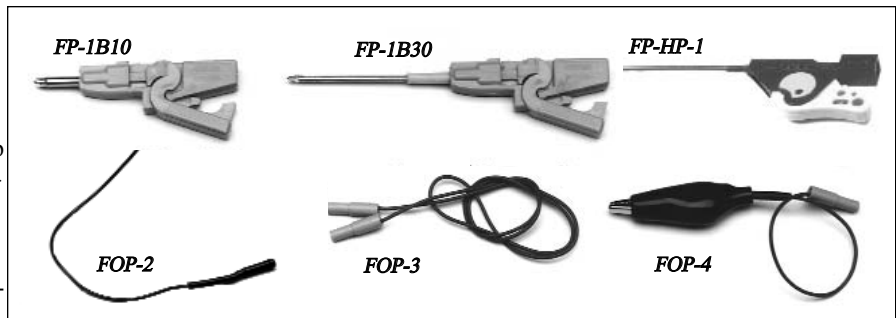


POFP MICROGRIPPERS™

MicroGripper 0.8mm to 0.5mm Lead Pitch (3 Side by Side - Maximum)

- Used to monitor signal on SMT packages up to 0.5mm lead pitch with a logic analyzer or oscilloscopes
- 3 adjacent SMT leads (max.) for testing
- Board under test must be inactive when connecting clips
- Maximum frequency is 100MHz
- Contact resistance is 10 Ω

PART NUMBERS: **FP-1B10**
FP-1B30
FOP-2, FOP-3, FOP-4



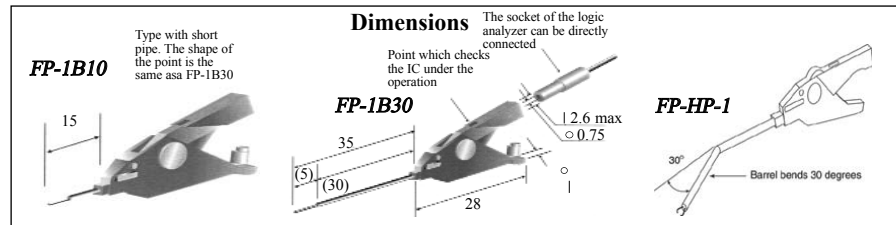
Part	Document	Description	Qty.
FP-1B10	F3855	Gripper, 10mm long tip	ea.
FP-1B30	F3855	Gripper, 30mm long tip	ea.
FOP-2*	F3855	Jumper lead, 200mm long, female to female	ea.
FOP-3*	F3855	Jumper lead, 300mm long, female to female	ea.
FOP-4*	F3855	Jumper lead, 100mm long, alligator clip at opposite end	ea.
FP-HP-1	F3855	Gripper, 2.54mm to 0.8mm, (See Below)	10/pkg.

* Necessary if using an oscilloscope.

MicroGripper 2.54mm to 0.8mm Lead Pitch

- Includes 10 multi-colored Grippers
- Barrel bends 30 degrees for hard to reach signal probing

PART NUMBER: **FP-HP-1**

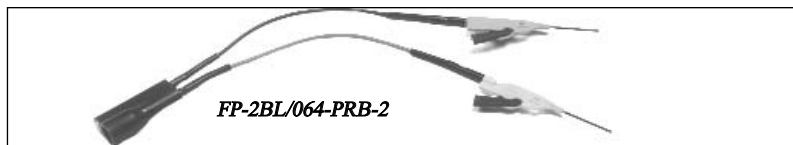


MicroGripper Oscilloscope Probe Adapter Kit 1.25mm to 0.2mm Lead Pitch

- Monitor signals of QFP and SOIC packages to 0.2mm lead pitch with standard oscilloscopes
- Plug your probe tip into dual-lead adapter, then connect Grippers to female test leads (see drawing below)
- Probe kits contain 4 MicroGrippers, 2 Scope Adapters

5.2mm Diam. Probe Adapter (Alone)
P/N: ETPF/064 Drawing#: F5720

7.2mm Diam. Probe Adapter (Alone)
P/N: FP-GR-P1 Drawing#: F6088



Probe Tip Diameter	Lead Pitch Range	ET Part #	Drawing #
5.2mm	1.25mm to 0.3mm SHORT VERSION	FP2B/064-PRB-2	F2317
5.2mm	1.25mm to 0.3mm LONG VERSION	FP2BL/064-PRB-2	F2317
5.2mm	0.5mm to 0.2mm	FP2S/064-PRB-2	F5732
7.2mm	1.25mm to 0.3mm SHORT VERSION	FP2B/GRP1-PRB-2	F2317
7.2mm	1.25mm to 0.3mm LONG VERSION	FP2BL/GRP1-PRB-2	F2317
7.2mm	0.5mm to 0.2mm	FP2S/GRP1-PRB-2	F5732

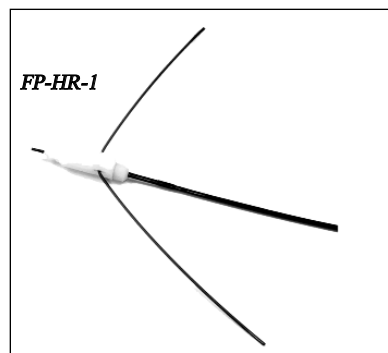
For complete specifications including a manufacturer cross reference, please visit our Web site.

High Temperature MicroGripper 1.25mm to 0.3mm Lead Pitch

- New temperature rated MicroGrippers
- Test from -55 $^{\circ}$ C to +250 $^{\circ}$ C
- Two temperature Range options available
- Contact Resistance 10m Ω

P/N: **FP-HR-1**; -55 $^{\circ}$ C to +250 $^{\circ}$ C MicroGripper

P/N: **FP-HRG-1**; -20 $^{\circ}$ C to +150 $^{\circ}$ C MicroGripper



For a complete test clip listing, pricing and delivery information, please see
Web Link: www.1800adapter.com/040

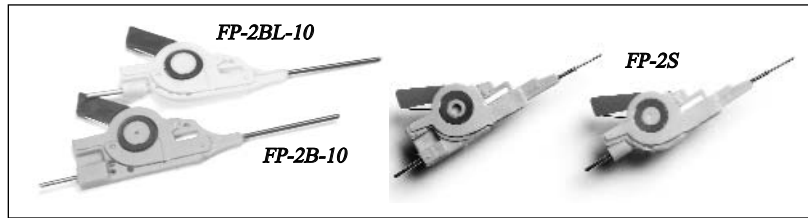
POFP MICROGRIPPERS™

MicroGripper™

**1.25mm to 0.2mm Lead Pitch
(Unlimited - Side by Side)**

- Used with SMT packages down to 0.3mm lead pitch
- Thin clip body width allows many lead grippers to be mounted side by side for simultaneous testing
- Bandwidth (3dB> 100MHz)
- Packaged 10 per box

MATERIAL: Steel wire or stainless steel,
Nickel plated
FINISH: Plastic: ABS
RATING: 500 WVDC



Part	Description	Qty	Document
FP-2BL-10	Gripper, short/no cords, 1.25 to 0.3mm	10/pkg.	F3217
FP-2B-10	Gripper, 0.8mm	10/pkg.	N/A
FP-2CL-10*	Gripper, long w/cords, 1.25 to 0.3mm*	10/pkg.	N/A
FP-2C-10*	Gripper, short w/cords, 1.25 to 0.3mm*	10/pkg.	N/A
FP-2S-10:	Gripper, long w/cords, 0.5 to 0.2mm	10/pkg.	N/A
FOP-1:	Jumpers/Male to Female, 0.5 to 0.2mm	10/pkg.	N/A

* With colored jumpers

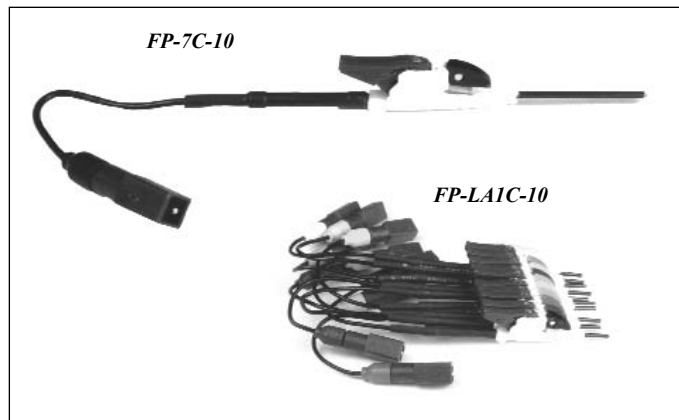
Improved version has a Teflon™ coated tip and 40% more distance when spring is extended.

Micro Gripper™

**1.25mm to 0.3mm Lead Pitch
(Unlimited - Side by Side)**

- New low profile MicroGrippers
- Conductor resistance for ET P/N: FP-7CL=2mΩ max
- Conductor resistance for ET P/N: FP-LA1=40mΩ max
- Flexible stand wires included with each package of 10

FP-7C-10: Gripper short /10 per package with cord
FP-7CL-10: Gripper long/10 per package with cord
FP-LA1C-10: Gripper long/10 per package with cord



MicroGripper™ Kelvin True Measure

1.25mm to 0.3mm Lead Pitch

- Used with SMT packages down to 0.3mm lead pitch
- Thin clip body width allows many lead grippers to be mounted side by side for simultaneous testing
- Maximum frequency is 100MHz

FEATURES & BENEFITS

- Four wire measurement using the Kelvin probe reduces the voltage drop in test leads that cause measurement inaccuracies
- Excellent for resistance measurement below 2W
- Double probe tines are ideal for testing surface mount and small leaded components
- Probe tips and spade lugs are gold plated Beryllium Copper for low contact resistance
- Compatible with Agilent, Keithley, Tektronix and most 4 wire test instruments with screw connections for binding posts
- Extremely small 7mm body height for tight testing areas
- Flexible stand wires included with each package



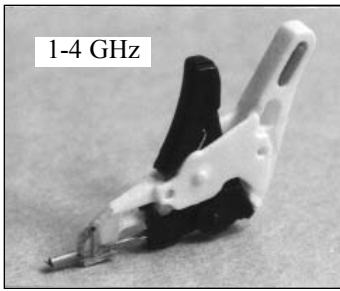
FP-KELVIN-2: Gripper short 2 per package with cord

For a complete test clip listing, pricing and delivery information, please see
Web Link: www.1800adapter.com/040



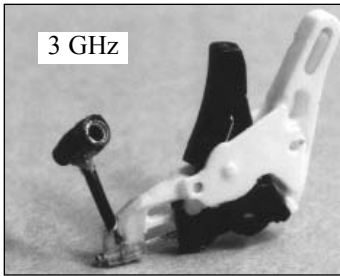
MICROGRIPPERS™ - HIGH SPEED 1 TO 5 GHZ

TEST CLIPS & OSCILLOSCOPES



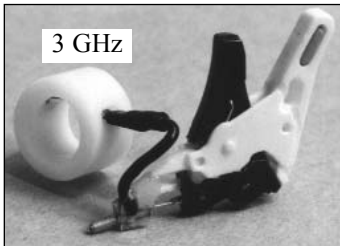
1-4 GHz

P/N: FPN-SM-105F-1



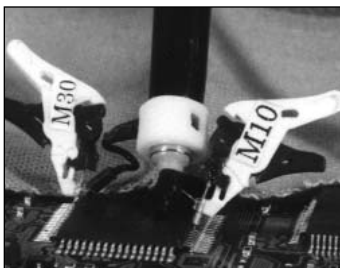
3 GHz

P/N: FPN-M-10



3 GHz

P/N: FPN-M-30



P/Ns FPN-M10 & FPN-M-30 in use.

Now you can accomplish high frequency signal measurement in the GHz band using an oscilloscope.

Test accessories with long conductors used together with circuits that output high-speed signals can degrade the signal fidelity and add noise. This is why we created the ideal microgripper for high-speed signal measurement.

FEATURES & BENEFITS

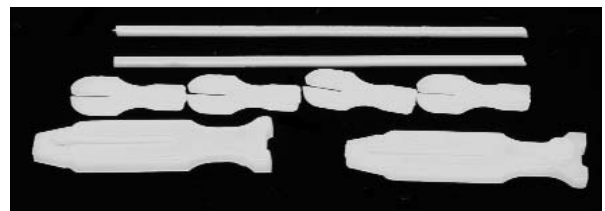
- The Noise Free Micro Gripper attaches directly to the socket tip of the differential probe
- You can connect in parallel by 0.2mm pitch between center of QFP and center of IC terminal
- Available for 1 GHz, 3 GHz, 5 GHz & 10 GHz
- Available in 2.54mm to 0.2mm lead pitches

YOU MUST USE TWEEZERS WHEN YOU USE THIS CLIP

Lead Pitch Range	Lever Color	Barrel Length	Cord Length	Cord Diameter	Conductor Resistance	Capacitance	Male Pin Diam	Female Skt Diam	Drawing Number	ET Part #
(mm)		(mm)	(mm)	(mm)	(Milliohm)	(pF)	(mm)	(mm)		
1 GHz										
0.2 to 0.5	Red	3.00	5.00	0.75	0.5	0.5		0.65-0.80	F7061	FPN-S-15
0.2 to 0.5	Red	3.00	10.00	0.75	0.8	1.0		4.80	F7061	FPN-S-25
0.5 to 1.0	Blue	3.00	5.00	0.75	0.5	0.5		0.65-0.80	F7061	FPN-M-15
0.5 to 1.0	Blue	3.00	10.00	0.75	1.5	2.0		4.80	F7061	FPN-M-20
0.5 to 1.0	Blue	3.00	10.00	0.75	0.8	1.0		4.80	F7061	FPN-M-25
0.8 to 2.54	Green	3.00	5.00	0.75	0.5	0.5		0.65-0.80	F7061	FPN-L-15
0.8 to 2.54	Green	3.00	10.00	0.75	0.8	1.0		4.80	F7061	FPN-L-25
3 GHz										
0.2 to 0.5	Red	1.50	3.00	0.75	0.3	0.3		0.65-0.80	F7062	FPN-S-10
0.2 to 0.5	Red	3.00	10.00	4.80	0.8	1.0		4.80	F7062	FPN-S-30
0.5 to 1.0	Blue	1.50	3.00	0.75	0.3	0.3		0.65-0.80	F7062	FPN-M-10
0.5 to 1.0	Blue	3.00	10.00	4.80	0.8	1.0		4.80	F7062	FPN-M-30
0.8 to 2.54	Green	1.50	3.00	0.75	0.3	0.3		0.65-0.80	F7062	FPN-L-10
0.8 to 2.54	Green	3.00	10.00	4.80	0.8	1.0		4.80	F7062	FPN-L-30

All high speed Microgrippers are sold in pairs. Minimum order is 2 units. The 1—4 GHz Microgrippers come with accessories kit (FPN-T-55, shown below).

HIGH SPEED MICROGRIPPER ACCESSORIES KIT



P/N: FPN-T-55

Try our SolderQuik™ BGA Preform

Allows for easy and inexpensive testing of new BGA package designs. Use it for testing, rework and prototyping BGA packages.

Web Link: www.1800adapter.com/043

For a complete list of high-speed microgripper specifications, pricing and delivery information, see:

Web Link: www.1800adapter.com/105



Now you can accomplish high frequency signal measurement in the GHz band using an oscilloscope.

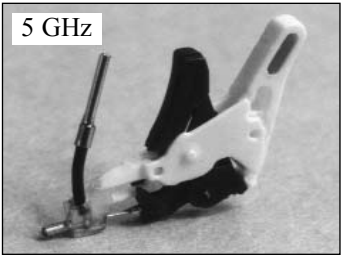
Test accessories with long conductors used together with circuits that output high-speed signals can degrade the signal fidelity and add noise. This is why we created the ideal microgripper for high-speed signal measurement.

FEATURES & BENEFITS

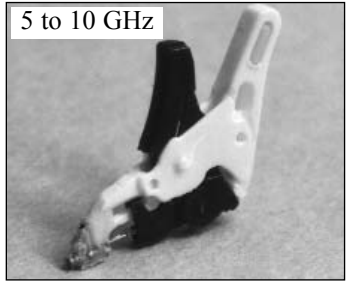
- The Noise Free Microgripper attaches directly to the socket tip of the differential probe
- You can connect in parallel by 0.2mm pitch between center of QFP and center of IC terminal
- Available for 1 GHz, 3 GHz, 5 GHz & 10 GHz
- Available in 2.54mm to 0.2mm lead pitches.

YOU MUST USE TWEEZERS WHEN YOU USE THIS CLIP

Lead Pitch Range (mm)	Lever Color	Barrel Length (mm)	Cord Length (mm)	Cord Diameter (mm)	Conductor Resistance (Milliohm)	Capacitance (pF)	Male Pin Diam. (mm)	Female Skt Diam. (mm)	Drawing Number	ET Part #
5 GHz										
0.2 to 0.5	Red	1.50	3.00	0.75	0.3	0.3	0.68		F7063	FPN-S-1
0.2 to 0.5	Red	3.00	5.00	0.75	0.5	0.5	0.68		F7063	FPN-S-2
0.5 to 1.0	Blue	1.50	3.00	0.75	0.3	0.3	0.68		F7063	FPN-M-1
0.5 to 1.0	Blue	3.00	5.00	0.75	0.5	0.5	0.68		F7063	FPN-M-2
0.8 to 2.54	Green	1.50	3.00	0.75	0.3	0.3	0.68		F7063	FPN-L-1
0.8 to 2.54	Green	3.00	5.00	0.75	0.5	0.5	0.68		F7063	FPN-L-2
10 GHz										
0.2 to 0.5	Red	0.50	2.00	0.75	0.2	0.2	0.68		F7064	FPN-SS-1
0.5 to 1.0	Blue	0.50	2.00	0.75	0.2	0.2	0.68		F7064	FPN-SM-1
0.8 to 2.54	Green	0.50	2.00	0.75	0.2	0.2	0.68		F7064	FPN-SL-1



P/N FPN-M-2



P/N: FPN-M-10



P/N: FPN-M-10

TEST CLIPS & OSCILLOSCOPES

All high speed Microgrippers are sold in pairs. Minimum order is 2 units. The 5—10 GHz Microgrippers come with accessories kit, Part number FPN-T-55 (Pictured on page 172.)

HIGH SPEED MICROGRIPPER TWEEZERS



P/N: FPN-T-55



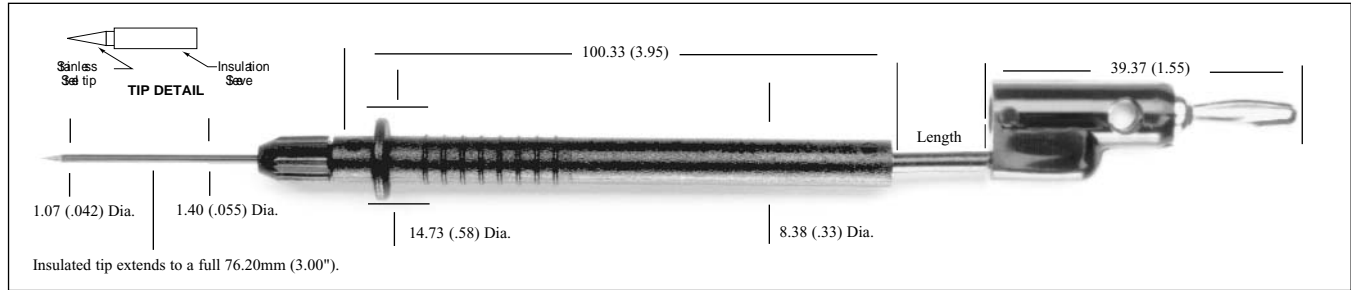
P/N: FPN-T-56

Try our **SolderQuik™ BGA Preform**
 Allows for easy and inexpensive testing of new BGA package designs. Use it for testing, rework and prototyping BGA packages.
Web Link: www.1800adapter.com/043

For a complete list of high-speed microgripper specifications, pricing and delivery information, see:
Web Link: www.1800adapter.com/105

SMD TEST PROBES

EXTENDABLE TIP PROBE TO VARIOUS ENDS



Stacking Banana Plug End: Brass body, Beryllium Copper spring, Nickel plated. Insulation; polypropylene. Two pieces: Black and Red.

1ST END: Extendable Probe. Collet, brass. Insulation; nylon. Tip; stainless steel. Insulation; Kynar. Chuck nut, nylon.

WIRE: 18 AWG, 65X36 t.c., PVC insulated, 3.66mm (.144") O.D.

RATING: 1500 V AC/DC; 3 Amps; +55°C (+131°F) Max.

Part #	2nd End	Length
5952	Stacking Banana Plug	1219.2mm (48.0")

SMD MICROTIP™ TEST PROBE

SMD MICROTIP™

The Microtip is specially designed to probe SMD contacts. It features a stainless steel needle point tip that is flexible to help prevent damage to the SMD lands. The microtip is curved to aid probing of hard to reach areas.

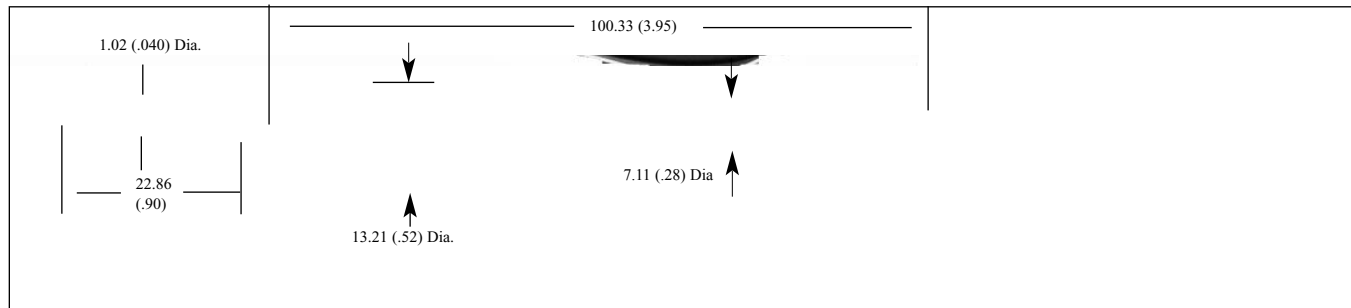
Part #	Length
5144-48-*	1219.2mm (48.0")

*STD COLORS: -0 Black, -2 Red.

1ST END: SMD Microtips Test Probe. Chuck, brass, Nickel plated. Replaceable microtip, stainless steel. Insulation; nylon.

WIRE: 20 AWG, 41X36 t.c., PVC insulated, 2.21mm (.087") O.D.

RATING: 1200 V AC/DC; 5 Amps; +55°C (+131°F) Max.



Stacking Banana Plug End: Brass body, Beryllium Copper spring, Nickel plated. Insulation; polypropylene.

QUICK PROBE TEST FIXTURE

This probe is designed to provide quick and easy SMD probing. Its simple design quickly connects a test instrument, such as an oscilloscope, to a variety of SMDs including PLCC, SOIC, QFP, and VIAS or test point holes.

Part #	Document #
QP-2000	F1011



- Heavy base and flexible shaft make positioning to a test point a simple process.
- Adjustment features enable precise positioning to adjacent test points, even on very fine pitches.

For a complete test clip listing, pricing and delivery information, please see:
Web Link: www.1800adapter.com/040

SMD TEST PROBES & TWEEZERS

PROBE SET AND REPLACEMENT TIPS

The precise probe set is ideal for making measurements not easily accessible. The right-angle sheathed banana plug provides easy connection to hand-held digital instruments. The plugs fit most Fluke, Tektronix, Hewlett-Packard and Wavetek meters.



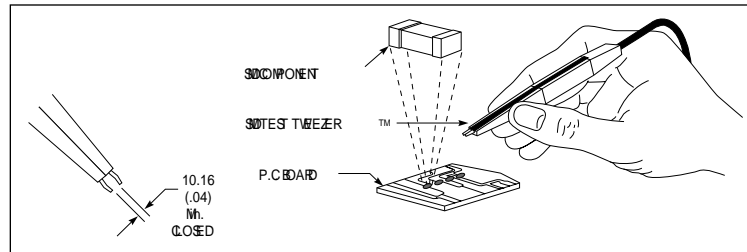
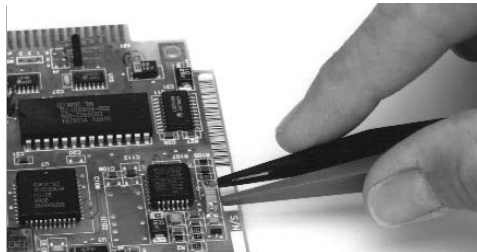
Right-Angle Banana Plug End: Brass body, Beryllium Copper spring, Nickel plated. Insulation; polypropylene, one black and one red.

INSULATION: Nylon 6 fire retardant, UL94 VO, or fire retardant polypropylene.
WIRE: 24 AWG, stranding 45X 40 tinned copper, silicon rubber .089 (2,26 mm) O.D.

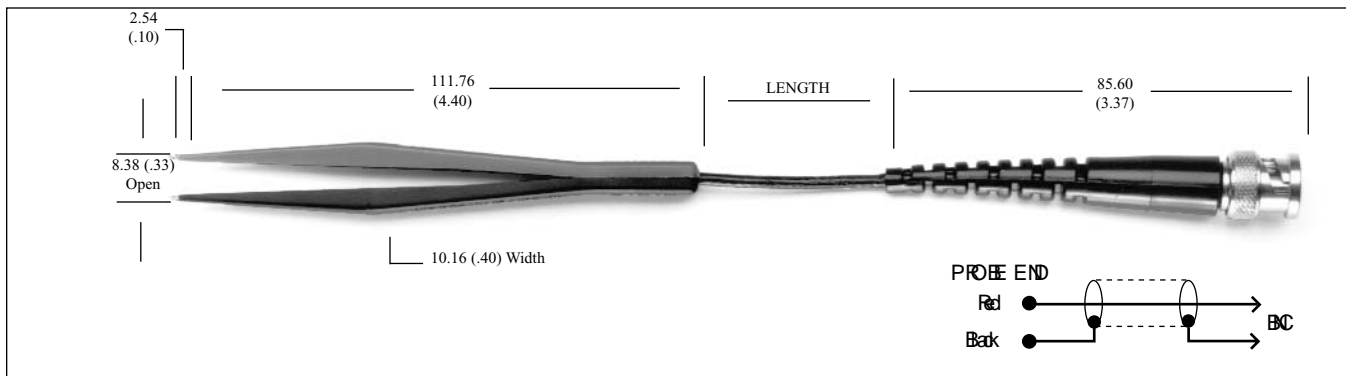
Part #	Description
6341	Probe set with 5 sets of replacement tips
6354	5 replacement tips

SMD TWEEZER CLIPS

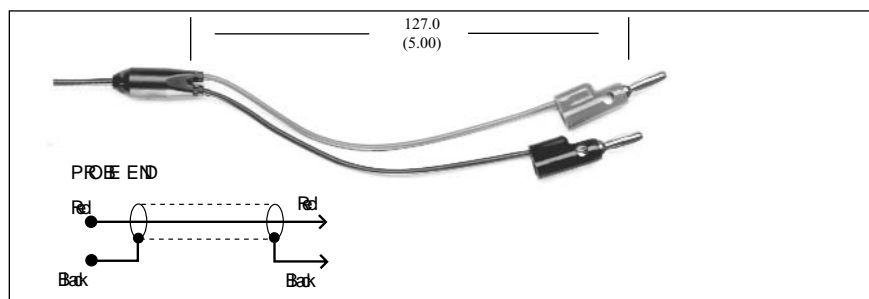
The tweezer clip is specifically designed for testing Surface Mounted Devices (SMD). The durable tips assure a positive electrical connection. The tweezer gives rapid and convenient testing.



SMD TEST TWEEZER™ TO VARIOUS ENDS



BNC Male End: Brass body, tarnish resistant plated. Center contact, brass gold plated. Boot; PVC, black.



Single Stacking Banana Plug End: Brass body, Beryllium Copper spring, Nickel plated. Insulation; polypropylene, one black and one red.

1ST END: SMD Test Tweezer. Tips, Beryllium Copper, gold plated. Insulation; glass filled nylon, black and red.
CABLE: Shielded coaxial, RG174/U, 2.54mm (.100") O.D.
RATING: 400 WRMS; 3 Amps; +50°C (+122°F) Max.

Part #	Length
5142-K-48	1219.2mm (48.0")
5143-K-48	1219.2mm (48.0")

For a complete test clip listing, pricing and delivery information, please see
Web Link: www.1800adapter.com/040

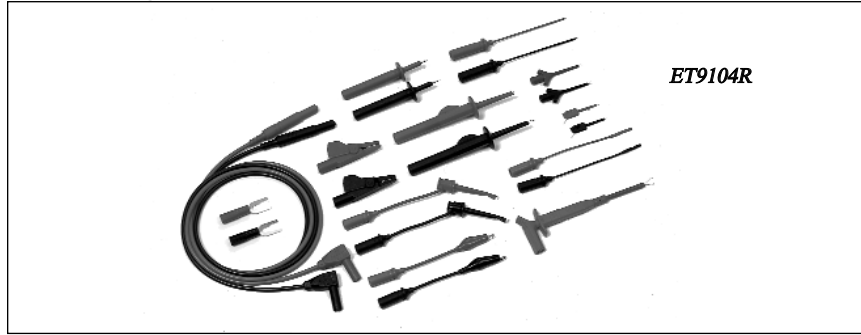
PROBE TEST FIXTURE/PROBE KITS

DELUXE PROBE KIT

This ET9104R Probe Kit is a modular package that includes two leads, two probes, 2 sprung hook probes, 2 alligator clips, two spade lugs, and a pouch.

FEATURES

- Silicone leads
- Burn resistant
- Goldleaf contacts
- 18 gauge (440 strands)



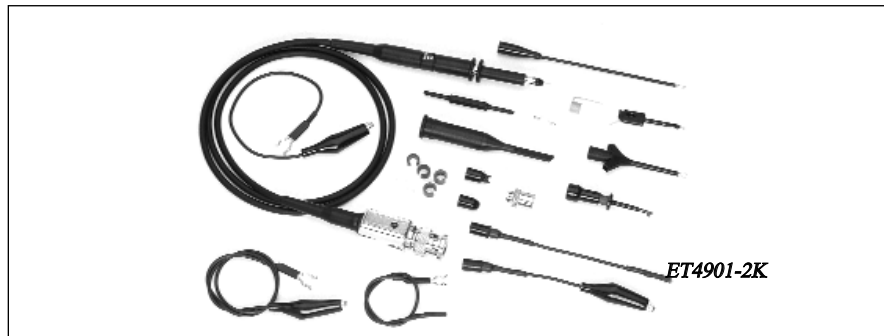
Part #
ET9104-R

DELUXE PROBE KIT

This DELUXE Probe Kit includes the probe, a storage pouch and 17 accessories, plus a set of snap-on channel identification markers (various colors). You can master the most difficult servicing or design problems by simply connecting the correct accessories to the probe.

FEATURES

- 18-piece kit
- Low resistance gold contacts
- Switchable readout actuator option



PART #	ATTEN.	LENGTH		BW-MHz AT-3DB	RISE TIME ns	LOADING	
		FT.	M.			pF	Ω
ET4901-2K	SWITCHED 1X/R/10X	5.0	1.5	10/150	35/2.40	57/115	1/10
ET4903-2K	FIXED 1X	5.0	1.5	30	11.6	40	1
ET4904-2K	FIXED 10X	5.0	1.5	150	2.4	15	10
ET4905-2K	FIXED 10X	5.0	1.5	250	1.4	12	10
ET4910-2K	FIXED 100X	5.0	1.5	200	1.7	3.5	10
ET4906-2K	FIXED 10X	5.0	1.5	300	1.16	11	10

SMD TEST PROBES

Designed to provide high performance, reliable SMD testing.

Each of the test probes features a sharp, spring-loaded tip to assist users needing to test within an SMD environment where space is limited and the test points are difficult to reach.



- Spring contact minimizes pressure on DUT and prevents slippage on the board surface
- Laser trimmed hybrid circuitry improves accuracy and reliability
- Reed relay switch with a shielded X10 position prevents accidental operation
- Fast rise times
- True frequency response

ET Part #	Application	Characteristics	Drawing #
ET-PMV511	Timing & voltage high impedance measurements	10 Mohms, 15 pF bandwidths to 500 MHz	F6779
ET-PMM501	Low mass, general purpose, high impedance measurements	10 Mohms, 10 pF	F6780
ET-PMMZ511	Low-mass, low impedance measurements	450 to 950 ohms, 1.5 pF	F6781
ET-PHV641-L	Probing high power discrete components	66 Mohms, 3pF 100:1 for measurements to 2 kV	F6782
ET-PHV4002-3	Switching power supply, power transmission	1000:1 divider for measurements to 30 kV	F6783
ET-PMT G321	General purpose for work bench or field service	10 Mohms, 15 pF or 1 Mohm, 50 pF	F6784

For a complete test clip listing, pricing and delivery information, please see: **Web Link: www.1800adapter.com/040**