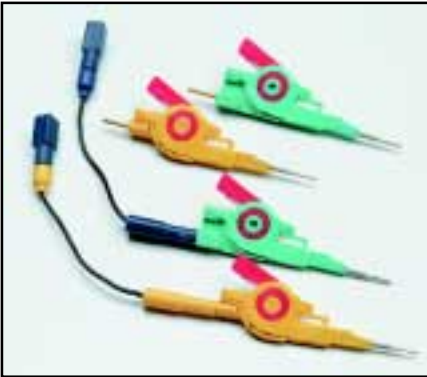


New low cost Microclips



0.5-0.3mm Slim Body Microclips



0.8-0.5mm Slim Body Microclips



2.45-0.5mm Microclips

0.8-0.2mm New low cost Microclips

6 colors		
red	150-5071-06	6pk,clips/testleads
black	150-5071-12	12pk,clips/testleads
blue, yellow	150-5071-18	18pk,clips/testleads
green white	150-5071-24	24pk,clips/testleads

0.5-0.3mm (slim body) part numbers and descriptions

Right	150-5068-04	8mm,tip,yellow,w/lead
Left	150-5068-06	8mm tip,blue,w/lead

0.5-0.3mm (slim body) part numbers and descriptions

Right	150-5060-04	0.8mm tip,yellow,w/lead
Left	150-5060-06	0.8mm tip,blue,w/lead
Right	150-5061-04	13mm tip,yellow,w/lead
Left	150-5061-06	13mm tip,blue,w/lead

2.54-0.5mm part numbers and descriptions

Blue	150-5055-04	10mm tip,blue,w/lead
Blue	150-5057-04	30mm tip,blue,w/lead
Black	150-5052-00	30mm tip
Brown	150-5052-01	"
Red	150-5052-02	"
Orange	150-5052-03	"
Yellow	150-5052-04	"
Green	150-5052-05	"
Blue	150-5052-06	"
Violet	150-5052-07	"
Gray	150-5052-08	"
White	150-5052-09	"
10 pack	150-5052-10	30mm tip,10pk

Microclip accessories

Yellow	150-5080-04	Testlead, F-F,30mm
Blue	150-5080-06	Testlead, F-F,30mm
Black	150-5083-00	Testlead,F-M,300mm
Black	150-5085-00	Testlead,F-Ali-clip,300mm
n/a	150-5550-00	Probe,QFP,.3mm-100Mhz
	150-5551-00	Replacement tip
	150-5555-00	Probe,QFP,.3mm-100Mhz

MicroClips

Use Emulation Solutions' MicroClips to access individual leads while testing fine pitch high-density IC packages with an oscilloscope or logic analyzer. The thin body design of the MicroClip allows side by side pin access on fine pitch devices.

The MircoClips are constructed of precision molded ABS, stainless steel, and nickel plated steel wire. Easy to use color coding allows for quick and easy testing.

UNIQUE FEATURES

- Side-by-side testing
- Molded ABS construction
- Nickel-plated steel wire
- Stainless steel guides
- 500 WVDC rating
- 100 MHz frequency (max.)

ACCESSORIES (MICROCLIPS)

Test Leads, Probes and Replacement Tips

- 30mm, Female to Female colored
- 300mm, Female to Female black
- 300mm, Female to Alligator clip

Test Leads and Connectors

Emulation Solutions has a line of test leads that covers everything from DIP to SOIC lead devices. These are available with a wide variety of grabber hooks for different pitches. The test leads have either .025" wire wrap pins or wire leads. Plus, they're available in all the standard color codes. It is all part of supplying you with the complete interconnect solution.

E-Z-MINI-HOOK (XL)

- Gold-plated BeCu conductor and hook
- Component leads up to .040" diameter
- Durable nylon body and plunger
- Stainless steel compression coil spring
- Field-serviceable design
- 5" body available for XL

E-Z-MICRO-HOOK AND TEST LEADS

- Nylon body and plunger
- Stainless steel compression coil spring
- Gold-plated copper or stainless steel contacts

E-Z-PICO-HOOK AND TEST LEAD CONNECTOR

- For DIP components or with .025" diameter (max.)
- Finger-eze Hypo Action permits direct hook up to delicate wires
- Barrier on tip prevents shorting between DIP legs
- Gold-plated BeCu hook
- Some pre-assembled test leads

EZ-Hook individuals listed in the table at right come in standard resistor colors. So when ordering please use the following part number extensions -01 = brown, -02 = red, -03 = orange, -04 = yellow, -05 = green, -06 = blue, -07 = violet, -08 = gray, -09 = white

Ez-Hook sets come 10 to a pack (1 of each color) and in 6", 12", 18", 24", 36", 48", 64" sizes. Please specify when ordering by adding a suffix to the part numbers listed in the table at right.



EZ-Hooks connectors and test leads

EZ-Hook part numbers, call if you can't locate what you need

Footprint	Individual Sets	Micro series	Mini series	Mini XL series	Pico series
HOOK only, w/.025 post	individuals 10pc set	150-4700.* 150-4701-10	150-4800.* 150-4801-10	150-4850.* 150-4851-10	150-4900.* 150-4901-10
HOOK only, field configurable	individuals 10pc set	N / A	150-4802.* 150-4703-10	N / A	N / A
HOOK-unterminated lead	individuals 10pc set	150-4704.* 150-4705-10	150-4804.* 150-4805-10	150-4854.* 150-4855-10	150-4904.* 150-4907-10
HOOK-HOOK	individuals 10pc set	150-4706.* 150-4707-10	150-4806.* 150-4807-10	150-4856.* 150-4857-10	150-4906.* 150-4907-10
HOOK-miini ali clip	individuals 10pc set	150-4708.* 150-4709-10	150-4808.* 150-4809-10	150-4858.* 150-4859-10	N / A
HOOK-std. ali clip	individuals 10pc set	150-4710.* 150-4711-10	150-4810.* 150-4811-10	150-4860.* 150-4861-10	N / A
HOOK-.025 female socket	individuals 10pc set	150-4712.* 150-4713-10	150-4812.* 150-4813-10	150-4862.* 150-4863-10	150-4912.* 150-4913-10
HOOK-.025 male post	individuals 10pc set	150-4712.* 150-4715-10	150-4814.* 150-4815-10	150-4864.* 150-4865-10	150-4914.* 150-4915-10
HOOK-mini banana plug	individuals 10pc set	150-4716.* 150-4717-10	150-4816.* 150-4817-10	150-4866.* 150-4867-10	N / A
HOOK-stcking min banana plug	individuals 10pc set	150-4718.* 150-4719-10	150-4818.* 150-4819-10	150-4868.* 150-4869-10	N / A
HOOK-std. banana plug	individuals 10pc set	150-4720.* 150-4721-10	150-4820.* 150-4821-10	150-4870.* 150-471-10	N / A
Hook-stackin std. banana plug	individuals 10pc set	150-4722.* 150-4723-10	150-4822.* 150-4823-10	150-4872.* 150-4873-10	N / A
HOOK-std. banaba jack	individuals 10pc set	150-4724.* 150-4725-10	150-4824.* 150-4825-10	150-4874.* 150-4875-10	N / A
HOOK-std. meter banana plug	individuals 10pc set	150-4726.* 150-4727-10	150-4826.* 150-4827-10	150-4876.* 150-4877-10	N / A
HOOK-2.03mm pin plug	individuals 10pc set	150-4728.* 150-4729-10	150-4828.* 150-4829-10	150-4878.* 150-4879-10	N / A
HOOK-2.03mm stacking pin plug	individuals 10pc set	150-4730.* 150-4731-10	150-4830.* 150-4831-10	150-4880.* 150-4881-10	N / A
HOOK-2.03mm meter pin	individuals 10pc set	150-4732.* 150-4732-10	150-4832.* 150-4833-10	150-4882.* 150-4883-10	N / A
HOOK-2.03mm tip jack	individuals 10pc set	150-4734.* 150-4735-10	150-4834.* 150-4835-10	150-4884.* 150-4885-10	N / A
HOOK-3.57mm insul. spade lug	individuals 10pc set	150-4736.* 150-4737-10	150-4836.* 150-4835-10	150-4886.* 1504887-10	N / A
HOOK-6.35mm insul. spade lug	individuals 10pc set	150-4738.* 150-4739-10	150-4838.* 150-4839-10	150-4888.* 150-4889-10	N / A
HOOK-6-32 female thread	individuals 10pc set	150-4740.* 150-4741-10	150-4840.* 150-4841-10	150-4890.* 150-4891-10	N / A



Full line of test accessories

Test accessory part numbers

Accessory	Description	Part Number
ESD wrist strap	2pc. kit	150-5475-00
IC Vacuum Pen	includes 3 cup sizes	150-5450-00
DIP Extraction Tool	metal	150-5260-00
PGA Extraction Tools, IC size 10x10-25x25	2 claws,4mm clearance	150-5270-40
	4 claws,2mm clearance	150-5270-10
	4 claws,4mm clearance	150-5270-30
PGA Insertion Tool, IC size 17x17-25x25	2 claws,4mm clearance	150-5350-00
PLCC Extraction Tool	Molded plastic handle, metal grabber	150-5285-00



32 I.C. Socket Probes

Test Accessories

Emulation Solutions offers many of the test accessories that you will need to fill the interconnect gap. These products will be used side-by-side with our adapters in your lab.

INSERTION/EXTRACTION TOOLS

Avoid damaging leads by using the correct insertion or extraction tool. Emulation Solutions has everything from cost-effective PLCC extractors to PGA inserters and extractors. These tools assist in placing and removing your parts without smashing the leads.

VACUUM PENS

Emulation Solutions provides the best vacuum pens with a variety of cups. The pen is used to gently lift and place parts, such as QFP's, without bending the leads or introducing ESD.

WRIST STRAPS

Emulation Solutions also provides a wrist strap so you can handle parts and boards without risk of ESD damage.

SOCKET PROBE

For serious test and burn-in applications, Emulation Solutions carries a line of socket probes. The socket probes are cable assemblies with an ITT Cannon connector on one side and a test probe on the other. These assemblies allow you to insert the probe into a ZIF socket from a any socket manufacturer, whether flip-top, open-top or auto-eject.

Test Probes

Emulation Solutions understands that your instrumentation is only as accurate as the signals it receives from the test accessories. Our line of oscilloscope probes offers equal performance to the instrument manufacturers.

MANUFACTURER'S SUPPORT

Tektronix, Hewlett Packard, B&K, Hitachi, Phillips, Hameg, Test Probes Inc., Gould, Beckman, LeCroy, Kikusui, and Pomona.

Probe accessories

Description	Part Number
BNC adapter	150-5560-00
Sprung hook,black	150-5560-01B
Sprung hook,red	150-5560-01R
Sprung hook,grey	150-5560-01G
Ground lead	150-5560-02
Tip replacement	150-5560-03
Tip insulator	150-5560-04
IC tip	150-5560-05
Probe tip ground	150-5560-06
Trimmer tool	150-5560-07
Accessory kit	150-5560-10



Scope probes and accessories

HIGH PERFORMANCE SERIES

This family of oscilloscope probes offer excellent performance at an economical price. The product line includes x1,x10, x100 and 2&3 position switchable attenuation. Each probe kit is provided with an instruction card and a full complement of accessories.

High performance series probes

Switchable Fixed	Attn	R(Mu)	C(pF)	Bandwidth (mhz)	Risetime (ns)	Input	Comp.	Length (m)	Part Number
S, 3 position	x1/x10	1/10	90/16	6/100	58/3.5	600	10.35	1.2	150-5561-10
S, 3 position	x1/x10	1/10	90/14	10/200	35/1.8	600	10.35	1.2	150-5561-20
S, 3 position	x1/x10	1/10	90/14	10/250	35/1.4	600	10.35	1.2	150-5561-30
F	x10	10	15	200	1.8	600	10.35	1.2	150-5562-30
F,readout Act.	x10	10	15	200	1.8	600	10.35	1.2	150-5562-40
S, 2 position	x1/x10	1/10	46/16	15/100	27/3.5	600	10.35	1.2	150-5564-20

ADVANCED TECHNOLOGY SERIES

Advanced SMD technology gives these probes bandwidths from 30MHz to 450MHz

(-3db). These probes have low input capacitance and fast rise times. Each probe kit is provided with an instruction card and a full complement of accessories.

Advanced technology series probes

(Mhz)	Attn	R(Mu)	C(pF)	Bandwidth (mhz)	Risetime (ns)	Input	Comp.	Length (m)	Part Number
150,switchable	x10/x10	1/10	45/12	25/150	14/2.3	600	10.30	1.2	150-5570-40
150,readout Act.	x10	10	12	150	2.3	600	10.30	1.2	150-5570-30
150,switchable	x10/x10	1/10	65/14	17/135	21/2.6	600	10.30	2.0	150-5570-80
250,switchable	x10/x10	1/10	45/12	25/250	14/1.4	600	10.30	1.2	150-5572-40
250,readout Act.	x10	10	14	190	1.8	600	10.30	2.0	150-5572-70
450,readout Act.	x10	10	8	450	0.78	600	8.13	1.2	150-5574-20
450,readout Act.	x10	10	9.5	450	0.78	600	12.20	1.2	150-5574-40

DMM PROBES

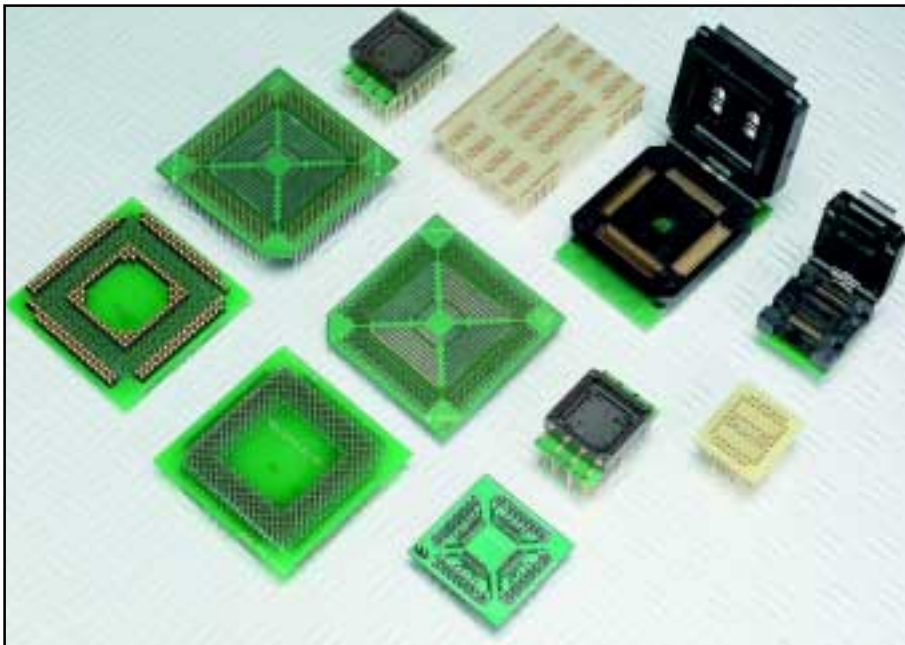
When you need special probes for your DMM you can either find them in the tables to the right, or call us.

SMD probes and kits

Type	Description	Part Number
Mini Probes	Spring tip, 1ea.-black/red also available in yellow,green,blue and white	150-5580-10
SMD probe basic kit	500 mhz smd scope probe, with insulated BNC connector	150-5581-10
SMD probe deluxe kit	500mhz smd scope probe,2-dmm lead wire,smd tweezers,6-microclips,4mm jack testleads,2- miniflex clips,4mm jack testleads	150-5582-20

DMM probes and accessories

Type	Description	Part Number
Basic probe kit	2-probes,2-mini clip, 2-right angle sheath plugs	150-5590-10
Deluxe probe kit	2-probes,2-mini & micro clips,2-4mm jack testleads 2-right angle sheath plugs	150-5590-20
Accessory kit #1	2-probes,1-4mm tip, 2-sprung hooks & spade lugs, 2-aligator clips,2-straight sheath plugs	150-5591-10
Accessory kit #2	2-probes,1-4mm tip, 2-sprung hooks & spade lugs, 2-aligator clips,2-R.A. sheath plugs	150-5591-20
SMD kit	2-stainless tip probes, extended length, 2-R.A. sheath plugs	150-5591-00



Prototyping adapters convert any package type to 0.1" pitch

QUICK ORDER GUIDE; DETERMINE:

- Package type and size
- Socket type or no socket (surface-mount)
- Grid type (see drawing at right)

Prototyping Adapters

Computer simulations are replacing most traditional prototyping, design verification, and testing of complex circuits and systems. In addition, designers still need simple ways to test or prototype individual IC's.

A prototyping environment is designed to fit 0.1" spacing, which worked well with DIP (dual-in-line) packages, but the proliferation of new, higher density package types created a need for adapters.

Prototyping adapters are designed to accept a particular package type, either in a socket or directly mounted on the adapter, and convert the package footprint to an 0.1" environment.

ADAPTER VARIATIONS

- Surface-mount pads (no socket)
- Socket provided by the user
- Clamshell type of socket (ZIF or burn-in)
- Auto-eject (ZIF) socket
- Production socket

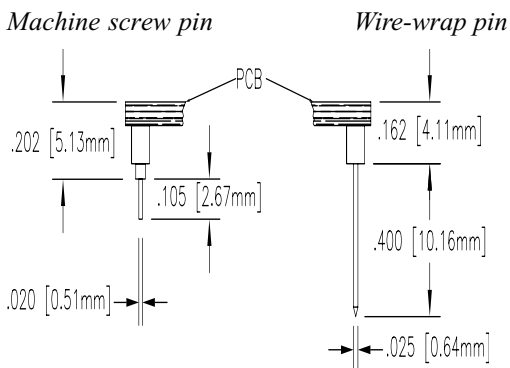
PROTOTYPE BOARD INTERFACE VARIATIONS

Pin Types:

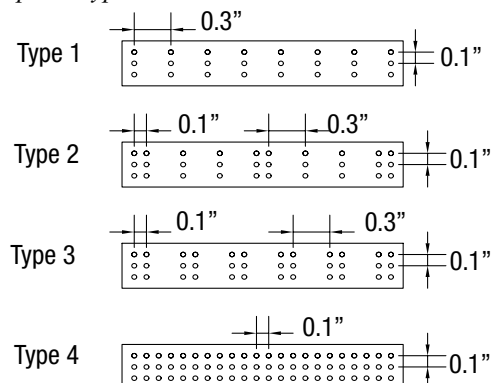
- machine screw type (.018 mil, round)
- wire-wrap type (.025 mil square)

Panel Types:

- Type 1
- Type 2
- Type 3
- Type 4



panel types



Prototyping Adapter Types

SURFACE MOUNT PADS

This category of prototype adapters have the lowest price point because they don't have a socket on top. They adapt a wide variety of high density surface mount packages to a 100 mil environment. They require you to mount/solder your device to the adapter and then plug it into your breadboard. They come with either machine screw or wire wrap pins and all come with an easy to read pin map.

ZIF SOCKET ADAPTERS

If you need to be able to insert and extract your device, this is what you need. These adapters come with a wide variety of zero insertion force sockets (i.e. clamshell, open-top, auto-eject) just to name a few. The fact that there is no need to mount the device makes these adapters more versatile in the field. They also come with an easy to read pin assignment map.

ZIF NO SOCKET PROVIDED

Many times customers will call us and say they bought a socket from a manufacturer thinking it would plug right into their breadboard, and then after receiving it find out the pattern on the bottom of the socket is on a 50 mil or staggered grid pattern. We have many off-the-shelf adapters, chances are that we have an adapter made for that socket and you can order it with female pins. You just plug in your socket and go.

PRODUCTION SOCKETS

If your design still utilizes some large pitch device like DIP, LCC, or PLCC you probably will do just fine with an adapter with a production socket. In many cases they are as affordable as the surface mount variety and give you almost the same function as a ZIF type.

SURFACE MOUNT PADS

- LOW PROFILE**
- OFF THE SHELF SUPPORT**
- LOW PROFILE DESIGN**
- I.C. MOUNTING SERVICE**

ZIF ADAPTERS

- EASY TO USE**
- FLIP-TOP SOCKETS**
- OPEN-TOP SOCKETS**
- AUTO-EJECT SOCKETS**
- UP TO 10,000 CYCLES**

WITHOUT SOCKET

- CUSTOMER HAS IC SOCKET**

CUSTOM DESIGNS

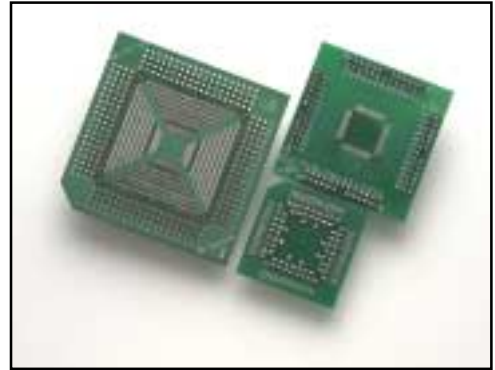
- WE ARE THE DESIGN EXPERTS**
- CALL US**

TECH SUPPORT

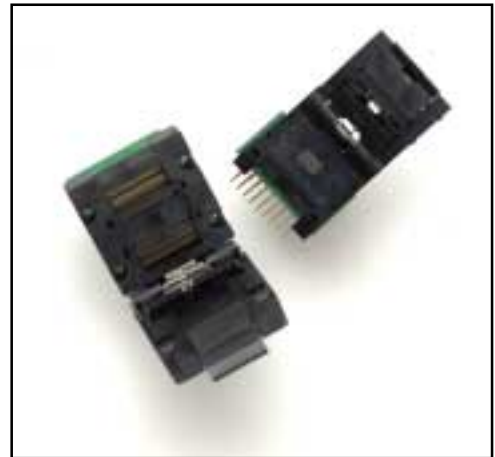
- WE HAVE THE KNOWLEDGE**
- WE HAVE THE SOLUTIONS**

WORK THE WEB

- SEARCH ON-LINE**



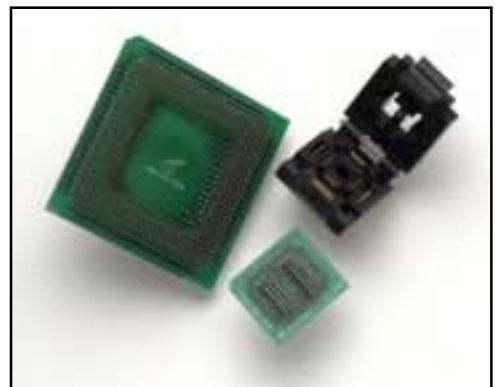
Prototyping boards for surface mount ICs



Adapters for BGA, QFP, and SOIC devices



Adapters every type of I.C. socket



Adapters with or without sockets