# Test Clips and Accessories

How to ensure the reliability and performance of your PC board components without damaging the assemblies?

**3M Integrated-Circuit test clips provide the solution.**

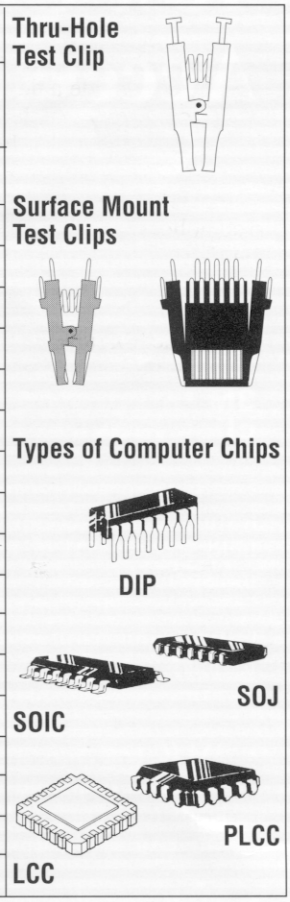
Useful in prototype and production testing, quality control inspection and field service, 3M IC test clips are an indispensable tool for the electronics industry. They make in-circuit IC testing safer by providing easy access to IC leads for probes without danger of shorting out valuable chips.

- 3M IC test clips are available in both nail head and "headless" leads to accommodate a wide range of applications.
- 3M IC test clips feature heavy duty helical compression springs to provide firm and positive contact pressure.
- 3M IC test clips feature an insulating contact comb to help prevent accidental shorts.
- 3M IC test clips feature a patented "wiping action" to ensure integrity during testing.
- 3M IC test clips feature steel hinge pins and tough, glass filled polyester bodies, UL rated 94V-0, to provide long service life.

3M Innovation

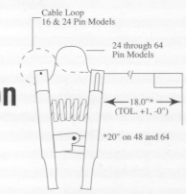
# Test Clip Product Matrix

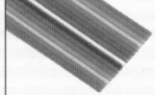
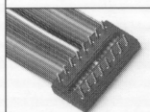
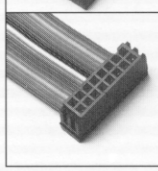
| Lead Count/ Plating | * Thru-Hole | | | | Surface Mount | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Standard Model Part Numbers (with Nail Heads) | | Connector-Compatible Part Numbers (with Headless Heads) | | Connector-Compatible Part Numbers (with Headless Heads) | | | | |
| | DIP .300 Wide | DIP .600 Wide | DIP .300 Wide | DIP .600 Wide | SOIC .150 Body | SOIC .300 Body | SOJ .300 Body | LCC .050 | PLCC .050 |
| 8 Alloy | 923695 | | 923690-08 | | 923650-08 | | | | |
| Gold | 923743-08 | | 923739-08 | | 923655-08 | | | | |
| 14 Alloy | 923698 | | 923690-14 | | 923650-14 | | | | |
| Gold | 923743-14 | | 923739-14 | | 923655-14 | | | | |
| 16 Alloy | 923700 | 923702 | 923690-16 | 923690-16LSI | 923650-16 | 923660-16 | | | |
| Gold | 923743-16 | 923743-16LSI | 923739-16 | 923739-16LSI | 923655-16 | 923655-16 | | | |
| 18 Alloy | 923703 | | 923690-18 | | | 923660-18 | | | |
| Gold | 923743-18 | | 923739-18 | | | 923665-18 | | | |
| 20 Alloy | 923704 | | 923690-20 | | | 923660-20 | 923660-20 | 923680-20 | 923670-20 |
| Gold | 923743-20 | | 923739-20 | | | 923665-20 | 923665-20 | 923685-20 | 923675-20 |
| 22 Alloy | 923706 | 923705 | 923689-22 | 923690-22 | | | | | |
| Gold | 923742-22 | 923743-22 | 923738-22 | 923739-22 | | | | | |
| 24 Alloy | 923715 | 923714 | 923689-24 | 923690-24 | | 923660-24 | 923660-24 | | |
| Gold | 923742-24 | 923743-24 | 923738-24 | 923739-24 | | 923665-24 | 923665-24 | | |
| 28 Alloy | 923717 | 923718 | 923689-28 | 923690-28 | | 923660-28 | 923660-28 | 923680-28 | 923670-28 |
| Gold | 923742-28 | 923743-28 | 923738-28 | 923739-28 | | 923665-28 | 923665-28 | 923685-28 | 923675-28 |
| 32 Alloy | | 923719 | | 923690-32 | | | | | |
| Gold | | 923743-32 | | 923739-32 | | | | | |
| 36 Alloy | | 923720 | | 923690-36 | | | | | |
| Gold | | 923743-36 | | 923739-36 | | | | | |
| 40 Alloy | | 923722 | | 923690-40 | | | | | |
| Gold | | 923743-40 | | 923739-40 | | | | | |
| 44 Alloy | | | | | | | | 923680-44 | 923670-44 |
| Gold | | | | | | | | 923685-44 | 923675-44 |
| 48 Alloy | | 923724 | | 923690-48 | | | | | |
| Gold | | 923743-48 | | 923739-48 | | | | | |
| 52 Alloy | | | | | | | | 923680-52 | 923670-52 |
| Gold | | | | | | | | 923685-52 | 923675-52 |
| 64 Alloy | | †923726 | | †923690-64 | | | | | |
| Gold | | †923743-64 | | †923739-64 | | | | | |
| 68 Alloy | | | | | | | | 923680-68 | 923670-68 |
| Gold | | | | | | | | 923685-68 | 923675-68 |
| 84 Alloy | | | | | | | | 923680-84 | 923670-84 |
| Gold | | | | | | | | 923685-84 | 923675-84 |

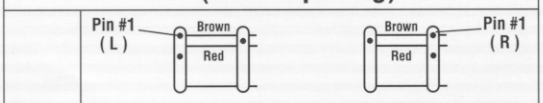



* For Knife Edge Test Clip use 927 – for all through-hole connector compatible clips. (Available with gold plated leads only, without nailhead.)
† .900 Wide

# 3M Logical Connection Product Matrix




| 3M Logical Connection — Remote-end Termination Connector | Description | No. of Contacts | DIP (.100" Spacing) Cable Assembly Only (w/o test clip) Part No. | #1 Pin Pos. | Logical Connection (w/test clip) Part No. | #1 Pin Pos. |
|---|---|---|---|---|---|---|
|  | **Open end** | 16 | 922490-16 | L | 923880-16 | R |
| | | 20 | 922490-20 | L | 923880-20 | R |
| | | 24 | 922490-24 | L | 923880-24 | R |
| | | 28 | 922490-28 | L | 923880-28 | R |
| | | 40 | 922490-40 | R | 923930-40 | L |
| | | 48 | 922490-48 | R | 923930-48 | L |
| | | 64 | 922490-64 | R | 923930-64 | L |
|  | **DIP Connector** - mates with standard 16, 20, 24, 28 and 40 pin DIP Sockets. | 16 | 922594-16 | R | 923884-16 | R |
| | | 20 | 922594-20 | R | 923884-20 | R |
| | | 24 | 922594-24 | R | 923884-24 | R |
| | | 28 | 922594-28 | R | 923884-28 | R |
| | | 40 | 922594-40 | R | 923884-40 | R |
|  | **Socket Connector** - mates with 2 rows of .025" sq. or dia. pins on .100" centers and shielded receptacles. | 16 | | | 923881-16 | R |
| | | 20 | | | 923881-20 | R |
| | | 26* | | | 923881-24 | R |
| | | 30* | | | 923881-28 | R |
| | | 40 | | | 923881-40 | L |
| | | 50* | | | 923881-48 | L |
| | | 64 | | | 923881-64 | L |




* On 26 position connectors, positions #25 and #26 are unused. On 30 position connectors, positions #29 and #30 are unused. On 50 position connectors, positions #49 and #50 are unused.

## 3M Test Clip Cable Assemblies

Remote test equipment can be easily connected to IC circuitry when the performance proven 3M IC Test Clip is combined with 3M's complete, tested, ready-to-use cable assembly. This combination, "The Logical Connection," is the ideal connection from a logic analyzer to an IC. On one end, socket connectors attach to the pins of a connector-compatible model test clip. On the other end, 3M provides either an open ended cable or a termination method suited to your application. Utilizing "Logical Connection" cable assemblies provide valuable features and reliability.

- Connectors ensure optimum electrical integrity and strain relief.
- Probe holes in the back of all connectors allow easy access to individual lines.
- Cable loops between connectors allow free actuation of the test clip for clearance over all package styles.

# What makes 3M products unique

### Surface Mount Test Clips

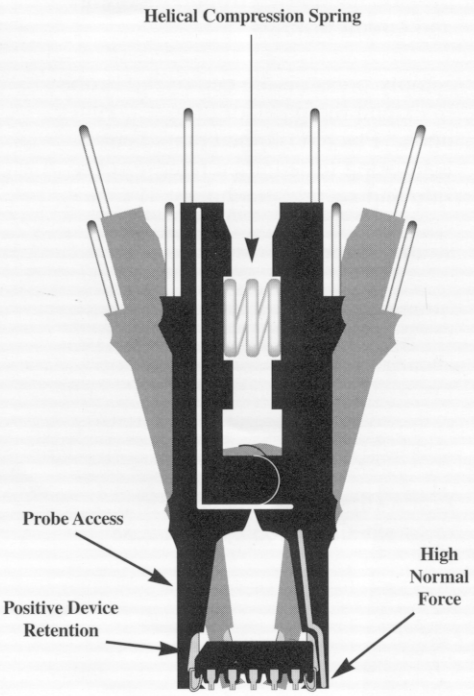
3M Surface Mount Integrated Circuit Test Clips provide a downsized series made for today's smaller components and higher densities. Now hard-to-access Surface Mount ICs can be connected to test probes and logical assemblies quickly and easily without the risk of shorting out clips or damaging other board components.

3M Surface Mount test clips are available in different pin sizes to accommodate a wide range of requirements.

Industry standard .025" square contact pins on .050" centers are staggered to permit easy attachment of IDC socket connectors or wire wrappings and help prevent shorting of adjacent probes. With these smaller test clips, you can stack SOIC's as close as .050" end-to-end, and PLCC's on .200" centers. In addition, the 3M clips allow safe, accurate and convenient testing of Plastic Leaded (PLCC) and Leadless Ceramic (LCC) Chip Carrier style integrated circuits. The unique action-wedge design of the test clip allows all four of its sides to open simultaneously for a one step, secure attachment to the PLCC being tested.

### General features

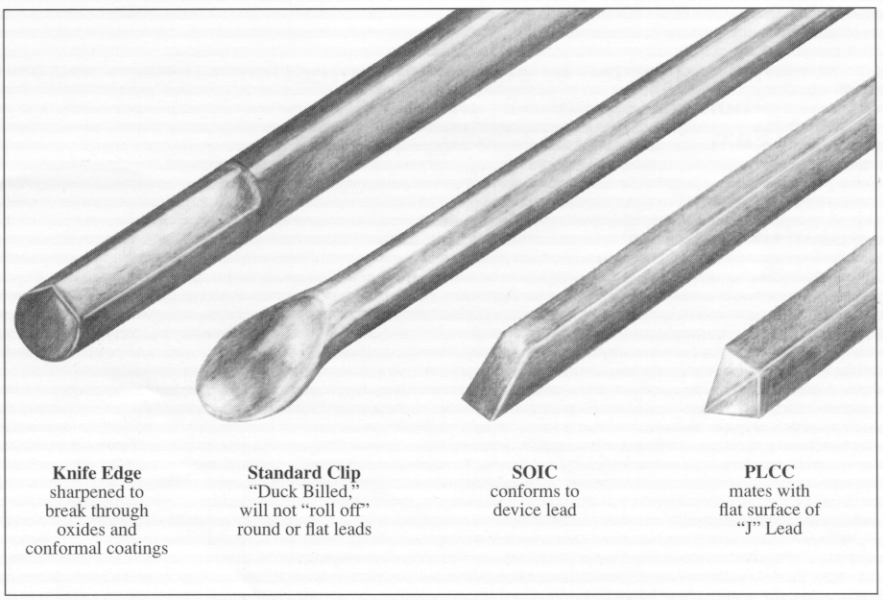
- Test devices down to .050" center to center lead spacing.
- All four sides of test clip open simultaneously for one-step attachment to PLCC being tested.
- Stays securely clamped to PLCC.
- Helical compression springs and insulating contact combs ensure contact integrity during testing.
- Probe access points are immediately visible for fast and safe individual lead testing.
- Staggered contact rows on .100" centers facilitate probe attachment and help prevent accidental shorting of adjacent probes.
- Industry standard .025" square contact pins on the .100" centers easily accept single row socket connectors.
- Because of positive attachment to device, test clip will not "fall off" when board is vertical and test probes are hung off the pins.
- Wiping action and high normal force combine to provide excellent electrical contact.
- Available in gold plated or alloy 770 leads.




# Unique Design Features

Of the many design features that make the 3M Test Clip "a breed apart," the care taken in contact design is but one of them. Each contact has been designed for a specific device to insure:

- High normal force
- Excellent electrical contact
- Long-term performance



# Probe Clips

## Safe, fast, and easy way to test component leads.

3M's plunger-actuated Probe clips make test connections to individual component and test clip leads easier and faster, and minimize the chances of accidental shorts. Probes will provide hands-free troubleshooting and circuit testing.

Simply press on the cap of the Probe to extend the phospor bronze contact hook. Place it on the component lead being tested, then release for a safe and secure attachment. Probe clips can also be soldered to stranded hook-up wire.

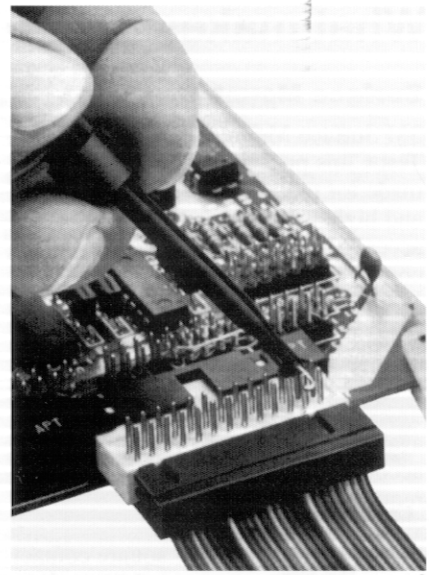
Shorts are dramatically reduced because the contact hook is always sheathed in the nylon body of the Probe clip. The contact hook is only exposed when the cap is manually pressed.

Probe clips are available in four different sizes:1.63", 2.19", 2.38" and 3.56".

| Specifications | |
|---|---|
| Contact | Phosphor Bronze |
| Body | Nylon |

| Description | Color | Part Number |
|---|---|---|
| Micro Probe (2 per package) | Red | 923830-RD-C |
| | Black | 923830-BK-C |
| | Blue | 923830-BU-C |
| | Green | 923830-GN-C |
| | Yellow | 923830-YL-C |
| | White | 923830-WT-C |
| Micro Probe Assortment (6 per package) | 1 of each | 923848-C |
| Mini Probe (2 per package) | Red | 923835-RD-C |
| | Black | 923835-BK-C |
| | Blue | 923835-BU-C |
| | Green | 923835-GN-C |
| | Yellow | 923835-YL-C |
| | White | 923835-WT-C |
| Mini Probe Assortment (6 per package) | 1 of each | 923850-C |
| Standard Probe (2 per package) | Red | 923840-RD-C |
| | Black | 923840-BK-C |
| Maxi Probe (2 per package) | 1 of each | 923845-RD-C |
| | | 923845-BK-C |

Probes are also available in bulk packaging



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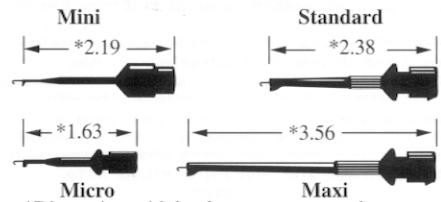


*Dimension with hook contact retracted.

**For technical, sales or ordering information, contact 3M at:**

**Phone: 1-800-321-9668**
**Fax: 1-800-321-6329**

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