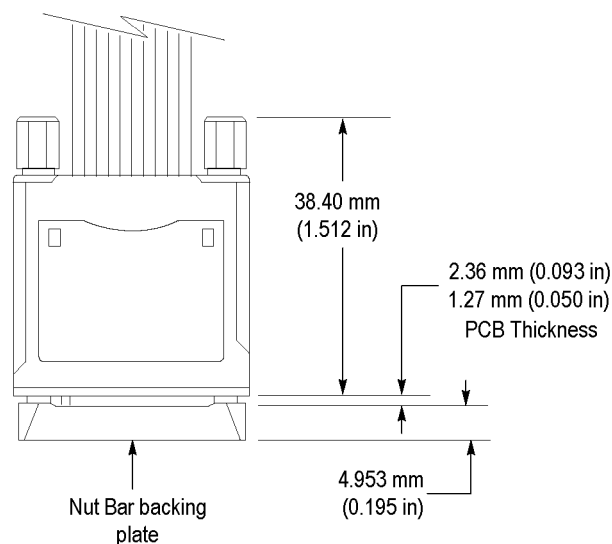
Figure 25: Nut Bar design

Special Considerations for the Nut Bar Design

■ The nut bar backing plate is required to maintain PCB flatness, which supports the compression connection.

■ The nut bar snaps in and out of the PCB without the use of tools.

■ Nut bars are reusable and are not required to be a permanent part of the PCB.

■ The elastomer used is independent and replaceable.

■ Additional nut bars and both thick and thin elastomer holders may be ordered from Tektronix.

3.81 mm (0.150 in)
2.36 mm (0.093 in)
PCB Thickness

1.651 mm
(0.065 in)
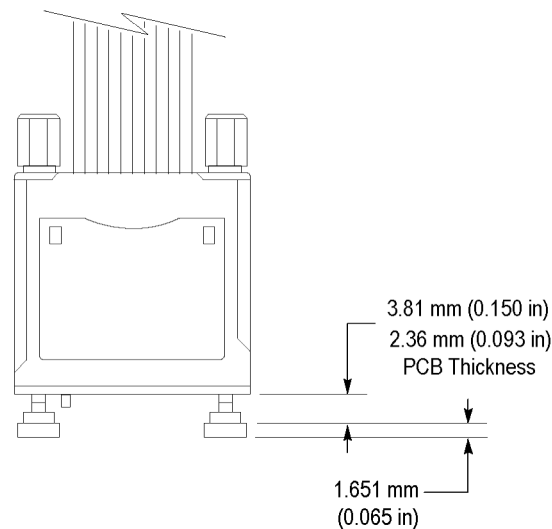
Figure 26: Press-in Nut design

Special Considerations for the Press-in Nut Design

■ The PEM® KF2 2-56 or equivalent press-in nut must be inserted into the PCB.

■ The elastomer used is independent and replaceable.

Physical Attachment Requirements for the Compression-on-PCB to P6434 Mictor and Mictor-on-PCB to P6860 Compression Adapters. You can get the mechanical dimensions of the adapters in the *Mictor-on-PCB to P6860 Compression Adapter* section. (See Figure 6 on page 9.) (See Figure 7 on page 10.)

Electrical Considerations   This section provides information on transmission lines and load models for the P6810 General Purpose, P686x High-Density, and P6880 High-Density Differential Probes.

The low frequency model is typically adequate for rise and fall times of 1 ns or greater in a typical 25 Ω source impedance environment (50 Ω runs with a pass-through connection). For source impedance outside this range, and/or rise and fall times less than 1 ns, use the high frequency model to determine if a significant difference is obtained in the modeling result.

The compression land pattern pad is not part of the load model. Make sure that you include the compression land pad and in the modeling.

Transmission Lines. Due to the high performance nature of the interconnect, ensure that stubs, which are greater than 1/4 length of the signal rise time, be modeled as transmission lines.

P6810 General Purpose Probe Load Model. The following electrical model displays a single podlet load model of the General Purpose Probes. (See Figure 27.)
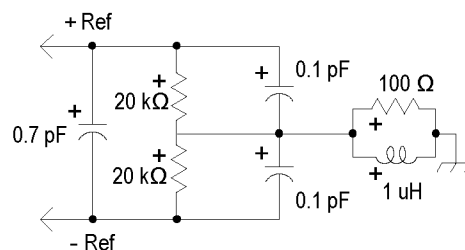
Figure 27: Single podlet load model

The characteristics listed in the following table apply to single podlets and the leadsets shown in the illustrations. (See Figure 28.) (See Figure 29.) (See Figure 30.) Note the differences in the characteristics when podlets are used with leadsets.

Table 16: P6810 General Purpose Probe performance with single podlet and leadsets

Characteristic	Single podlet only	Single podlet with leadsets
Maximum clock speed	450 MHz when used with TLA7Axx modules 1.4 GHz when used with TLA7Bxx modules	50 MHz (single-ended leadset), one ground lead connected 90 - 100 MHz (single-ended leadset), two ground leads connected 150 - 200 MHz (differential leadset)
AC loading	Refer to the single podlet load model. (See Figure 27 on page 55.)	< 5 pF per channel as seen by the device under test
DC loading	20 kΩ to ground	20 kΩ to ground
Isolation	N/A.	Each signal lead on the eight-channel leadset contains a 150 Ω series termination near the end of the barrel connector to minimize signal reflections.
Dimensions	(See Figure 24 on page 52.)	(See Figure 28.) (See Figure 29 on page 57.) (See Figure 30 on page 57.)
Recommended usage	High-performance probing for single-ended or differential signals.	TTL and CMOS levels only. Ground leads should be connected to ground of the SUT. Not recommended for signals with edge rates > 1 V/ns.
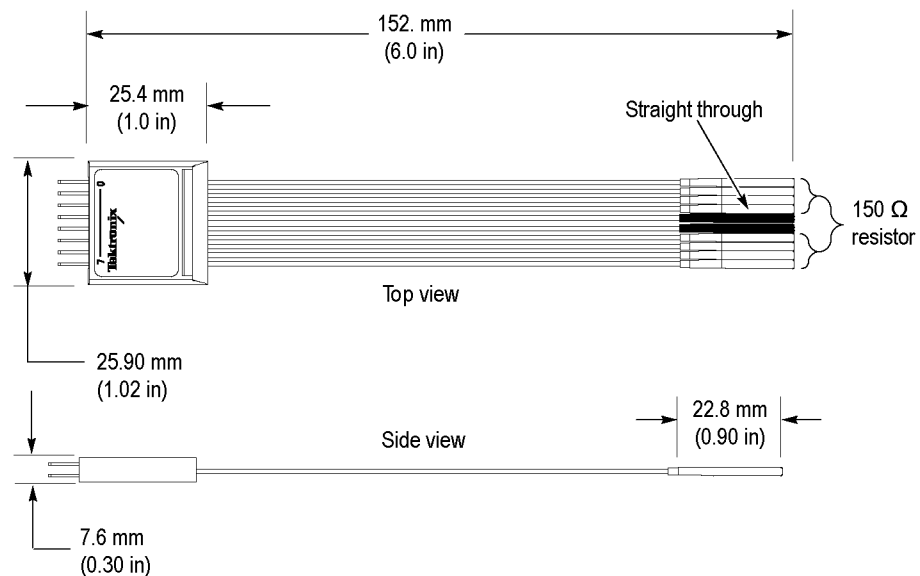
Figure 28: Eight-channel leadset (barrel connectors)
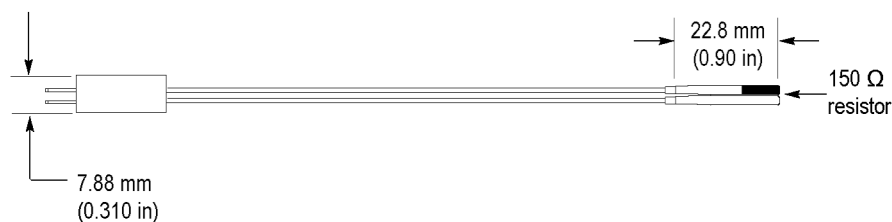
Figure 29: One-channel leadset (barrel connector)
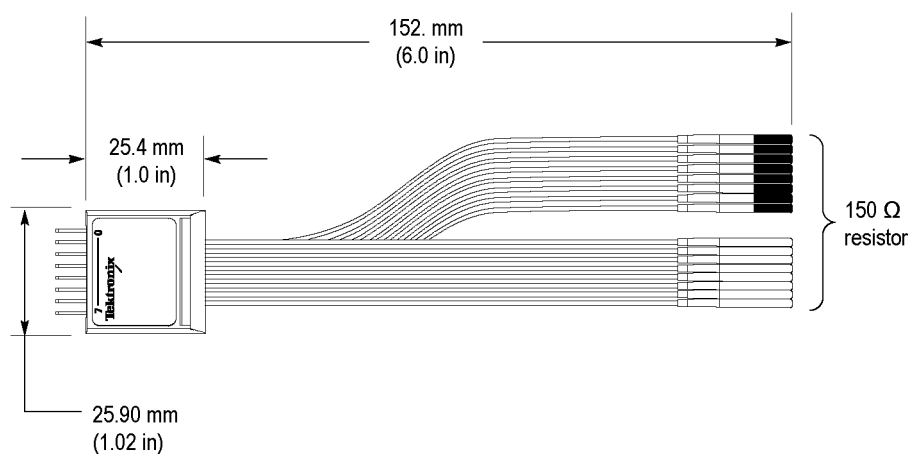
Figure 30: Eight-channel differential leadset

P686x High-Density and P6880 High-Density Differential Probes Load Model. The following electrical model includes a low-frequency and high-frequency model of the High-Density and High-Density Differential Probes. (See Figure 31.) For the Differential Probe, the load model is applied to both the + side and the – side of the signal.
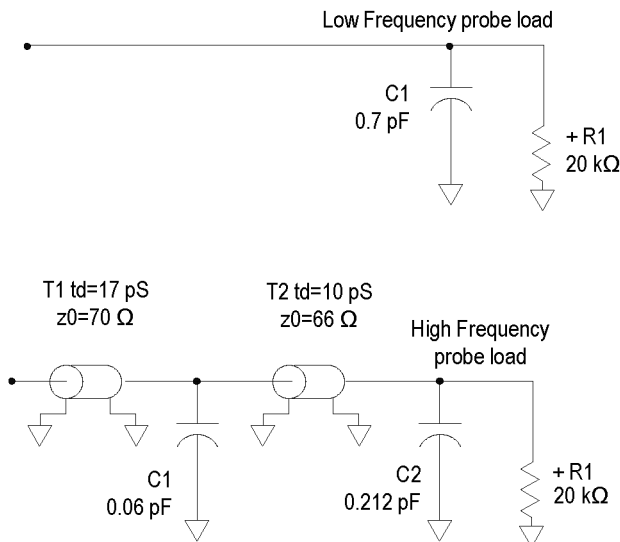
Figure 31: High-Density and High-Density Differential probe load model

The differential load for the P686x clock input and the P6880 probe can be modeled by attaching the single line model to each side (+ and –) of the differential signal. The + and – sides of the differential signal are well insulated in the probe head up to and including the differential input stage.

Mictor-on-PCB to P6860 Compression Adapter Load Model. Refer the following illustration for an electrical model of the Mictor-on-PCB to P6860 Compression adapter. (See Figure 32.) The pad cap is the capacitance of the 0.016 in x 0.032 in pad of the P6860/P6880 compression land footprint. The capacitive load depends upon the distance to the underlying conductors.
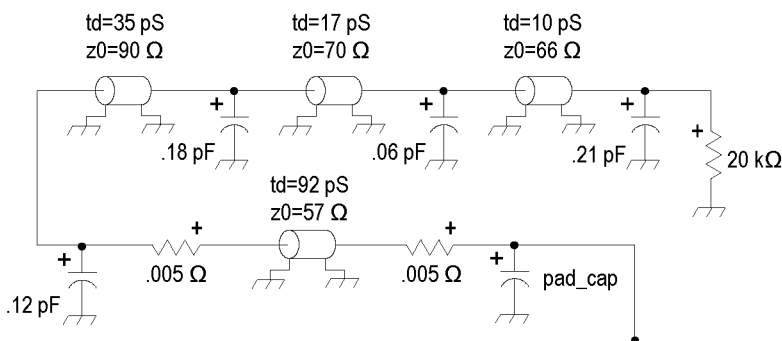
Figure 32: Mictor-on-PCB to Compression adapter load model

Compression-on-PCB to P6434 Mictor Adapter Load Model. Refer to the following illustration for an electrical model of the Compression-on-PCB to P6434 Mictor adapter. (See Figure 33.) The pad cap is the capacitance of the 0.016 in x 0.032 in pad of the P6860/P6880 compression land footprint. The capacitive load depends upon the distance to the underlying conductors.
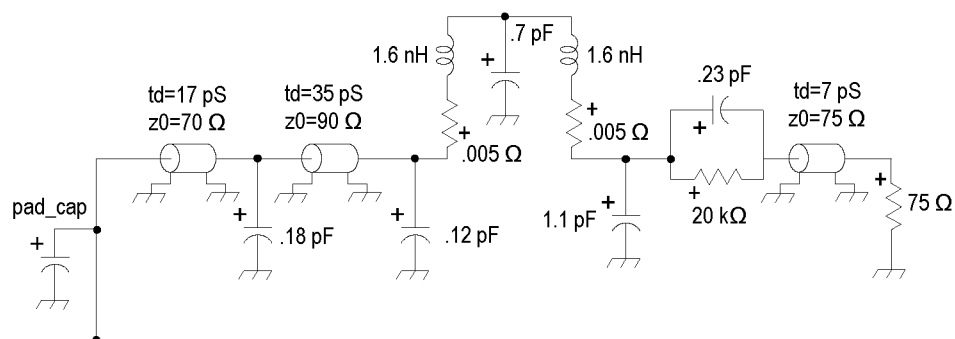
Figure 33: Compression-on-PCB to P6434 Mictor adapter load model

Specifications

Mechanical and Electrical Specifications

The mechanical and electrical specifications for the P6810, P686x, and P6880 Probes are listed. (See Table 17.) The electrical specifications apply when the probe is connected between a compatible logic analyzer and a target system.

Refer to the *Tektronix Logic Analyzer Family Product Specifications* document (Tektronix part number 071-1344-xx) available on the *Tektronix Logic Analyzer Family Product Documentation* CD or downloadable from the Tektronix Web site for a complete list of specifications, including overall system specifications.

Table 17: Mechanical and electrical specifications

Characteristic	P6810	P6860/P6864	P6880
Threshold accuracy	±(35 mV ±1% of setting)	±(35 mV ±1% of setting)	±(35 mV ±1% of setting)
Input resistance	20 kΩ ±1%	20 kΩ ±1%	20 kΩ ±1%
Input capacitance	<1.0 pF [1]	0.7 pF (typical)	0.7 pF (typical)
Minimum digital signal swing	300 mV single-ended	300 mV single-ended	150 mV differential each side
Maximum nondestructive input signal to probe	±15 V	±15 V	±15 V
Delay from probe tip to module input connector	7.70 ns ±80 ps	7.70 ns ±60 ps	7.70 ns ±80 ps
Probe length	1.8 m (6 ft)	1.8 m (6 ft)	1.8 m (6 ft)
Operating range	+5 V to –2.5 V	+5 V to –2.5 V	+5 V to –2.5 V

[1] P6810 single podlet input capacitance is 0.7 pF, but podlets in a group will have 1 pF input capacitance.

NOTE. Because the length of all three probes are electrically similar, they can be interchanged without problems.

The probes are designed to meet Tektronix standard 062-2847-00 class 5. The environmental specifications for all three probes are listed. (See Table 18.)

Table 18: Environmental specifications

Characteristic	P6810, P6860/P6864, and P6880
Temperature	
Operating	0 °C to +50 °C
Nonoperating	–51 °C to 71 °C
Humidity	10 °C to 30 °C, 95% relative humidity
	30 °C to 40 °C, 75% relative humidity
	40 °C to 50 °C, 45% relative humidity
Altitude	
Operating	10,000 ft (3,048 m)
Nonoperating	40,000 ft (12,192 m)
Electrostatic immunity	6 kV

Maintenance

The P6810, P686x, and P6880 Probes do not require scheduled or periodic maintenance. Refer to the Functional Check section below to verify the basic functionality of the probes.

To confirm that the probes meet or exceed the performance requirements for published specifications with a compatible logic analyzer module, refer to the *TLA7ACx Logic Analyzer Module Service Manual* and follow the procedures listed under performance verification procedures.

Probe Calibration

If you are performing the probe calibration yourself, refer to the *TLA7ACx Logic Analyzer Module Service Manual* for the complete calibration procedure. Otherwise, return the probe to the local Tektronix service center.

Strategy

Except for the elastomer holders, the P6810, P686x, and P6880 Probes contain no user-replaceable parts. If probe failure occurs, return the entire probe to your Tektronix representative for repair.

Functional Check

Connect the logic analyzer probes to an active signal source. Open the Setup window for the module where the probes are attached. Check for signal activity in the Setup window for the attached probe.

Inspection and Cleaning

⚠ *CAUTION. To prevent damage during the probe connection process, do not touch the exposed edge of the elastomer.*

To maintain a reliable electrical contact, keep the probes free of dirt, dust, and contaminants. Remove dirt and dust with a soft brush. For more extensive cleaning, use only a damp cloth. Never use abrasive cleaners or organic solvents.

Repackaging Instructions

Use the original packaging, if possible, to return or store the probes. If the original packaging is not available, use a corrugated cardboard shipping carton. Add cushioning material to prevent the probes from moving inside the shipping container.

Enclose the following information when shipping the probe to a Tektronix Center.

■ Owner's address

■ Name and phone number of a contact person

■ Type of probe

■ Reason for return

■ Full description of the required

Replaceable Parts

This chapter contains a list of the replaceable components for the P6810, P686x and P6880 Probes. 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

Replaceable Parts   The P6810 probe contains no user-replaceable parts, while the P686x and P6880 compression probes contain only the elastomer as a replaceable part. If probe failure occurs, return the entire probe to your Tektronix representative for repair.

Refer to the following list for replaceable items:

Table 19: Parts list column descriptions

Column	Column name	Description
1	Figure & index number	Items in this section reference 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 indicate that 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.

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

Table 20: P6810 replaceable parts list

Figure & index number	Tektronix part number	Serial no. effective	Serial no. discont'd	Qty	Name & description
34–1	010-6810-10			1	GENERAL PURPOSE PROBE (INCLUDES SHEET OF LABELS AND LABELING INSTRUCTIONS)
-5	352-1097-XX			4	PODLET HOLDER
P6810 STANDARD ACCESSORIES					
-2	196-3471-XX			2	P6810 LEADSET, 1 CH SINGLE-ENDED AND DIFFERENTIAL
-3	196-3470-XX			4	P6810 LEADSET, 8 CH SINGLE-ENDED
-4	SMG50			2	ADAPTER KIT; BAG OF 20 KLIPCHIP ADAPTER (40 TOTAL)
	071-1122-XX			1	MANUAL, TECH; INSTRUCTIONS, P6810 GENERAL PURPOSE LOGIC ANALYZER PROBE LABEL
	335-0345-XX			1	P6810 PROBE, SHEET OF LABELS
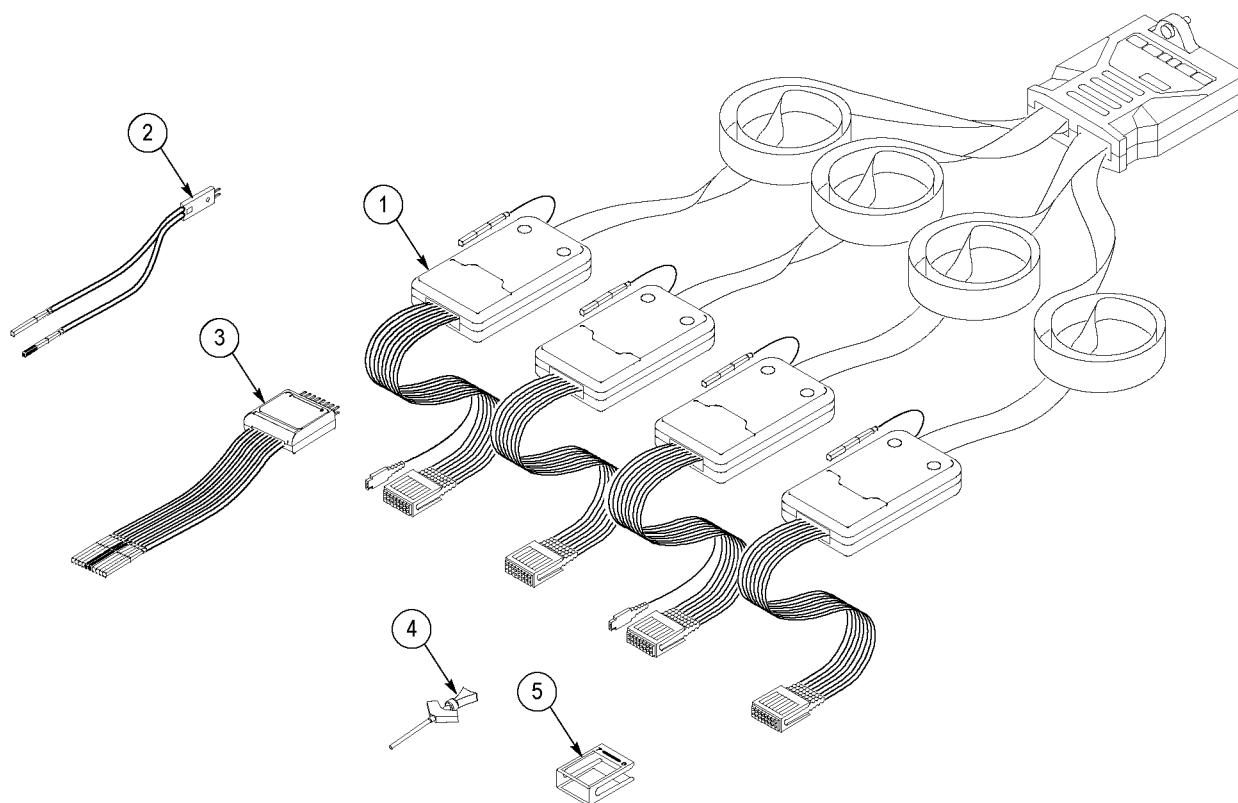
Figure 34: P6810 General Purpose probe accessories

Table 21: P6860 replaceable parts list

Figure & index number	Tektronix part number	Serial no. effective	Serial no. discont'd	Qty	Name & description
35–1	010-6860-10			1	P6860 PROBE (INCLUDES SHEET OF LABELS AND PROBE LABELING INSTRUCTIONS)
			P6860 STANDARD ACCESSORIES		
-2	020-2451-XX			1	P6860 THIN ELASTOMER HOLDER ASSEMBLY, (used with Nut Bar), BAG OF 2 (BLACK) (TOTAL OF 2 ELASTOMER ASSEMBLIES)
-3	020-2452-XX			1	P6860 THICK ELASTOMER HOLDER ASSEMBLY, (used with Press-in nuts), BAG OF 2 (GRAY) (TOTAL OF 2 ELASTOMER ASSEMBLIES)
	071-1123-XX			1	MANUAL, TECH; INSTRUCTIONS, P6860 HIGH DENSITY LOGIC ANALYZER PROBE LABEL
	335-0346-XX			1	P6860 PROBE, SHEET OF LABELS
	220-0255-XX			1	NUT BAR ASSEMBLY
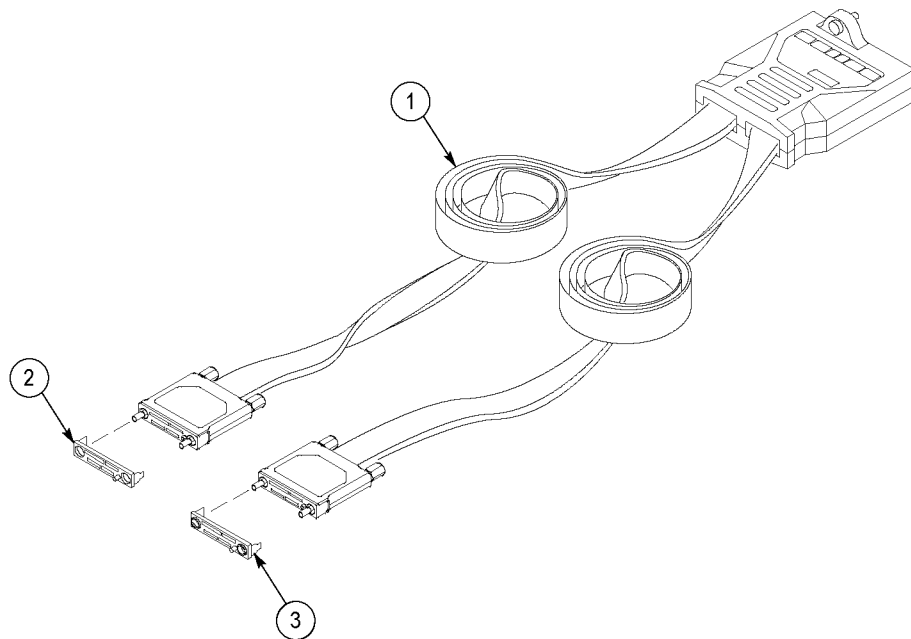
Figure 35: P6860 High-Density probe accessories

Table 22: P6864 replaceable parts list

Figure & index number	Tektronix part number	Serial no. effective	Serial no. discont'd	Qty	Name & description
36–1	010-6864-10			1	P6864 PROBE (INCLUDES SHEET OF LABELS AND PROBE LABELING INSTRUCTIONS)
		P6864 STANDARD ACCESSORIES			
-2	020-2451-XX			1	THIN ELASTOMER HOLDER ASSEMBLY, (used with Nut Bar), BAG OF 2 (BLACK) (TOTAL OF 2 ELASTOMER ASSEMBLIES)
-3	020-2452-XX			1	THICK ELASTOMER HOLDER ASSEMBLY, (used with Press-in nuts), BAG OF 2 (GRAY) (TOTAL OF 2 ELASTOMER ASSEMBLIES)
	071-1313-XX			1	MANUAL, TECH; INSTRUCTIONS, P6864 HIGH DENSITY 4X LOGIC ANALYZER PROBE LABEL
	335-1017-XX			1	P6864 PROBE, SHEET OF LABELS
	220-0255-XX			1	NUT BAR ASSEMBLY
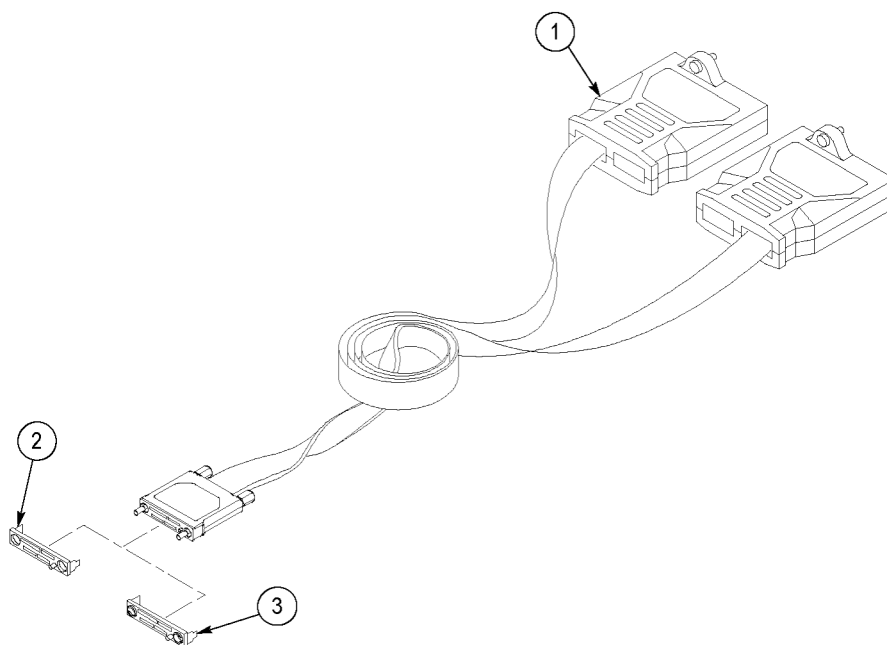
Figure 36: P6864 High-Density 4X probe accessories

Table 23: P6880 replaceable parts list

Figure & index number	Tektronix part number	Serial no. effective	Serial no. discont'd	Qty	Name & description
37–1	010-6880-10			1	P6880 PROBE SET (INCLUDES SHEET OF LABELS AND PROBE LABELING INSTRUCTIONS)
			P6880 STANDARD ACCESSORIES		
-2	020-2451-XX			2	P6880 THIN ELASTOMER HOLDER ASSEMBLY, (used with the Nut Bar), BAG OF 2 (BLACK) (TOTAL OF 4 ELASTOMER ASSEMBLIES)
-3	020-2452-XX			2	P6880 THICK ELASTOMER HOLDER ASSEMBLY, (used with the Press-in nuts), BAG OF 2 (TEK SILVER GRAY). TOTAL OF 4 ELASTOMER ASSEMBLIES.
	071-1124-XX			1	MANUAL, TECH; INSTRUCTIONS, P6880 HIGH DENSITY DIFFERENTIAL LOGIC ANALYZER PROBE LABEL
	335-0697-XX			1	SHEET OF LABELS, P6880 PROBE
	220-0255-XX			1	NUT BAR ASSEMBLY
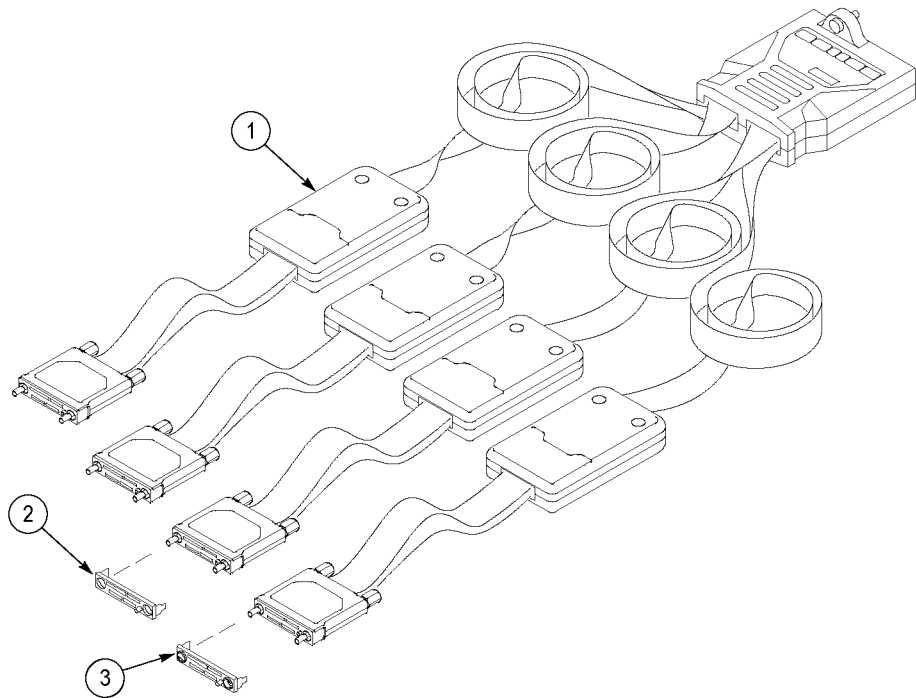
Figure 37: P6880 High-Density Differential probe accessories

Table 24: Compression-on-PCB to P6434 Mictor Adapter parts

Figure & index number	Tektronix part number	Serial no. effective	Serial no. discont'd	Qty	Name & description
P6860 and P6880 OPTIONAL ACCESSORIES				
38–1	020-2453-00			1	NUT BAR ASSEMBLY, BAG OF 2
-2	020-2455-XX			1	17 CH COMPRESSION-ON-PCB TO P6434 MICTOR ADAPTER
-3	020-2456-XX			1	34 CH COMPRESSION-ON-PCB TO P6434 MICTOR ADAPTER
-4	020-2457-XX			1	34 CH MICTOR-ON-PCB TO P6860 COMPRESSION ADAPTER
-5	352-1095-XX			1	ELASTOMER ASSEMBLY
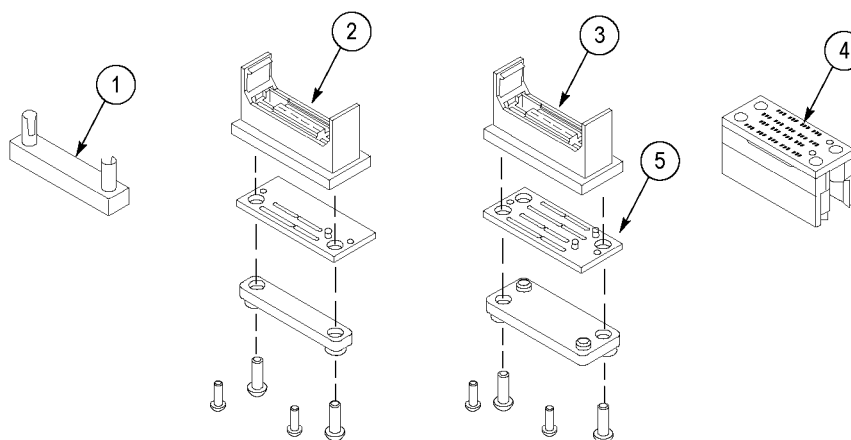
Figure 38: Compression-on-PCB to P6434 Mictor Adapter parts

Table 25: P6810 optional accessories

Figure & index number	Tektronix part number	Serial no. effective	Serial no. discont'd	Qty	Name & description
39–1	196-3472-XX			4	P6810 LEADSET, 8 CH DIFFERENTIAL

Figure 39: P6810 optional accessories

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