

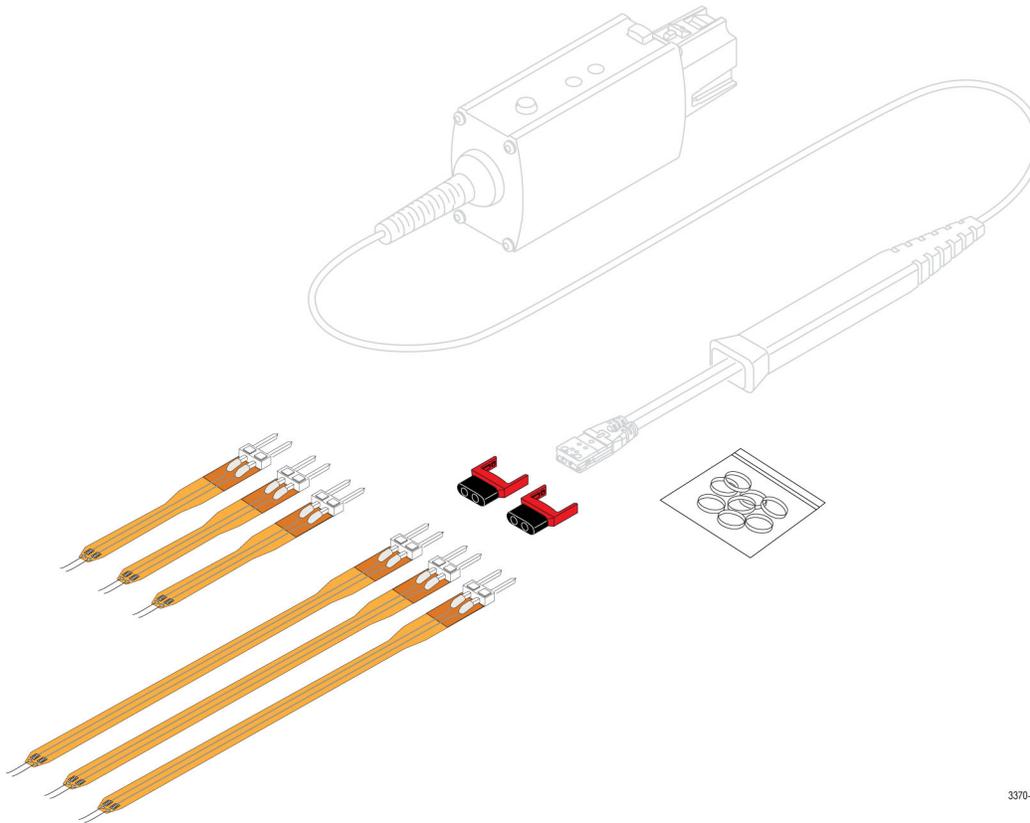
Quick Connect Flex Solder Tips Kit

Kit description

The Square Pin Adapters and Quick Connect Flex solder tips included in this kit are shipped with the P7313, P7380A, P7360A, and P7340A probes, and can also be ordered separately.

The tips and adapters are optimized for high bandwidth and good signal fidelity. The tips are heat resistant, flexible, and can fit in between components and into tight test points.

If you need to take measurements on DRAM interposers with embedded resistors, order the optional 0-ohm, Short Flex solder tip. (See page 2). All tips install in a similar manner, and are described on the following pages.



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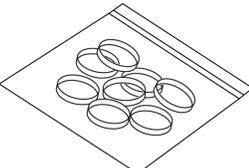
Figure 1: Quick Connect Flex solder tips kit for use with P7313 & P7300A Series probes



Kit contents

This kit contains these instructions and the adapters and solder tips listed below. The tips and the adapters can also be ordered separately.

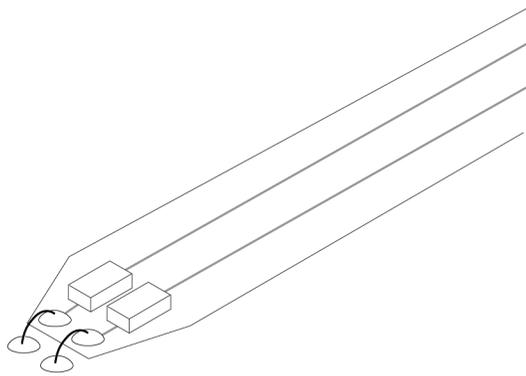
Quick Connect Flex solder tips kit, part number 020-3055-xx

Item	Description and recommended use	Reorder part number
	Quick Connect, Short Flex solder tip assembly Tip length: 1.6 in. (4.1 cm) High bandwidth and good signal fidelity, ideal for connecting to test points in tight spaces.	020-3148-xx (Qty 3)
	Quick Connect, Medium Flex solder tip assembly Tip length: 3.1 in. (7.9 cm) High bandwidth and good signal fidelity, ideal for connecting to test points where a longer reach is needed.	020-3149-xx (Qty 3)
	Square Pin, Tip-Clip adapters for use with Flex solder tips.	020-3150-xx (Qty 2)
 <p style="font-size: small; margin-top: 5px;">3370-013</p>	Elastomer bands These bands help the square pin Tip Clip adapters stay attached to the probe head.	—
Also available (not included in 020-3055-xx kit above):		
	Quick Connect, Short Flex solder tip assembly (for use with DRAM interposers) Tip length: 1.6 in. (4.1 cm)	020-3147-xx (Qty 3)

Installing the tips

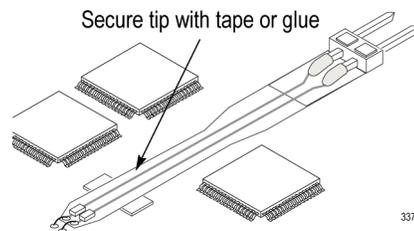
Follow these steps to attach a Flex solder tip assembly and P7300 probe to a circuit board.

1. Identify a location on the circuit under test where the Flex solder tip can be placed and soldered. To avoid damaging the tip, do not bend the flexible substrate to a radius tighter than 1/8-inch (3.2 mm).
2. Solder the tip leads to test points on your circuit board. For optimum performance and signal integrity, keep the lead lengths equal and as short as possible. Use tweezers to bend the leads, if necessary.



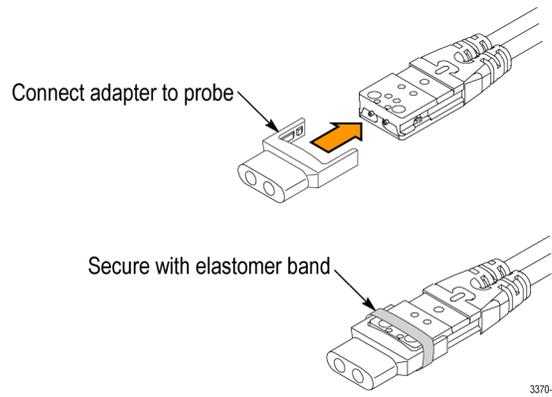
3370-009

3. To protect the tip and soldered connection, secure the tip to the circuit using double-sided tape, glue, or the fastener kit that came with the probe. For optimal signal integrity at higher frequencies (≥ 8 GHz), insert a 20 mil (0.5 mm) or thicker insulated spacer between the tip and the circuit board.

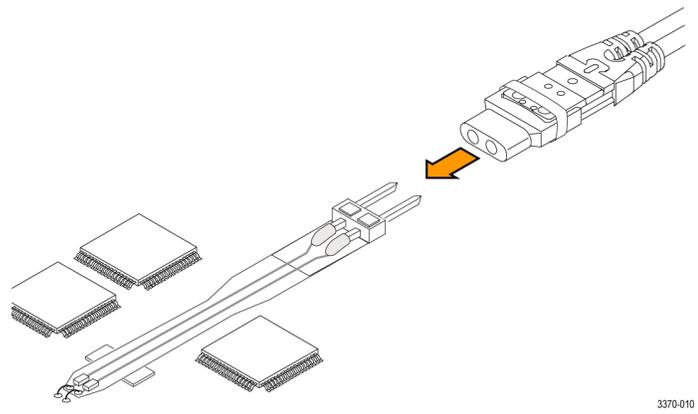


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4. Connect the Square Pin Tip Clip Adapter to the probe, and then secure it with an elastomer band.



5. Connect the square pins of the solder tip to the Square Pin Adapter.



6. To improve signal integrity and to decrease EMI and crosstalk, route the flex tips above the board and circuit components.

You can bend the flex tips in multiple axes to avoid obstacles on the board, such as heat sinks, connectors, or tall components.

To avoid damaging the tip, do not bend the flexible substrate to a radius tighter than 1/8-inch.

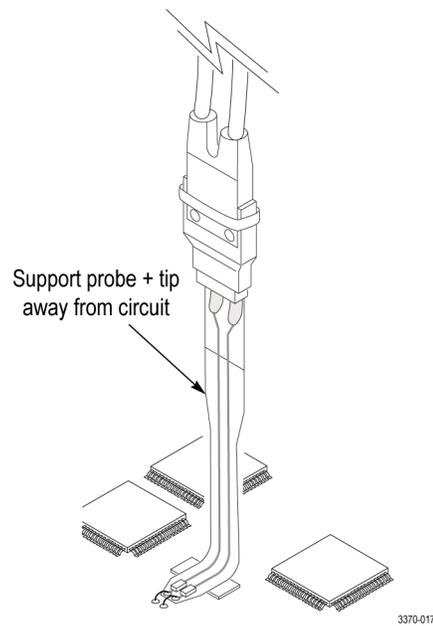
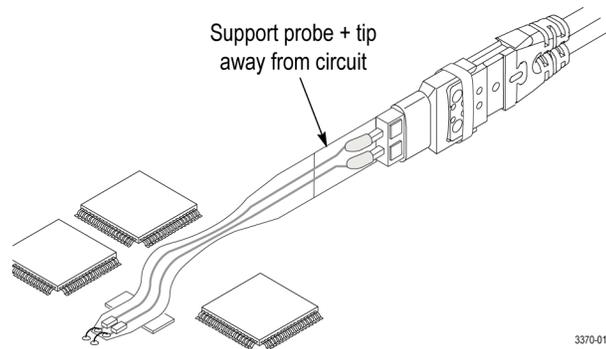


Figure 2: Routing alternatives for optimizing signal integrity

Replacing the tip wires

The 8-mil wires that are pre-soldered to the tips need to be replaced periodically, due to normal use. Use the following procedure to replace the wires.

1. Carefully apply a soldering iron to the via on the flex tip and remove the existing wire. Work quickly with a low-heat soldering iron.

If a small piece of wire is in the via, heat the solder and use another piece of wire to push the wire fragment from the via.

2. Using tweezers, bend the new 8-mil tip wire 90°, about 1/8 in. from one end.
3. Add fresh solder to the via, if necessary.
4. Heat the solder in the via and insert the bent end of the new wire into the via, until it bottoms against the flex tip.
5. Cut the excess lead on the bottom of the flex tip.
6. Repeat if necessary on the other tip input.

Tip specifications

Table 1: Electrical specifications

Item	Recommended use	Bandwidth	Rise time	Loading
Quick Connect, Short Flex solder tip	High bandwidth and good signal fidelity, ideal for connecting to test points in tight spaces.	>10 GHz (P7313)	10/90: <45 ps 20/80: <34 ps	75 Ω tip resistors – refer to the differential impedance curve (See Figure 5 on page 8.)
Quick Connect, Medium Flex solder tip	High bandwidth and good signal fidelity, ideal for connecting to test points where a longer reach is needed.	10 GHz (P7313)	10/90: 45 ps 20/80: 34 ps	75 Ω tip resistors – refer to the differential impedance curve (See Figure 5 on page 8.)
Quick Connect, Short Flex solder tip, for use with memory interposers	Use when connecting to DRAM interposers with embedded resistors.	Bandwidth and rise time are similar to the short flex solder tip, but are also dependent upon the bandwidth of the interposer used.		0 Ω tip resistors – tip loading is similar to other flex tips at low frequency. At high frequency, loading is determined by the embedded resistors on the interposer.
Square Pin Tip-Clip	Square pin adapter without damping resistors. Matched to Quick Connect, Flex solder tips.	Performance is determined by the probe and tip used with the square pin adapter.		

Table 2: Environmental specifications

Characteristic	Limits
Operating temperature	–35 °C up to 85 °C (–31 °F to +185 °F)

Dimensions

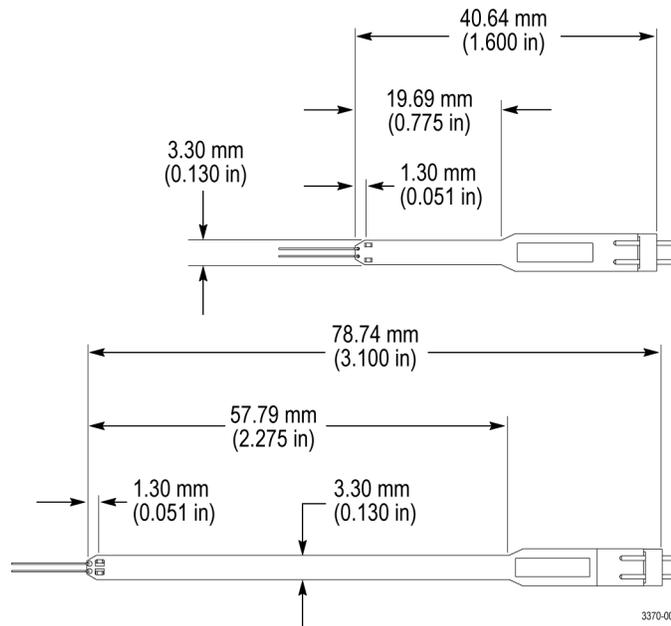


Figure 3: Flex tip dimensions

Performance plots

The following figure shows the typical step response of the P7313 probe with a Quick Connect, Short Flex solder tip attached. A 12 ps rise time pulse source was used for this measurement.



Figure 4: Typical step response, Short Flex tip

The figure below shows the typical differential impedance of the P7313 probe with a Quick Connect, Short Flex solder tip attached.

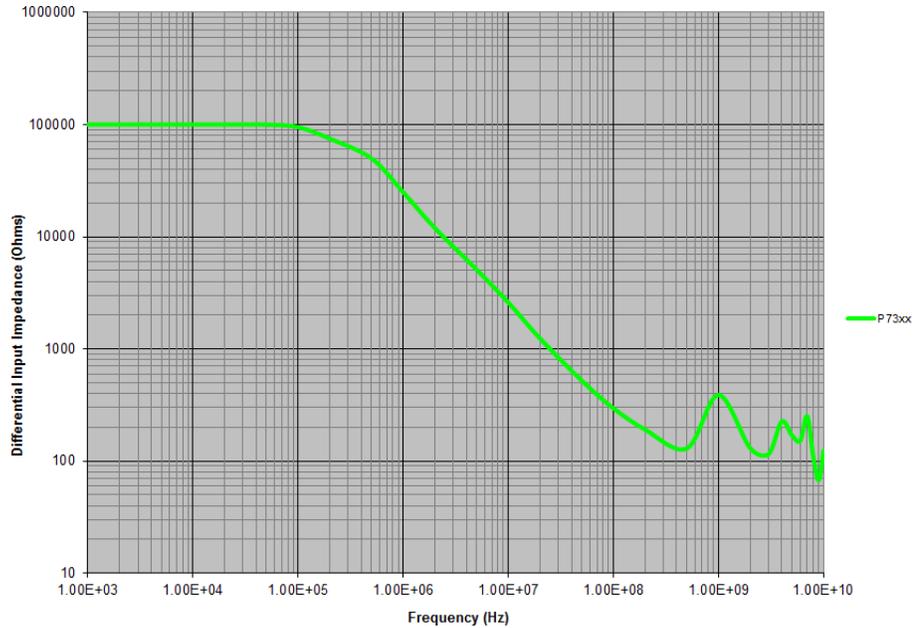


Figure 5: Typical differential impedance

The following figure shows the typical step response of the P7313 probe with a Quick Connect, Medium Flex solder tip attached. A 12 ps rise time pulse source was used for this measurement. The differential impedance is similar to the plot shown above. (See Figure 5.)

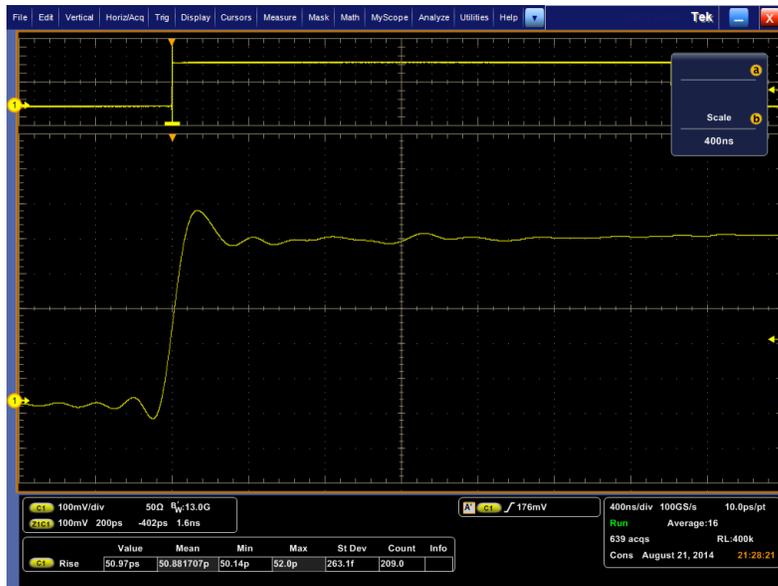


Figure 6: Typical step response, Medium Flex tip