

TA061 1.5 GHz SMA Probe  
User's Guide

Information in this publication supersedes that in all previously published material. Specifications are subject to change without notice.

## **Manufacturer**

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## **Warranty**

Pico Technology Ltd. warrants this oscilloscope accessory for normal use and operation within specifications for a period of two (2) years from date of shipment and will repair or replace any defective product which was not damaged by negligence, misuse, improper installation, accident or unauthorized repair or modification by the buyer. This warranty is applicable only to defects due to material or workmanship. Pico Technology Ltd. disclaims any other implied warranties of merchantability or fitness for a particular purpose. Pico Technology Ltd. will not be liable for any indirect, special, incidental, or consequential damages (including damages for loss of profits, loss of business, loss of use or data, interruption of business and the like), even if Pico Technology Ltd. has been advised of the possibility of such damages arising from any defect or error in this manual or product.



(EC conformity marking)



This electronic product is classified within the WEEE/ RoHS\* category list as monitoring and control equipment (category 9). Category 9 products are exempted from the restrictions under the scope of the RoHS directive.

Your help and efforts are required to protect and keep clean our environment. Therefore return this electronic product at the end of its life either to the manufacturer or take care of separate WEEE collection and professional WEEE treatment yourself. Do not dispose of as unsorted municipal waste!

\* EC Directives:

- WEEE Directive 2002/96/EC - Waste Electrical and Electronic Equipment
- RoHS Directive 2002/95/EC - Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment

**IEC safety symbols**

The following symbols may appear on the product or in this instruction manual:



Caution, risk of danger. Refer to manual.



Caution, risk of electric shock.



Earth (ground) terminal.

To avoid personal injury and to prevent fire or damage to this product or products connected to it, review and comply with the following safety precautions. Be aware that if you use this probe assembly in a manner not specified the protection this product provides may be impaired.

**Only qualified personnel should use this probe assembly.**

**Use only grounded instruments.**

Do not connect the probe ground lead to a potential other than earth ground. Always make sure the probe and the measurement instrument are grounded properly.

**Connect and disconnect properly.**

Connect the probe output to the measurement instrument and connect the ground lead to earth ground before connecting the probe to the circuit under test. Disconnect the probe input and the probe ground lead from the circuit under test before disconnecting the probe from the measurement instrument.

**Observe probe ratings.**

Do not apply any electrical potential to the probe input which exceeds the maximum ratings of the probe. Be sure to comply with the voltage versus frequency derating curve on page 6. Under no circumstances must be the probe be used on mains or line voltages.

**Do not use a suspected failed probe.**

Refer to qualified service personnel.

**Indoor use only.**

Do not operate in wet or damp environments. Keep product surfaces dry and clean.

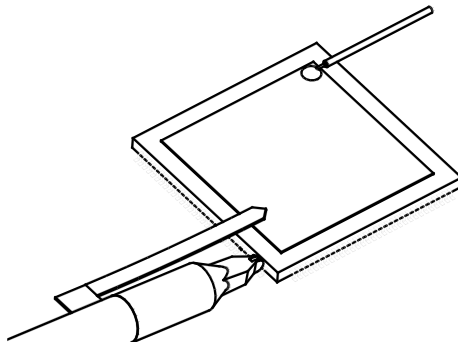
**Do not operate the product in an explosive atmosphere.**

The TA061 probe sets new standards in high performance probing. The compact design with only 2.5 mm housing diameter at the probe tip is ideal for measurements of SMT components. It provides a much better visibility over of the device under test than conventional 5 mm probe housing designs.

The exchangeable probe tip, a special Pico Technology feature, is also available for the TA061 probe. The gold-plated spring contact and the rigid tip are only 0.5 mm in diameter. Replacement of the tip is easy and convenient for the engineer.

Particularly for HF measurements on IC's, a short as possible ground connection is recommended. Due to long ground leads, most conventional adaptors bring additional inductance and resonances into the measurement which will result in false or inaccurate readings. The innovative IC contact system of the TA061 probe, with 5 different IC adapters from 0.5 to 1.27 mm pitch in combination with the ground blade and IC ground copper pad, is the ideal solution for short-circuit-safe, reproducible and accurate measurements.

With these great advantages and over 30 accessories, the new TA061 probe offers various configurations to solve most connection problems.



IC contact system with IC adapter, ground blade and IC ground copper pad.

Specifications are typical and are published as general information for the user. The instrument should have warmed up for at least 20 minutes and the environmental conditions must not exceed the probe's specified limits.

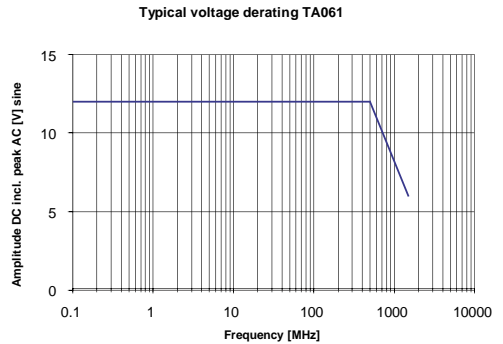
### Electrical specifications

Attenuation ratio <sup>(1)</sup>	10:1	± 2 % at DC
System bandwidth	1.5 GHz	(-3 dB)
Probe risetime	240 ps	(10 % to 90 %) (typical)
Maximum rated input voltage	12 V DC incl. AC peak	

### Voltage derating



*Note that the maximum input voltage rating of the probe decreases as the frequency of the applied signal increases.*



(1) Connect to oscilloscope with a input impedance of  $50 \Omega \pm 1 \%$ .

**Electrical characteristics**

Input resistance (system)	500 $\Omega$	$\pm 1 \%$
Input capacitance (system)	2 pF	(typical)
Input coupling of the measuring instrument	50 $\Omega$	

**Mechanical characteristics**

Weight (probe only)	48 g
Cable length	1.3 m
Probe tip diameter	2.5 mm

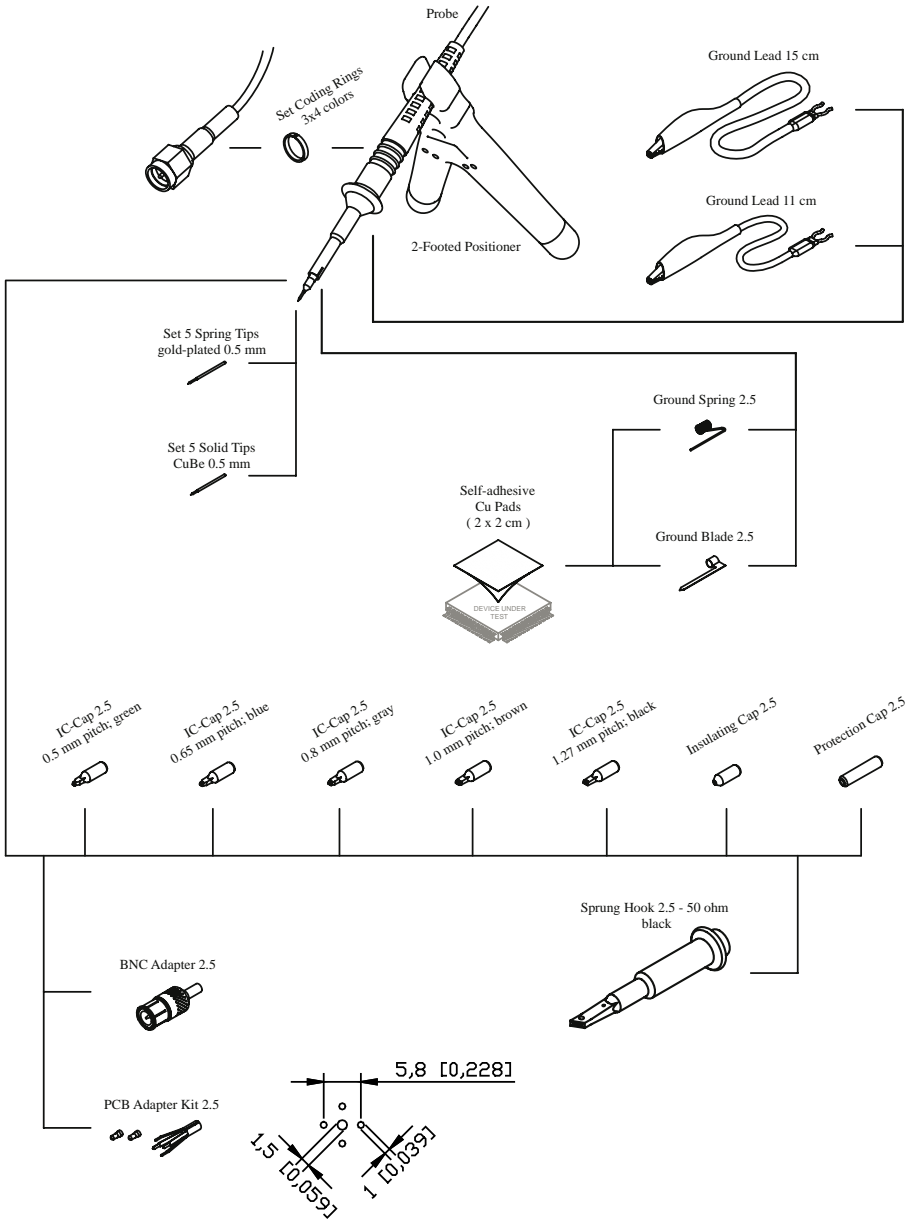
**Environmental specifications**

Altitude	operating	up to 2000 m
	non-operating	up to 15000 m
Temperature range	operating	0° C to +50 °C
	non-operating	-40° C to +71 °C
Maximum relative humidity	operating	80 % relative humidity for temperatures up to +31 °C, decreasing linearly to 40 % at +50 °C

You can buy a range of kits containing accessories and spare parts for the TA061 probe. Contents of the available kits are listed below.

Item	TA064 spring contact tips	TA065 advanced accessory kit	TA066 basic accessory kit	TA067 standard accessory kit	TA068 solid probe tips
Coding rings (set) 3x4 colors		1			
Ground blade 2.5		1			
Ground lead 15 cm		1	1	1	
Ground spring 2.5		1			
IC-Cap 2.5 0.5 mm pitch; green		1			
IC-Cap 2.5 0.65 mm pitch; blue		1			
IC Cap 2.5 0.8 mm pitch; grey		1			
IC Cap 2.5 1.0 mm pitch; brown		1			
IC Cap 2.5 1.27 mm pitch; black		1			
Insulating cap 2.5		1		1	
PCB adapter kit 2.5		1			
Self-adhesive Cu pad 2 x 2 cm		2			
Solid tip CuBe 0.5 mm		1	1	1	5
Spring tip gold plated 0.5 mm	5	1	1	1	
Sprung hook 2.5		1	1	1	





The following items are included in the scope of delivery. Please check the delivery for completeness. If any item is missing, send a message to our service department and we will send you this item immediately.

<b>Item</b>	<b>Qty</b>
Coding rings (set) 3x4 Colors	1
Ground blade 2.5	1
Ground lead 11 cm	1
Ground spring 2.5	1
IC-Cap 2.5 0.5 mm pitch; green	1
IC-Cap 2.5 0.65 mm pitch; blue	1
IC-Cap 2.5 0.8 mm pitch; grey	1
IC-Cap 2.5 1.0 mm pitch; brown	1
IC-Cap 2.5 1.27 mm pitch; black	1
User's Guide	1
Insulating cap 2.5	1
PCB Adapter kit 2.5	1
Probe	1
Protection Cap 2.5	1 (1)
Self-adhesive Cu pad (2 x 2 cm)	2
Solid tip CuBe 0.5 mm	1
Spring tip gold plated 0.5 mm	1 (2)
Sprung hook 2.5	1
2-footed positioner	1

(1) plugged on probe

(2) installed in probe



*Use ground lead only for connections to earth ground.*



*The BNC Adapter is rated: 42 V pk AC + DC*



*The accessories provided with the probe have been safety tested.  
Do not use any other accessories than those originally provided.*



Handle the probe with care, especially when it is fitted with the extra thin and sharp spring contact tip, to avoid any injury. Note that the probe cable is a sensitive part of the probe. Do not damage through excessive bending or pulling. Avoid mechanical shock to this product in general to guarantee accurate performance and protection.

**Maintenance**

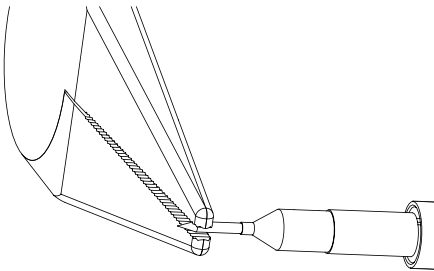
**Cleaning**

To clean the exterior of the probe use a soft cloth moistened with either distilled water or isopropyl alcohol. Before use allow the probe to dry completely.

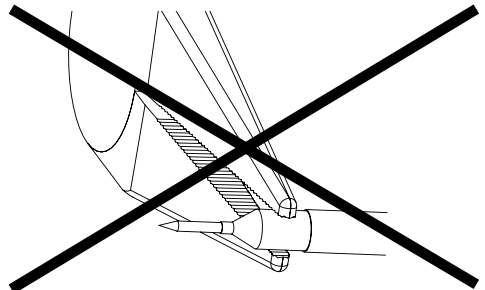
**Changing the probe tip**

To change the probe tip use pliers to grip and pull it carefully straight out of its contact socket, along the axis of the probe. Do not grip the white plastic insulator or the housing with pliers, because the tip could be squeezed and become difficult to remove, or the probe could be damaged.

If the probe tip is removed, the new tip can be inserted with pliers into the contact socket, along the axis of the probe. In order to insert the probe tip completely into the housing, carefully press the probe tip against a hard surface.



Use pliers to grip and pull the probe carefully out of its contact socket.



Do not grip the white plastic insulator or the probe housing with pliers.

