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ASA101A User Manual software version: 24.001 manual version: 18 March 2024

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1 Notices

..1.1 Copyright

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..1.2 Part number

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..1.3 Issue

24.001, 18 March 2024

..1.4 Location

The latest version of this document can be found on our website: www.electron.plus

..1.5 Published by

BFRAD Limited (t/a Electron Plus) Unit 8 Manor Farm Business Centre Manor Lane Stutton Suffolk IP9 2TD UK

Hereafter referred to as Electron Plus

..1.6 Notes

- We frequently update our manuals and add new features and improvements as they available, please ensure that you check our website for an updated version of this document, especially if updating your **Electron Plus** software.
- We make every effort to ensure the accuracy of this manual's contents. If you find any errors, have suggestions for expanding on a feature, or feel that we can improve it's contents then please contact us at support@electron.plus

• Copying or reproducing this document or any part of this document without written permission of **Electron Plus** is strictly prohibited.

..1.7 Trademark acknowledgement

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Windows[™] is a trademark of Microsoft Corporation.

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..1.8 Purpose of manual

The purpose of this manual is to enable you to safely setup, configure and operate your **Electron Plus** instrument, associated software and/or accessories.

Please pay particular attention to any section with a warning symbol.

..1.9 Safety warnings

Warnings, cautions and notes are colour coded through-out this manual. These are divided into several categories and are described below:

A WARNING notice signifies a potential danger. It draws attention to a procedure, practice, or similar aspect that, if not executed correctly or followed, may lead to personal injury or loss of life. DO NOT advance beyond a WARNING notice until the specified conditions are thoroughly comprehended and fulfilled.

CAUTION - Damage may occur to your equipment or any DUT (device under test).A CAUTION notice signifies a potential danger. It draws attention to an operational procedure, practice, or similar aspect that, if not correctly executed or adhered to, could lead to damage to the product, your equipment, DUT (device under test) or loss of crucial data. Refrain from advancing beyond a CAUTION notice until the specified conditions are thoroughly understood and met.

NOTE - General text, with useful information or tips.

2 Specifications

..2.1 Absolute Maximum Ratings

Exceeding these specifications, even briefly, may cause permanent damage to the device.

Parameter	Rating
Input Voltage (via connector 'spike')	-12V to +12V
Input Voltage (via connector 'USB')	-0.6V to +5.5V
Operating Temperature (Centigrade)	-20°C to +50°C
Operating Temperature (Fahrenheit)	-4°F to +122°F
Storage Temperature (Centigrade)	-40°C to +75°C
Storage Temperature (Fahrenheit)	-40°F to +167°F

In normal operation the unit is exposed to higher input voltages from undischarged capacitors on the DUT. Ensure these are safely discharged prior to testing with an ASA - not only to protect the ASA from damage, but also to eliminate the risk of shock to the user from high voltages that maybe present across capacitors (e.g. SMPSU caps).

..2.2 Physical Specifications

These parameters do not include packaging materials, accessories or non-permanently attached cables/connectors.

Parameter	Value
W x H x D (metric)	112mm x 35mm x 90mm
W x H x D (inch)	4.41" x 1.38" x 3.54"
Weight (metric)	0.XXX Kg
Weight (imperial)	0.XXX Lbs

..2.3 General Specifications

..2.4 PC Requirements

3 Getting Started

..3.1 System requirements

We recommend *at least* Windows 7 operating system - although most customers are using Windows 10 or Windows 11.

ASA is available in both 32 bit and 64 bit from the **Electron Plus** website.

Minimum requirement for connection to ASA device: 1x USB 2.0 type A (common) for connection to the instrument, at 0.5A.

Screen resolution of at least 1440(W) x 900(H), it will work with others, but you risk some of the CONTROL RIBBON items not being visible.

ASA uses the PC sound card for various alerts, although it will operate correctly without sound.

Technical Note We test EPIC builds mainly on Windows 10/64 bit machines with 1920x1080 monitors.

..3.2 Getting help

Help is available by email: support@electron.plus

If you are experiencing an issue with EPIC, please email a copy of the following files (see below) found in the EPIC installation folder along with a description of the problem.

log.txt bugreport.txt

This will help us understand your problem and provide a quicker fix.

4 Introduction

..4.1 Welcome

Congratulations and thank you for purchasing an **Electron Plus** product.

Please take a few minutes to read the <u>'Before you start'</u> section of this manual, especially as misusing this product can result in damage to it, your device-under-test or potentially place you in-danger.

..4.2 Before you start

The supplied metal spike is **SHARP**. When you have finished using the ASA101A, unscrew the spike, turn it round and screw it lightly back into the ASA101A.

Ensure that all DUT* capacitors and energy storage devices are fully discharged before using the ASA101A.

The **SIGNAL** connection is protected by a large 'transzorb' style device, but damage WILL occur if the ASA101A is placed across a fully charged DCLINK capacitor.

The **COMMON** connection is connected directly to the chassis of the instrument and therefore the USB 0V and shell.

Before connecting your device, please ensure you have installed the USB driver.

DUT* - device under test

..4.3 New in software

ASA covers most **Electron Plus** instruments and not all instruments are updated between versions:

V24.001

Change to Daily Update Check function Split Views out of Display menu Bug fixes Various small tweaks

V22.001

Change of name to ASA from EPIC Bug fixes

V21.012 Bug fixes ASA - addition of manual mode

V21.011

Bug fixes CTL503 - Vgs vs Id (at fixed Vds) mode added CTL503 - updates to status display CTL503 - removal of DEVTEST button/function.

V21.010

Bug fixes Addition of version compiled for 32 bit systems CTL503 added to EPIC ASA200/240 - addition of SIGNAL/COMMON to EDIT page

V21.009

Bug fixes SPA100 added to EPIC REF50X added to EPIC

V21.008

Bug fixes

..4.4 Installation sequence

Please install the **ASA** software and the associated USB driver software BEFORE connecting your device to a computer.

You do not need to remove a previous copy of **ASA**, the new copy will overwrite the necessary existing file(s). The "settings.txt" file will only be created if it is not present.

When **ASA** is first started, it will build a number of files (unless they are already there from a previous installation) in the installation directory.

If upgrading from EPIC V21.009 or earlier please be aware that the new program EXE is called either ASA32.EXE or ASA64.EXE and that previous shortcuts might not work or will link to previous copy.

..4.5 Installing the Software

Electron Plus products require a USB connection to a PC running **ASA** (our proprietary software) in order to function.

ASA now comes in two compiled versions (since version 21.010):

ASA64 - for 64 bit Windows installations & PC's (we recommend this). ASA32 - for 32 bit legacy Windows machines.

You can download the latest copy of **ASA** for free from <u>www.electron.plus/pages/software</u>, **ASA** is being constantly revised with new features, updates and bug fixes.

1. Select which variant you wish to use go ahead and download it (typically by double-clicking on the ZIP file named something like: Install_ASA24001_64.ZIP)

2. Open the downloaded file (typically Windows will recognise the ZIP format and open the file and display the contents like a folder), double click the EXE file - typically called Install_ASA24001_64.exe)

3. Follow the on screen instructions to complete the installation.

Before starting **ASA**, we recommend installing any USB drivers, see next section for details.

This manual MAY NOT represent the most up-to-date features and screen-shots, if something is unclear, please contact support@electron.plus and we will promptly try to assist you.

..4.6 Installing the USB driver

The product covered in this document communicates with the host PC via USB using an FTDI FT230X bridge IC.

A copy of the official FTDI device driver is available from the SOFTWARE section of our website (<u>www.electron.plus/pages/software</u>), device drivers can also be downloaded directly from FTDI's website (<u>www.ftdichip.com/drivers</u>).

Download the FTDI driver (CDM21228_Setup), open the ZIP file and run CDM21228_Setup.EXE, this will install the D2XX drivers necessary.

It is possible that you already have this FTDI device driver installed, however we still recommend following this procedure.

5 Operation

..5.1 Selecting Instrument

When **ASA** is first installed it will initially start in ASA100 mode.

To change this:

INSTRUMENT > CHANGE INSTRUMENT and select the actual instrument you wish to use, you will then have to close and reopen **ASA** for this to take effect.

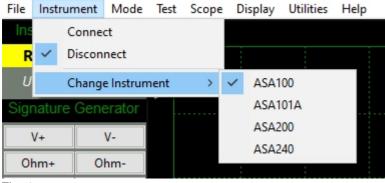


Fig. 1



..5.2 Connecting Instrument

To connect to the instrument you can use the options in the MENU or the button on the Control Ribbon.

INSTRUMENT > CONNECT to connect, or **DISCONNECT** to disconnect.

e	Inst	rument	Mode	Tes	t	Scope	D				
ns		Conne	ct								
R	~	✓ Disconnect									
U		Change	e Instru	ment		>					
ar Fiç	patu g. 2	re Gene	erator								
or											
Fi	le l	nstrume	nt M	ode	Test	5					
	Instr	rument	Statu	s	N	o s					
	RE	CONN	ECT?		<u>+</u>						
	US	B discor	nnecte	d	DOUA						
S Fig	igna g. 3	ature G	enera	tor							

Before the instrument connects it will check the identification in the FTDI USB bridge IC, an error message will be shown if the instrument selected is not the same as the instrument connected.

Technical Note Upon successful connection, ASA will download the calibration coefficients file from the USB bridge IC. These are then stored in the ASA folder as "ASA_cal.txt"

..5.3 Check for updates

Once per day **ASA** will check if there is a newer version available. This feature maybe disabled or re-enabled here:

UTILITIES > DAILY UPDATE CHECK

Tick will enable **ASA** to perform the daily update check, unticking will prevent **ASA** from performing the daily update check.

Display	Utilities	Help				
	Cal	ibrate	>	ıs\u	intitled.ept	
	Dai	ly Update Ch	eck >	~	Daily Check for Releases	

Fig. 4

Technical Note

In "settings.txt": CheckWebsiteForUpdate=1 or 0 determines if this function is enabled/disabled.

Also in "settings.txt": DateOfLastUpdateCheck=04/11/2021 (is selfexplanatory).

If function is enabled and date <> today an electron.plus webpage (dedicated to software version) is scanned for current for software version number. If the listed version number is higher than the installed version number a message is displayed to the user.

..5.4 Control Ribbon

The Control Ribbon has most of the functions necessary for the operation of the instrument.

Instrument Status								
CONNECTED								
USB rail: 4.95V								
Signature	Signature Generator							
V+	V-							
Ohm+	Ohm-							
Freq+	Freq-							
Voltage: 1Vpl	k ~							
Resistance: 1	0K ohms 🖂							
Frequency: 5	0Hz ~							
Α	В							
A= Cycle Fre	quency 🗸							
B= Cycle Vol	tage 🗸							
Test C	ontrols							
<	>							
<<	>>							
<< First	>> Last							
First	Last							
First ✓ V/R/Hz	Last Reset test							
First V/R/Hz 0.00% GOOD AUTO	Last Reset test 0.00% BAD TEST							
First V/R/Hz 0.00% GOOD	Last Reset test 0.00% BAD TEST							
First First V/R/Hz 0.00% GOOD AUTO Edit Co	Last Reset test 0.00% BAD TEST							
First First V/R/Hz 0.00% GOOD AUTO Edit Co	Last Reset test 0.00% BAD TEST ontrols are signature							

Fig. 5

The following sections are descriptions of <u>Instrument Status</u>, <u>Signature Generator</u>, <u>Test</u> <u>Controls</u> and <u>Edit Controls</u> and their functions.

.5.4.1 Instrument Status

Reconnect/Connected button shows the status of the connection between the instrument and **ASA**:



Fig. 6

Pressing this button will connect or disconnect the instrument to **ASA**. Should the instrument be disconnected, the status of this button will automatically change.

Below the connection button is a text display that shows (typically) the voltage of the USB connection at the input to the instrument.

This is useful in diagnosing problems with the USB cable, or the computer port. This voltage will dip a small amount when the instrument is generating signals in the 100ohm setting.

.5.4.2 Signature Generator

This section of the Control Ribbon selects the output voltage, resistance and frequency of the test waveform generated by the ASA.



Fig. 7

Pressing the V+ or V- button will increase or decrease the output voltage from the instrument, this is in steps, and ranges from 0.2Vpk to 10Vpk. These steps are 0.2Vpk, 0.4Vpk, 0.6Vpk, 0.8Vpk, 1Vpk, 2Vpk, 3Vpk, 4Vpk, 5Vpk and 10Vpk.



Pressing the **Ohm+** or **Ohm-** button will increase or decrease the output resistance from the instrument, this is in steps, and ranges from 100 ohms to 10K ohms (10,000 ohms). These steps are 100 ohms, 1K ohms and 10K ohms.



Pressing the **Freq+** or **Freq-** button will increase or decrease the output frequency the instrument, this is in steps, and ranges from 10Hz to 1KHz (1,000Hz). These steps are 10Hz, 20Hz, 50Hz, 100Hz, 200Hz, 500Hz and 1KHz.

Voltage, resistance and frequency settings may also be set directly from the drop down boxes shown below.

Voltage: 1Vpk	\sim
Resistance: 10K ohms	\sim
Frequency: 50Hz	\sim
	_

Fig. 10

These also show the current setting of the voltage, resistance and frequency.

Buttons **A** and **B** (as shown below) can be used to quickly access a favourite or much used function.



The two push-buttons on the ASA101A (also labelled A and B) map directly to these two onscreen buttons, and when pressed the on-screen buttons will go yellow.



Two drop down lists below enable the user to select the function associated with each button (list shown below, with button A assigned to cycle frequency):

A= No Function
A= Cycle Resistance
A= Resistance+
A= Resistance-
A= Cycle Frequency
A= Frequency+
A= Frequency-
A= Cycle Voltage
A= Voltage+
A= Voltage-
A= GOOD/CAPTURE
A= BAD
A= +1 test
A= -1 test
A= FREEZE
A= THAW
Fig 12

Fig. 12

The cycle function (i.e. Cycle Frequency) will go up relevant function and 'roll-over' to the minimum setting (e.g. 200Hz, 500Hz, 1KHz, 10Hz, 20Hz....), this function is useful if you are perhaps testing electrolytic capacitors and only want to assign a single button to the finding the best signature.

+1 / -1 test will increment or decrement the test number (equivalent to pressing the left/right arrow under Test Controls.

GOOD/CAPTURE and BAD are equivalents to the same named buttons under Test Controls.

FREEZE/THAW currently have no function in EPIC 20.012

Note

1Vpk means that the output voltage of the instrument has a peak voltage of +/-1Vpk, this would be equivalent of 2Vpk-pk (peak to peak) or 0.707Vrms.

.5.4.3 Test Controls - Advanced Mode

The Pin/record selected is incremented/decremented manually (using the buttons below) or advanced automatically (when in Auto Test, Auto Capture or Single Capture).



Fig. 13

These buttons (above) will increment/decrement through the individual Pin/records - using the controls below will increment/decrement through entire components at a time.



Fig. 14

Skipping straight to the first* record or the last press one of the buttons below.



Fig. 15

When changing to a different record, the instruments output voltage/resistance/frequency settings are automatically set to those of the new record (if a golden signature has been captured, if no signature has been captured they remain as before). This feature is enabled by default (see below), uncheck the box to disable.

✓ V/R/Hz

Fig. 16

To clear all **DUT Signatures** (GOOD and BAD) and reset to the first record, press the button below. Before the reset, a pop-up window will be ask if you really want to do this.

Reset test

Fig. 17

The above function will not reset captured **Golden Signatures** (make sure you save the .EPT file at regular intervals).

Note

Floating the mouse over one of the buttons above will bring up a small text description of the button function.

Note

*The first usable record is #2, as record #1 is reserved for other (historic) functions.

During a test, the percentage of pins that test **GOOD** and **BAD** is calculated and displayed (see image below).

3.94%	5.51%
GOOD	BAD
Fig. 18	

GOOD and **BAD** buttons (above) will mark each record as either GOOD or BAD - typically this is used when overriding automatically tested signature results.

The next button has several different functions depending on which mode is being used. Default state is manual testing (use GOOD/BAD buttons to register the results of a signature test), pressing the button (below) will start an automatic test (**AUTO TEST**) at the current Pin/record:



When the **AUTO TEST** is running, the button will show **TEST IN PROGRESS** (see below). Pressing the button will stop the automatic test. The test maybe resumed by pressing the button again.



Fig. 20

If the Edit/Capture signature tickbox (see <u>Edit Controls</u>) is ticked, then capture mode is selected and there will now be two buttons (see below) instead of the three before:



The **SINGLE CAPTURE** button will capture the Live Signature and it's associated voltage/resistance/frequency settings and store it as the Golden Signature for that Pin/record, once done, it will automatically advance to the next Pin/record (ready for another capture).

The **AUTO CAPTURE** button will start the automatic capturing of Golden Signatures (see <u>Auto Capture</u>). When AUTO CAPTURE is running, the buttons will look like:

SINGLE CAPTURE

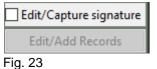
CAPT IN PROGRESS

Fig. 22

Pressing **CAPT IN PROGRESS** button will stop the automatic capture.

.5.4.4 Edit Controls - Advanced Mode

The default condition is Manual Test (Edit/Capture signature unticked).



To enter Capture signature mode, tick the box (see below).

Edit/Capture signature

Fig. 24

Pressing the **Edit/Add Records** button (see above) will open a new window (see <u>Edit/Add</u> <u>Records & Images</u>).

.5.4.5 Freeze Controls - Compact Mode

Compact Mode is designed so that you can quickly perform:

- 1. classic analog signature analysis display
- 2. fast comparison between two circuits

To switch between Compact and Advanced modes click here.

e ⁺ Electron	n Plus - ASA100) Analo	og Signati	ure Analys	er V24.001	1			_	C	נ	×
File Instrur	ment Mode	Test	t Scope	Display	Utilities	Help						
Instrume	ent Status											
CONN	IECTED	+10										
USB ra	nil: 4.87V	+10mA										
Signature	Generator											
V+	٧-											
Ohm+	Ohm-											
Freq+	Freq-											
Voltage: 10V	/pk ~											
Resistance: 1	1K ohms 🛛 🗸											
Frequency: 1	1KHz ~											
Α	В											
A= Cycle Fre	equency 🗸											
B= Cycle Vol	ltage 🗸 🗸											
Test C	Controls		Live Sig	nature								
Freeze Golden	Freeze DUT	13		Signatur	e		0/0	C, Cou	nt: 0,	Prev:	0.00%	, Thi
Auto	Freeze		-10V	V	/pk=10V,	Z=1ko	ohms,	, f=1kH	z		+10V	

Fig. 25



The basic controls (signature generator) are the same as Advanced mode. Three extra controls (bottom left) have the following functions:

Freeze Golden button/function

Pressing this button will freeze the current signature and keep it displayed in a golden colour until it is either unfrozen (pressing the button again), or by enabling Auto Freeze.

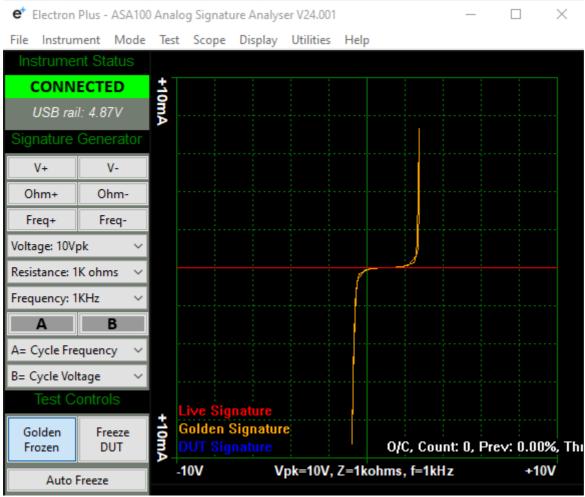


Fig. 26

You might typically use this if you are comparing two signatures live, i.e. the base-emitter junction of a known good transistor (say in the working left-channel of an audio amplifier) vs a suspect base-emitter junction (in the faulty right channel of the same amplifier).

Freeze DUT button/function

Pressing this button will freeze the current signature and keep it displayed in a blue colour until it is either unfrozen (pressing the button again), or by enabling Auto Freeze.



e [†] Electron	Plus - ASA100) Analo	og Signatı	ure Analys	er V24.001				_		ב ב	×
File Instrum	nent Mode	Test	Scope	Display	Utilities	Help						
Instrume	nt Status											
CONN	ECTED	+10										
USB rai	il: 4.87V	+10mA										
Signature	Generator											
V+	V-											
Ohm+	Ohm-											
Freq+	Freq-											
Voltage: 10V	pk ~							}				
Resistance: 1	K ohms 🛛 🗸					-		8				
Frequency: 1	KHz 🗸											
Α	В					Æ						
A= Cycle Fre	equency 🗸											
B= Cycle Vol	tage 🗸 🗸											
Test C	ontrols		Live Sig	nature								
Golden Frozen	DUT Frozen	10		Signatur	e		o/c	, Cou	nt: 0,	Prev:	0.00%,	. Thi
Auto	Freeze		10V	V	pk=10V,	Z=1ko	hms,	f=1kH	Z		+10V	

Fig. 27

Auto Freeze button/function

Auto Freeze allows for rapid comparison between two signatures without having to remember the previous signature and having to interact with the controls.

When enabled, Auto Freeze will:

- 1. apply test probes across known good test points, then
- 2. wait for the signature to stabilise (stability settings are adjustable), then
- 3. signature is automatically captured (now in gold), then
- 4. apply test probes across DUT test points, then
- 5. wait for the signature to stabilise (stability settings are adjustable), then
- 6. signature is automatically captured (now in blue), then goto step 1.

electronplus⁺

e ⁺ Electron	Plus -	ASA100	Ana	log Signati	ure Analys	er V24.001	l			_			\times
File Instrur	ment	Mode	Tes	t Scope	Display	Utilities	Help						
Instrume	nt St	atus											
CONN	ECTI	ED	+10					I					
USB ra	il: 4.8	7V	+10mA										
Signature	Gene	erator											
V+		V-											
Ohm+	0	hm-											
Freq+	Fi	req-							1				
Voltage: 10V	pk	~											
Resistance: 1	1K ohn	ns 🗸					đ						
Frequency: 1	1KHz	~											
Α		В				P							
A= Cycle Fre	equen	cy ~											
B= Cycle Vo	ltage	~											
Test C	ontro	ls		Live Sig	nature								
Freeze Golden		eeze UT	+10mA	Golden S DUT Sig	Signatur	e		0/0	C, Cou	ınt: 0,	Prev: I	D.00%,	Th
Auto	Freeze	:		-10V	V	pk=10V,	Z=1ko	ohms	, f=1kl	lz		+10V	



Switching off Auto Freeze will preserve the screen until a new signature is displayed.

..5.5 Menu Bar

Across the top of the screen is the Menu Bar.

Controls for file management, instrument connection, overall mode, test settings, scope settings, visualisation, utilities and help are here:

File Inst	rument	Mode	Test	Scope	Display	Views	Utilities	Help
Instrun	nent St	tatus	NO	SIG				
CON	NECT	ED	+100					
Fig. 29		7517	ŏ		1	1	:	

A detailed description of each drop down menu follows on the next few pages.

5.5.1.1 File > New

This topic is also covered <u>here</u>.

To create a new, empty .EPT test file:

File	Instrument	Mode	Test	Scope	Display	Utilities	Help
	New		NO	SIG			
	Open		5				
	Save		2011				
	Open Recent	>	۸				
Fig. 3	0						

Will bring up the Save file selector:

· · 🕇 📙 « Loca		7 P400-SOI TWAILE	> SOURCE > ASA	v24001 / testplaits	√ Ū	Search testplans		۶
Organise 🔻 🛛 New folder							-	
Documents ^	-							
Pictures								
💻 This PC								
🧊 3D Objects								
🔜 Desktop	images	CTL503.ept	CTL503a.ept	demo_A.ept	demo_B.ept	demo_C.ept	demo_D.	ept
Documents								
🕂 Downloads								
👌 Music								
Pictures	demo_E.ept	demo_F.ept	demo_G.ept	demo_H.ept				
Videos	demo_c.ept	demo_nept	demo_d.ept	demo_n.ept				
Local Disk (C:)								
	ile_Name_Here.ept							_
Save as type: Test (*.e								
Suve as type. Test (.e	-6-0							

Fig. 31

Files can be saved to any location on your computer or network, however consider the speed of access to the file if storing across a network (especially lower cost NAS devices).

.EPT files are based on the common CSV file format.

×

5.5.1.2 File > Open

To open a .EPT test file:

File	Instrument	Mode	Test
	New		NC
	Open		5
	Save		2011
	Open Recent	>	>

Fig. 32

Select the .EPT file to open:

e⁺ Please choose a file to open

rganise 🔻 New folder							(
UserManuals_Pn ↑ Dropbox OneDrive - Persor Documents Pictures This PC 3D Objects Dosktop Documents Documents Documents Documents Documents Documents Local Disk (C:) v	images demo_E.ept	CTL503.ept	CTL503a.ept	demo_A.ept	demo_B.ept	demo_C.ept	demo_D.ept
File nar	me: Your_File_Name	Here.ept			~	Test (*.ept)	``````````````````````````````````````
						Open	Cancel

Fig. 33

5.5.1.3 File > Save

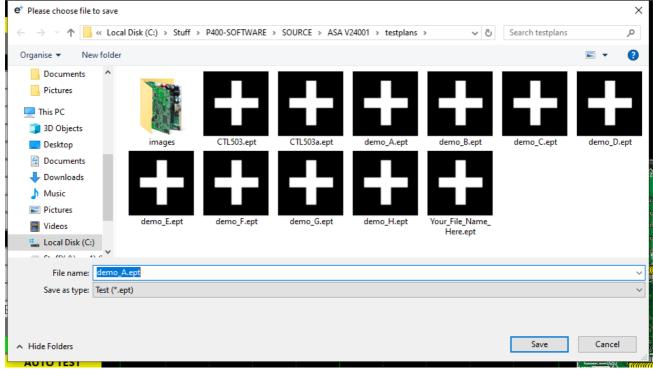
To save a .EPT file:

File	Instrument	Mode	Tes
	New		N
	Open		5
	Save		201
	Open Recent	>	>
		v	

Fig. 34

.

Enter either a new name OR just click SAVE on the file selector:





5.5.1.4 File > Open Recent

To open a recently saved .EPT file:

File	Instrum	ent	Mode	Test	Scope	Display	Utilities	Help
	New			NO	SIG			
	Open			5				
	Save			2011				
	Open Re	cent	>		testplan	s\demo_A	.ept	
	V+ V-			testplan	s\demo_B	l.ept		
			-		testplan			
0	hm+	0	hm-		testplans\demo_D.ept			
F	req+	F	req-		testplans\demo_E.ept		.ept	
Volt	age: 1Vpk	:	\sim		testplan	s\demo_F	.ept	
Resi	stance: 10)K oh	ms 🗸		testplan	s\demo_0	6.ept	
Freq	Frequency: 10Hz 🗸 🗸				testplan	s∖demo_H	l.ept	
Fig. 3	6							

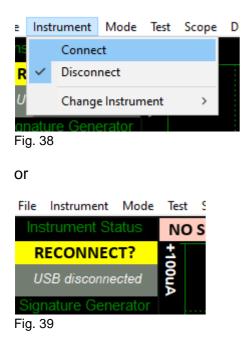
Select a file to open by selecting one of the eight most recent .EPT files:

File	Instrum	nent	Mode	Test	Scope	Display	Utilities	Help
	New			NO	SIG			
	Open			5				
	Save			2011				
	Open Re	ecent	>		testplan	s\demo_A	.ept	
	V+ V-			testplan	s\demo_B	.ept		
	-		-		testplan	s\demo_C	ept	
0	hm+	0	hm-		testplan	s\demo_D).ept	
F	req+	F	req-		testplan	s\demo_E	.ept	
Volta	ige: 1Vpk	c	~		testplan	s\demo_F	.ept	
Resi	stance: 10	0K oh	ms 🗸		testplan	s\demo_0	i.ept	
Freq	Frequency: 10Hz 🗸 🗸				testplan	s∖demo_H	l.ept	
Fig. 3	Fig. 37							

5.5.2.1 Instrument > Connect/Disconnect

To connect to the instrument you can use the options in the MENU or the button on the Control Ribbon.

INSTRUMENT > CONNECT to connect, or **DISCONNECT** to disconnect.



Before the instrument connects it will check the identification in the FTDI USB bridge IC, an error message will be shown if the instrument selected is not the same as the instrument connected.

Technical Note Upon successful connection, ASA will download the calibration coefficients file from the USB bridge IC. These are then stored in the ASA folder as "ASA_cal.txt"

5.5.2.2 Instrument > Change Instrument

When **ASA** is first installed it will initially start in ASA100 mode.

To change this:

INSTRUMENT > CHANGE INSTRUMENT and select the actual instrument you wish to use, you will then have to close and reopen ASA for this to take effect.

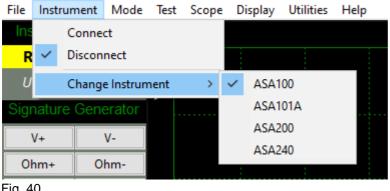


Fig. 40

Technical Note Variable used in settings.txt: ActiveInstrument=ASA100

5.5.3.1 Mode > Advanced/Compact Mode

To change between Compact and Advanced modes:

File Instrumer	nt Mo	de Test	Scope	Display	Utilities	Help
Instrument	St 🗸	Compa	ct			
CONNEC						
USB rail: 4	1.90V					
Fig. 41						

The operational mode is immediately changed.

A description of Compact Mode function can be found <u>here</u>.

5.5.4.1 Test > Signature Overwrite

This function determines whether or not to overwrite an already captured golden signature.

File Instrur	nent Mode	Test	Scope Display Utilities Help						
Instrume	nt Status	~	Allow Signature Overwrite (AUTO CAPTURE)						
CONN	ECTED		Open Circuit Detect Threshold (AUTO TEST/AUTO CAPTURE) >						
USB rail: 4.90V			Stable Signature Detect Threshold (AUTO TEST/AUTO CAPTURE)						
Signature Generator			Stable Signature Delay (AUTO TEST/AUTO CAPTURE) >						
V+ V-			Golden vs. Live Signature Difference Threshold (AUTO TEST)						
V+	V-		Colleges Test Tes	\backslash					
Ohm+	Ohm-		Collapse Test Tree	\mathbf{X}					

Fig. 42

If disabled (no tick) the AUTO CAPTURE will move to the next available pin that has not been sampled (i.e. pink).

If enabled (ticked) the AUTO CAPTURE will move to the next pin regardless if it has been sampled (i.e. pink OR yellow).

Typically this function is disabled (no tick), however if you wish to use AUTO CAPTURE to gather new golden signatures then this function should be enabled. In either case you can still overwrite a previously captured golden signature if you manually click on the pin concerned.

5.5.4.2 Test > Open Circuit Detect Threshold

Selects the percentage variation from true 'open circuit' that ASA uses to determine the 'open circuit' condition.

File Instrument Mode	Test	Scope Display Utilities Help					
Instrument Status	Instrument Status Allow Signature Overwrite (AUTO CAPTURE)						
CONNECTED	0	pen Circuit Detect Threshold (AUTO TEST/AUTO CAPTURE)		0.25%			
USB rail: 4.90V	St	able Signature Detect Threshold (AUTO TEST/AUTO CAPTURE)	~	0.5% (default)			
Signature Generator	St	able Signature Delay (AUTO TEST/AUTO CAPTURE)		1.0%			
V+ V-	G	olden vs. Live Signature Difference Threshold (AUTO TEST)	>				
Ohm+ Ohm-	С	ollapse Test Tree		\square			

Fig. 43

Typically leave this at 0.5% (default) unless it is causing false OC triggers (reduce to 0.25%) or there is noise in the test setup (raise to 1%).

To aid tuning, text at the bottom right of the graph displays O/C when open circuit conditions are met:

	O/C, Count: 0, Pr	ev: 0.00%,	Threshol	d: 1.50%
Fig. 4	4			

5.5.4.3 Test > Stable Signature Detect Threshold

Selects the percentage variation allowable between consecutive signature samples before the ASA considers the signature meets the basic stable status.

File Instrument Mode	Test Scope Display Utilities Help	
Instrument Status	 Allow Signature Overwrite (AUTO CAPTURE) 	
CONNECTED	Open Circuit Detect Threshold (AUTO TEST/AUTO CAPTURE)	>
USB rail: 4.90V	Stable Signature Detect Threshold (AUTO TEST/AUTO CAPTURE)	> 0.5%
Signature Generator	Stable Signature Delay (AUTO TEST/AUTO CAPTURE)	> 🗸 1.0% (default)
V+ V-	Golden vs. Live Signature Difference Threshold (AUTO TEST)	> 2.0%
Ohm+ Ohm-	Collapse Test Tree	

Fig. 45

Typically leave this at 1% (default) unless noise in the DUT (rare but possible) is causing false stable signature triggers (increase to 2%) or there is requirement for tighter performance between good and bad signatures (reduce to 0.5%).

Setting to 2% will typically decrease the time to detect a stable signature. Setting to 0.5% will typically increase the time taken to detect a stable signature.

To aid tuning, text at the bottom right of the graph displays **Stable** when stable conditions are met:



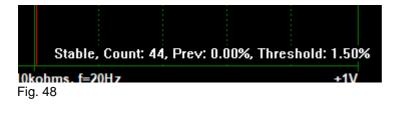
5.5.4.4 Test > Stable Signature Delay

Controls the number of consecutive cycles that meet the 'stable signature' condition to be considered a stable signature (the point at which a signature is automatically captured).

File Instrun	nent Mode	Test	Scope	Display	Utilities	Help								
Instrument Status Allow Signature Overwrite (AUTO CAPTURE)														
CONNECTED			Open Circuit Detect Threshold (AUTO TEST/AUTO CAPTURE)											
USB rail: 4.90V			Stable Signature Detect Threshold (AUTO TEST/AUTO CAPTURE)											
Signature Generator			Stable Signature Delay (AUTO TEST/AUTO CAPTURE) >							2 cycles				
	Signature Generator		Golden vs. Live Signature Difference Threshold (AUTO TEST)						5 cycles					
V+	V-								~	10 cycles (default) 15 cycles				
Ohm+	Ohm-		Collapse	Collapse Test Tree										
Freq+	Freq-							/				20 cycles		
							. /					1		

Fig. 47

To aid tuning, text at the bottom right of the graph displays **Count** when stable conditions are met:



5.5.4.5 Test > Golden/Live Signature Difference Threshold

Selects the percentage variation between a previously captured Golden Signature and the live signature before the ASA considers them a match.

File Instrun	nent Mode	Test	Scope Display Utilities Help		
Instrume	nt Status	~	Allow Signature Overwrite (AUTO CAPTURE)		
CONN	ECTED		Open Circuit Detect Threshold (AUTO TEST/AUTO CAPTURE)		
USB rai	I: 4.90V		Stable Signature Detect Threshold (AUTO TEST/AUTO CAPTURE)		
Signature Generator			Stable Signature Delay (AUTO TEST/AUTO CAPTURE)		
V+	V-		Golden vs. Live Signature Difference Threshold (AUTO TEST)		0.5%
	Ohm.		Collapse Test Tree		0.75%
Ohm+	Ohm-				1.0%
Freq+	Freq-			~	1.5% (default)
Voltage: 1Vp	k ~				2.0%
Resistance: 1	0K ohms 🖂				3.0%
Frequency: 5	0Hz 🗸				4.0%
A	В				5.0%
Fig. 49					

Smaller percentages will typically increase the time it takes to match signatures and also result in fewer matches (due to noise and other minor differences between the Golden and DUT units.

Increasing the percentage will increase the number of false positives (by widening the acceptance criteria).

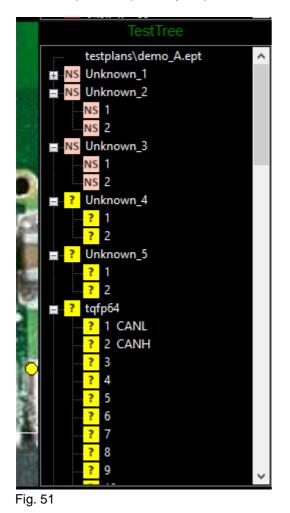
5.5.4.6 Test > Collapse Test Tree

Collapsing the Test Tree will quickly close all the expanded test points and is there to save time manually collapsing each test point (useful on larger boards).

File Instrur	ment Mode	Test Scope Display Utilities Help	
Instrume	nt Status	Allow Signature Overwrite (AUTO CAPTURE)	
CONN	ECTED	Open Circuit Detect Threshold (AUTO TEST/AUTO CAPTURE)	>
USB ra	il: 4.90V	Stable Signature Detect Threshold (AUTO TEST/AUTO CAPTURE) >
Signature	Generator	Stable Signature Delay (AUTO TEST/AUTO CAPTURE)	>
V+	V-	Golden vs. Live Signature Difference Threshold (AUTO TEST)	>
Ohm+	Ohm-	Collapse Test Tree	
Freq+	Freq-		

Fig. 50

An example of a partially expanded Test Tree:





The same Test Tree after the 'Collapse Test Tree' function is triggered:

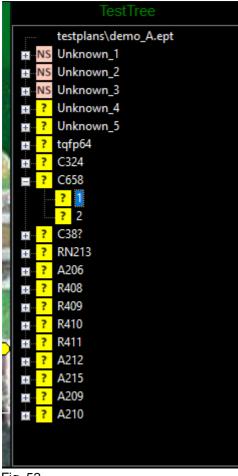


Fig. 52

NOTE - The currently selected pin/component is deliberately not collapsed.

5.5.5.1 Scope > Graticule

To enable/disable the Graticule:

File Instrument Mode	Test	Scope	Display	Utilities	Help				
Instrument Status	NO	Gi	raticule			>	~	On (default)	pt
RECONNECT?	<u>+</u>	Ci	rosshairs			>		Off	
USB disconnected	+100uA	Ci	rosshairs (mini-scop	es)	>			
Signature Generator									
Fig. 53									

An example with the Graticule ON:

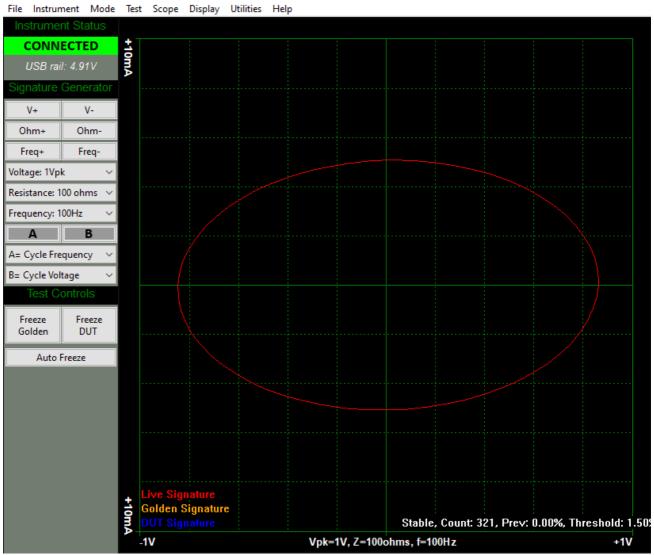


Fig. 54



An example with Graticule OFF:

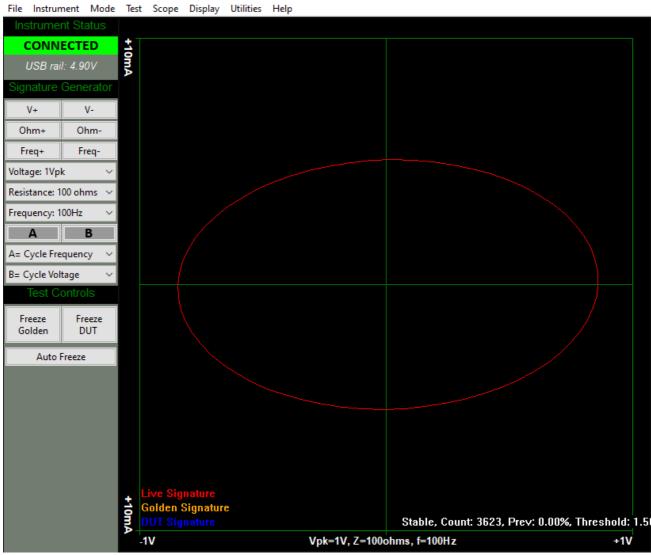


Fig. 55

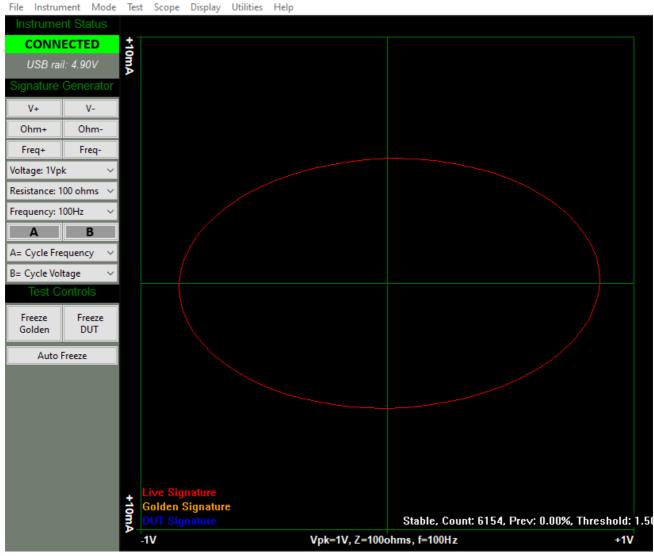
5.5.5.2 Scope > Crosshairs

The Crosshairs have three settings:

File Instrument Mode Tes	Scope Display Utilities Help	
Instrument Status	Graticule >	
CONNECTED	Crosshairs >	 On (default)
USB rail: 4.90V	Crosshairs (mini-scopes)	Classic Off
Signature Generator		Off

Fig. 56

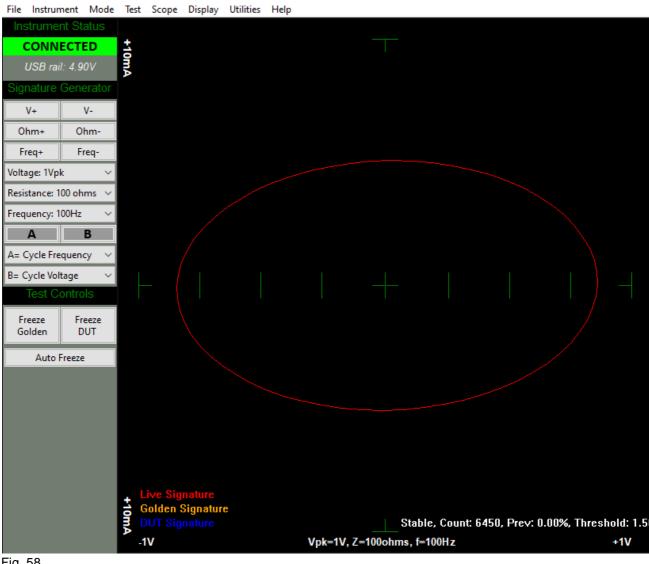
Example shown here Crosshairs ON (graticule OFF for clarity):





Example shown here Crosshairs Classic (graticule OFF for clarity):

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Example shown here Crosshairs Off (graticule OFF for clarity):

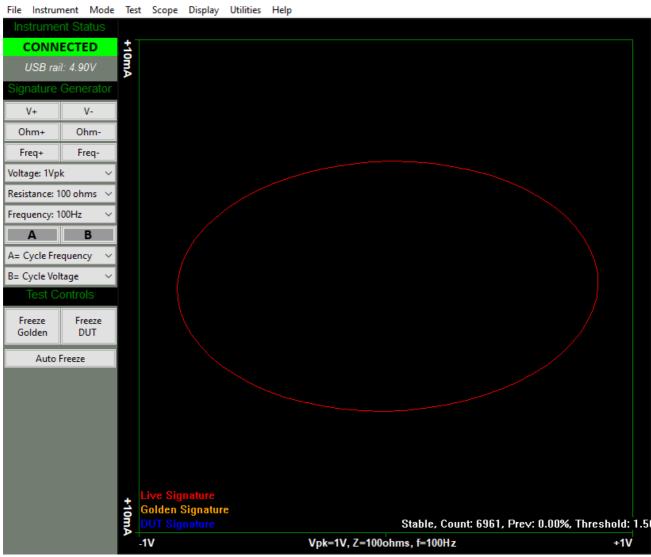


Fig. 59

5.5.5.3 Scope > Crosshairs (mini-scopes)

To enable/disable the Crosshairs in the mini-scopes:

File Instrument Mode	Test	Scope Disp	lay Utilities	Help		
Instrument Status	NO	Graticu	e		>	Unknown_4, Pin 1
CONNECTED	+10	Crossha	iirs		>	
USB rail: 4.91V	0mA	Crossha	iirs (mini-scop	oes)	>	On
Signature Generator					. ~	Off (default)
				1		

Fig. 60

An example of mini-scopes with the Crosshairs OFF (default):

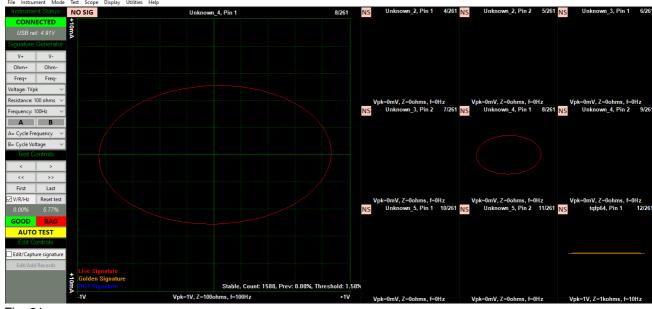


Fig. 61

An example of mini-scopes with the Crosshairs ON:



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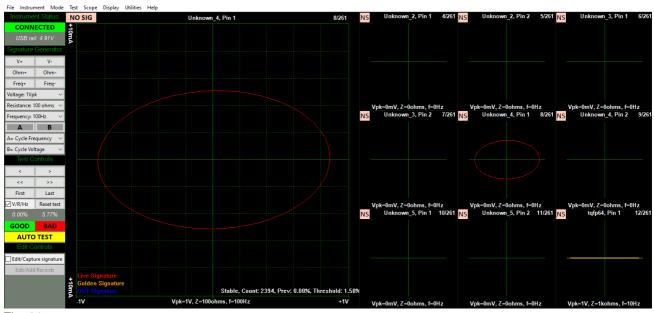


Fig. 62

5.5.6.1 Display > PCB Crosshairs

The PCB view Crosshairs can be 1 pixel wide (white) or 3 pixels wide (white centre line, flanked by black lines), this can be changed here:

File	Instrument	Mode	Test	Scope	Display	Views	Utilities	Н	elp		
In	strument St	atus	NO	SIG	PC	B Crossh	airs	>	~	1 line)S
	CONNECTED 100				Display Colours					3 line	
	USB rail: 4.7	5V	ğ								
Fig.	63										

An example of 1 line crosshairs (most commonly used):

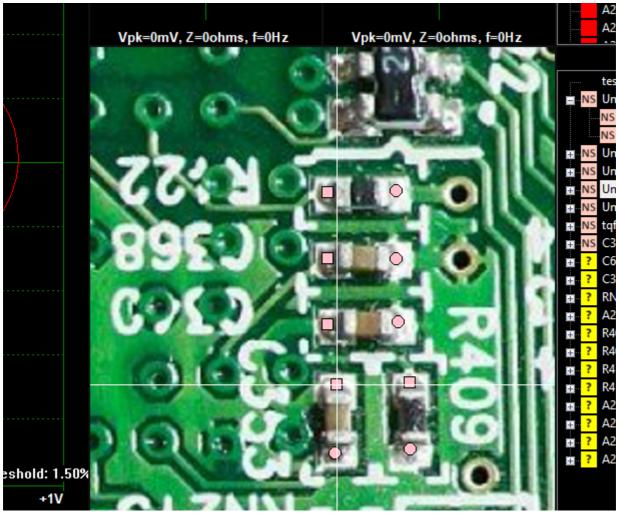
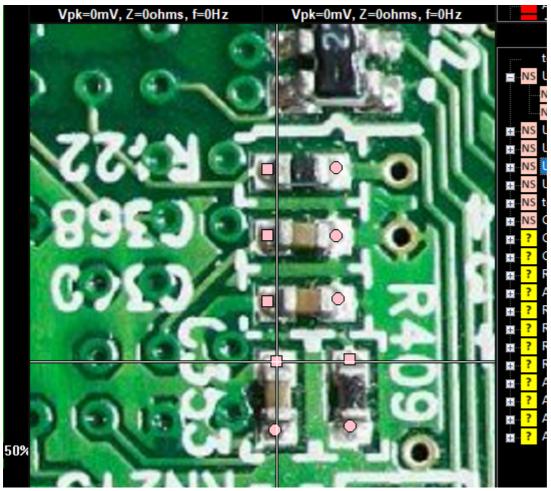


Fig. 64



An example of 3 line crosshairs (useful if you have a light/white coloured PCB image):

Fig. 65

5.5.6.2 Display > Display Colours

Display Colours can be changed:

File	Instrument	Mode	Test	Scope	Displ	ay	Views	Utilities	Help
Instrument Status			NO SIG			>			
C	ONNECT	+100	Display Colours				ours		
Fig. 6	USB rail: <i>1</i> 7 66	61/	õ						

When this option is selected a separate window is brought up:

Display Colours							
Change colours used on the scope disp	lay(s):						
Scope Background >		< set to default					
Scope Outline >		< set to default					
Scope Graticule >		< set to default					
Scope Crosshair >		< set to default					
Scope Text >		< set to default					
Live Signature >		< set to default					
Golden Signature >		< set to default					
DUT Signature > < set to default							
Change colours used on control ribbon (settings update on ASA restart):							
Background >		< set to default					
Panel >		< set to default					
Panel Window >		< set to default					
Panel Text >		< set to default					
Header >		< set to default					
Header Text >		< set to default					
Note: Changes are automatically saved	when altered.						
Set colours: dark mode (default)							
Fin. 07							

Fig. 67

Clicking a button (e.g. "Scope Background") will bring up a colour palette, select a new colour and click OK to make the change:

Colour		×								
Basic colours:										
Custom colour	rs:									
Define Custom Colours >>										
ОК	Cancel									

Fig. 68

Each coloured item option (e.g. "Scope Background") can be reset to default by pressing the "< set to default" button.

All coloured item options can be set to default simultaneously by pressing the "Set colours: dark mode (default)" button.

.5.5.7 Views

There are multiple 'view' configurations that can be selected. Users will often prefer one style (commonly this is: **2 mini-scopes + PCB + TestTree+ BadTree**), however we encourage testing alternate 'views' as they may be better suited to your testing.

The options are shown below - on the following pages are examples of the same Pin/record (41/127) viewed in different configurations.

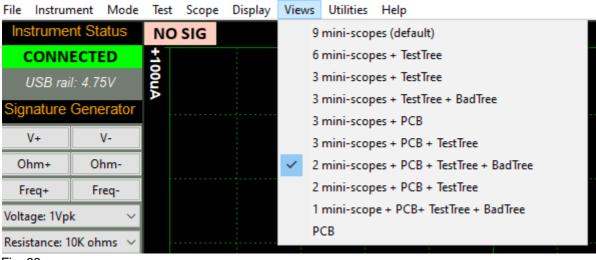


Fig. 69

The mini-scopes are useful to see a previous test or the next test.

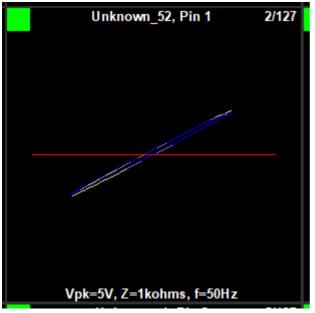


Fig. 70

The coloured square in the top-left corner of a mini-scope is the test status of that Pin/record, and follows the convention:

GREEN - good signature

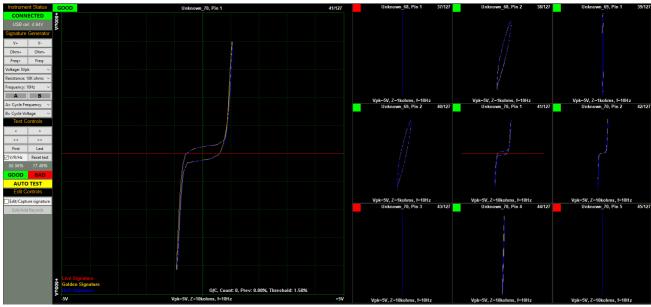
24.001 / 18 March 2024



RED - bad signature YELLOW - untested (no DUT signature captured) PINK - no Golden signature recorded yet. electronplus⁺

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5.5.7.1 Views > 9 mini-scopes



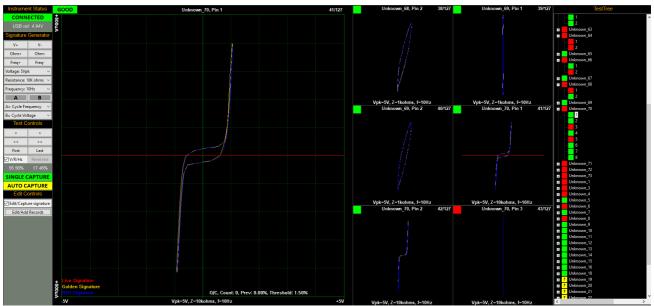


The centre mini-scope of the 9 is the current Pin/record (same image as the main scope).

Clicking on any of the mini-scopes will select that Pin/record as the main scope image.

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5.5.7.2 Views > 6 mini-scopes + TestTree





The centre-right mini-scope of the 6 is the current Pin/record (same image as the main scope).

Clicking on any of the mini-scopes or TestTree points will select that Pin/record as the main scope image.

5.5.7.3 Views > 3 mini-scopes + TestTree





The centre mini-scope of the 3 is the current Pin/record (same image as the main scope).

Clicking on any of the mini-scopes or TestTree points will select that Pin/record as the main scope image.



5.5.7.4 Views > 3 mini-scopes + TestTree + BadTree



Fig. 74

The centre mini-scope of the 3 is the current Pin/record (same image as the main scope).

Clicking on any of the mini-scopes, TestTree or BadTree points will select that Pin/record as the main scope image.



5.5.7.5 Views > 3 mini-scopes + PCB

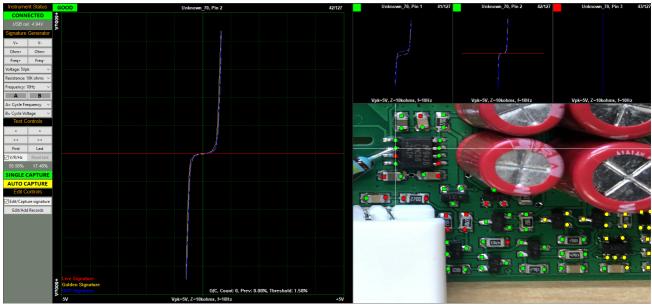
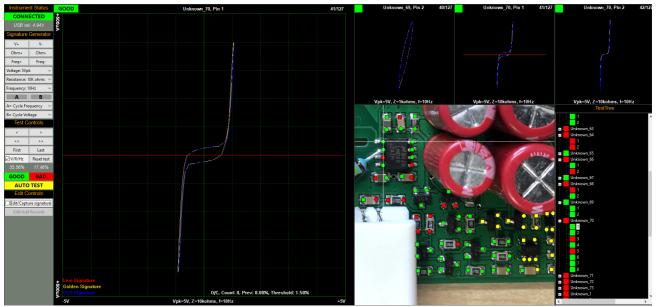


Fig. 75

The middle mini-scope of the 3 is the current Pin/record (same image as the main scope). Clicking on any of the mini-scopes or test points (on the PCB image) will select that Pin/record as the main scope image.



5.5.7.6 Views > 3 mini-scopes + PCB + TestTree



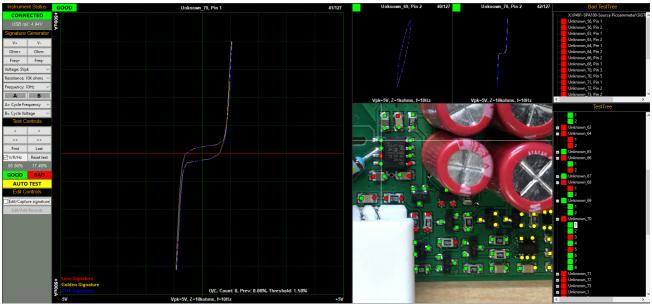


The middle mini-scope of the 3 is the current Pin/record (same image as the main scope). Clicking on any of the mini-scopes, TestTree points or test points (on the PCB image) will select that Pin/record as the main scope image.

Clicking on any area of the PCB image (but not on a test point) will toggle the image from the selected view to the overall PCB image and back - this function is useful if you need to see where you are on the larger board.



5.5.7.7 Views > 2 mini-scopes + PCB + TestTree + BadTree





The left mini-scope displays the previous Pin/record and the right mini-scope displays the next Pin/record. Clicking on any of the mini-scopes, TestTree points, BadTree points or test points (on the PCB image) will select that Pin/record as the main scope image.



5.5.7.8 Views > 2 mini-scopes + PCB + TestTree

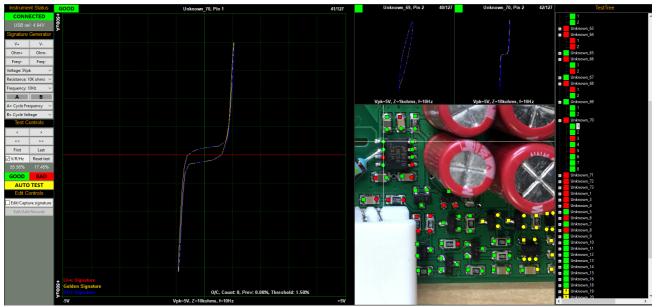


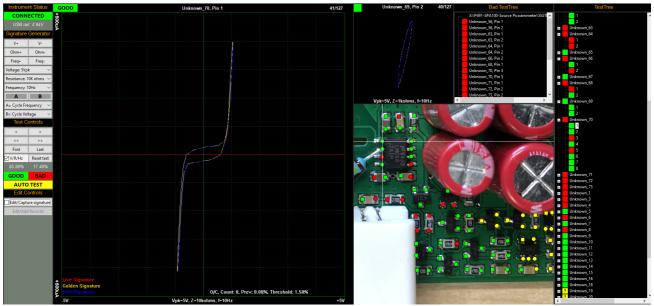
Fig. 78

The left mini-scope displays the previous Pin/record and the right mini-scope displays the next Pin/record. Clicking on any of the mini-scopes, TestTree points or test points (on the PCB image) will select that Pin/record as the main scope image.

Clicking on any area of the PCB image (but not on a test point) will toggle the image from the selected view to the overall PCB image and back - this function is useful if you need to see where you are on the larger board.



5.5.7.9 Views > 1 mini-scope + TestTree + BadTree





The mini-scope displays the previous Pin/record. Clicking on the mini-scope, TestTree points, BadTree points or test points (on the PCB image) will select that Pin/record as the main scope image.



5.5.7.10 Views > PCB

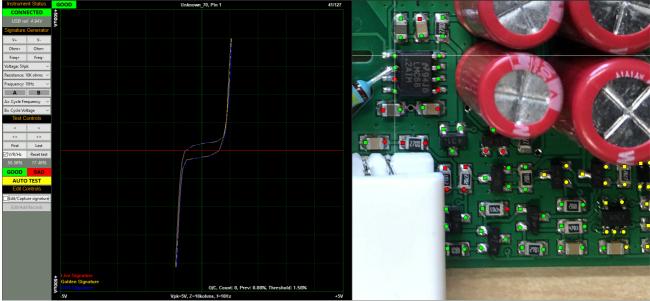


Fig. 80

Clicking on the test points (on the PCB image) will select that Pin/record as the main scope image.

Clicking on any area of the PCB image (but not on a test point) will toggle the image from the selected view to the overall PCB image and back - this function is useful if you need to see where you are on the larger board.

5.5.8.1 Calibrate

To calibrate the ASA (unlikely you will need to):

File	Instrument	Mode	Test	Scope	Display	Utilities	i Help				
Ins	strument St	atus	NO	SIG		C	alibrate	>	Calib	rate DAC/AD	с
		ED	+10			D	aily Update Check	>	\wedge		
	USB rail: 4.9	2V	/u0($\langle \rangle$		
	24										

Fig. 81

This will bring up the calibration window, to calibrate you will follow the steps (1 to 12):

e ⁺ Calibrate ASA100 ADC/DAC											
1. Connect ASA100 RED socket to DVM(+) and ASA100 BLACK socket to DVM(-)											
2. Press button	Set output: +10V	Adjust to +10.00\	/ using control	s below:							
++Course Adj.	Course Adj.										
3. Press button to o	calibrate the ADC/D	Calibrate	e + 10.00V								
4. Press button	Set output: +1V	Adjust to +1.00V	using controls	below:							
++Course Adj.	+Course Adj.	+Fine Adj.	-Fine Adj.	-Cour	se Adj.	Course Adj.					
5. Press button to o	calibrate the DAC to	+1.00V>		Calibrat	e +1.00V						
6. Press button	Set output: 0V	Adjust to 0.00V u	sing controls b	elow:							
++Course Adj.	+Course Adj.	+Fine Adj.	-Fine Adj.	-Cour	se Adj.	Course Adj.					
7. Press button to o	calibrate the DAC to	0.00V>		Calibra	te 0.00V						
8. Press button	Set output: -1V	Adjust to -1.00V	using controls	below:							
Course Adj.	-Course Adj.	-Fine Adj.	+ Fine Adj.	+Cour	rse Adj.	++Course Adj.					
9. Press button to	calibrate the DAC to	-1.00V>		Calibrat	te -1.00V						
10. Press button	Set output: -10V	Adjust to -10.00V	using controls	below:							
Course Adj.	-Course Adj.	-Fine Adj.	+Fine Adj.	+Cour	rse Adj.	++Course Adj.					
11. Press button to	calibrate the ADC/I	DAC to -10.00V>	e -10.00V								
12. Press button be	elow to store calibra	tion values in ASA1	00. Calibration	now complet	ted.						
Store Calibr	ration Values										
		Factory/D	ebug only								
Load Defau	ilts										
DAC:											
ADC0: 483	6]						
ADC1: 244	16]						
DMM> 192.168.	1.92 Conne	ct 10V	~	Measure	-						
Go! 0: idle											

Fig. 82

Do not use the controls below the yellow "Factory/Debug only" bar. These are for Electron



Plus factory use only.

5.5.8.2 Daily Update Check

To change the Daily Update Check mode:

File Instrument Mode	Test	Scope	Display	Utilities	Help			
Instrument Status	NO	SIG		Cal	ibrate	>	ow	1_1, Pin 1
RECONNECT?				Dai	ly Update Check	>	~	Daily Check for Releases
USB disconnected Fig. 83	2							

For a more detailed description of this function, click here.

5.5.9.1 About

Displays "About" information:

About		×
1	Copyright 2018-2024 Electron Plus	
	ОК	

Fig. 84

Click "OK" or the close "X" to close this window.

5.5.9.2 Support

Displays "Support" information:

Support		×
1	visit: www.electron.plus or email: support@electron.plus	
	ОК	

Fig. 85

Click "OK" or the close "X" to close this window.

..5.6 Setting up a test file

Over the next few pages we will show an example of:

- 1. Setting up a new test file
- 2. Adding an image to the test file
- 3. Defining and naming some test points (resistors, capacitors, IC's etc..)

.5.6.1 Creating new test file

To setup a new test you must first create a new file:

FILE > NEW

Select a location and name for the new test. The file extension is .ept, and will be automatically appended when the file is saved.

e ⁺ Please choose file to save								×
← → × ↑ 📙 > This	PC → Local Disk (C:)	> ASA demos			Ū ۱	Search ASA demos		Q
Organise 🔻 New folder	r						•==• •	?
 Documents Pictures This PC 3D Objects Desktop Documents Downloads Music Pictures Videos Local Disk (C:) 	Name	^	Date modified No items match yo	Type our search.	Size			
File name: demo								~
Save as type: Test (*.e	apt)							~
∧ Hide Folders						Save	Cancel	

Fig. 86

Once the file has been saved it will be automatically loaded/used by the software. The file name and path will be shown on the top of the main-scope image.



The screen will look something like Fig <u>below</u> (depending on View selected, click <u>here</u> to see View options and how to change them):



Fig. 87

At this point you can either start capturing signatures or add an image of the your PCB.

Note

ept files are essentially CSV (comma separated variables) formatted spreadsheets. Commas in text fields are automatically swapped with £ symbols to avoid misinterpretation of the file.

.5.6.2 Adding an image

One or more images can be added to the test file.

Images can be located anywhere on your computer or network, however we advise that you keep them in the same folder as the .ept test file or a related sub-folder.

These must be orientated and cropped as you would use them - ideally the image would be square, but it is not critical. They must be in the form of a .jpg and should not exceed 4500 x 4500 pixels. There is no practical limit on the number of images that can be added (one per test point is possible) - in practice however most test setups contain a single image.

To add an image goto the "Edit/Add Records & Images" pop-up window by:

Selecting "Edit/Capture signature" tick box.



Fig. 88

..and pressing the "Edit/Add Records" button, this will bring up a pop-up window:

e* Edit/Add Records & Images													— 🗆
						1. Select a l	CB image	to use for th	is testplan:				
						Select	lmage						
						2. Select re	ord:			2a. Manual	l insert/dele	te controls:	
						<		>		< Ma	inual Insert	Before	Manual Insert After >
						<<		>>			C	elete Whole	Component
						First		Last				Delete Singl	e Pin Record
						3. Adjust th	e image to	show the C	omponent	(e.g. IC17, C	CONN23, PL	.7, U56 etc)	:
						ZOOM					UP		
						ZOOM		ECT ZOOM		LEFT	CENTRE	RIGHT	
						ZOOM	LL				DOWN		
						4. Name th	e Compon	ent you wan	t to add (e.g	g. IC17, COI	NN23, PL7,	U56 etc):	
	NO	MAGE				Unknown	1		Auto	Increment (Component	Number	
						5 Select th	Compone	ent type & q	wantity of n	vine			
						Compo		v v		////3.			
									1				
						6. New Cor created AF				6a. Move tl pin:	he posistior	of a single	
						Create	New Com	ponent		Mov	/e Pin		
						7. Follow in	structions	on PCB ima	ge, use (sing	gle left mou	use click) to	ident pin lo	cation.
								ponent rec					
						Ensure you	SAVE any o	hanges (or t	to save as a	different fil	le - use the	main menu):
						Quic	Save						
Data Record Status	Description	Component	Pin	User Text	View X	View Y	Zoom	Test X	Test Y	ScanSig	ScanCom	Signature	
.EPT file > 1/1 To write >					0	0	0.0	0	0		1		< Update Single Pin Record (
lo write >	^Update^	^Update^			v	^Update^	0.0	V	U V				
	opulie	opune				opulle							





Pressing "Select Image" button will bring up a file selector:

Please choose PCB image to open			>
→ ↑ A This PC → Local Disk (C:) → ASA demos	5 ∨	Search ASA demos	P
)rganise 🔻 New folder			•
 UserManuals_Pro Dropbox OneDrive - Persor Documents Pictures This PC 3D Objects Dosktop Documents Documents Pictures 			
File name: demo.jpg	~	JPG (*.jpg)	~
		01.57	-

Fig. 90

Once an image is chosen the screen will look something like this:

e ⁺ Edit/Add Records & Images	— D X
	1. Select a PCB image to use for this testplan:
	Select Image C:\ASA demos\demo.jpg
	2. Select record: 2a. Manual insert/delete controls:
	CODE < CODE < Manual Insert Before Manual Insert After >
	C Delete Whole Component
2013 CO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	First Last Delete Single Pin Record
	3. Adjust the image to show the Component (e.g. IC17, CONN23, PL7, U56 etc):
	ZOOM + UP
та стала слов с слов	ZOOM - SELECT ZOOM WINDOW LEFT CENTRE RIGHT
	ZOOM ALL DOWN
	4. Name the Component you want to add (e.g. IC17, CONN23, PL7, U56 etc):
	Unknown_1
	5. Select the Component type & quantity of pins:
	6. New Component will be 6a. Move the posistion of a single created AFTER the current pin:
	Create New Component Move Pin
	 7. Follow instructions on PCB image, use (single left mouse click) to ident pin location. To create another Component record, goto step 2.
	Ensure you SAVE any changes (or to save as a different file - use the main menu):
	Quick Save
10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 969 Yo
Data Record Status Description Component Pin User Text	View X View Y Zoom Test X Test Y ScanSig ScanCom Signature
.EPT file > 1/1	960 682 1 .
To write >	960 682 1.0 0 0 Vpdate Single Pin Record Only
^Update^ ^Update^	^Update^





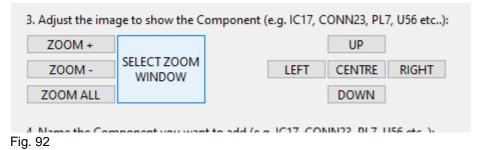
Remember to perform a "Quick Save" at this point by pressing the "Quick Save" button.

Next we will add some test points.

.5.6.3 Adding a component

We will now add a small group of components.

Pressing the "Select Zoom Window" button:



Text at the top of the PCB screen will show "Click on top-left corner of Component", click the mouse pointer at the top-left of the area of interest:

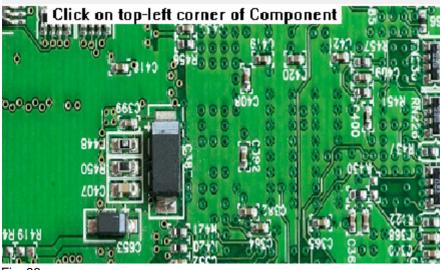


Fig. 93

After doing this the text will change to "Click on bottom-right corner of Component", click the mouse pointer at the bottom-right of the area interest:

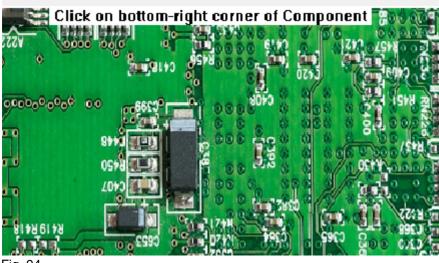


Fig. 94



After both corners have been selected, the PCB image will zoom in to the area of interest:

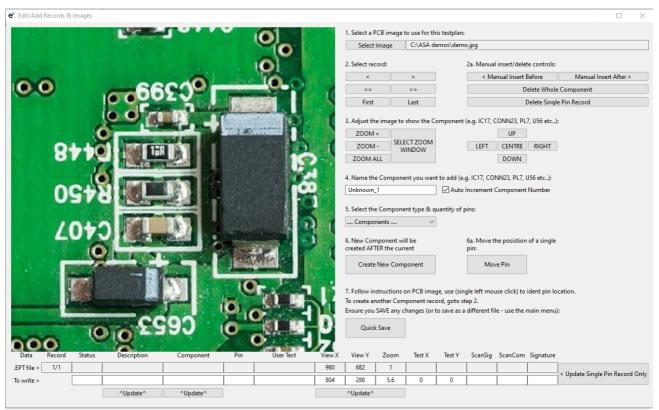


Fig. 95

Note image co-ordinates and zoom factor are displayed in the line of boxes at the bottom of the image.

"ZOOM ALL" button will return the show the complete image. "ZOOM+" button will zoom in, "ZOOM-" button will zoom out. Zooming happens in whole steps. The five adjustment buttons to move the image by small amounts:

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e* Edit/Add Records & Images	— D X
	1. Select a PCB image to use for this testplan:
	Select Image C:\ASA demos\demo.jpg
	2. Select record: 2a. Manual insert/delete controls:
	< > < Manual Insert Before Manual Insert After >
0.00	Component Component
	First Last Delete Single Pin Record
	3. Adjust the image to show the Component (e.g. IC17, CONN23, PL7, U56 etc): ZOOM + UP
	TOOM SELECT ZOOM
	ZOOM ALL DOWN
	4. Name the Component you want to add (e.g. IC17, CONN23, PL7, U56 etc): Unknown 1 VI Auto Increment Component Number
	Unknown_1 Auto Increment Component Number
	5. Select the Component type & quantity of pins:
	Components V
	6. New Component will be created AFTER the current 6a. Move the posistion of a single pin:
	Create New Component Move Pin
	7. Follow instructions on PCB image, use (single left mouse click) to ident pin location. To create another Component record, goto step 2. Ensure you SAVE any changes (or to save as a different file - use the main menu):
	Quick Save
000 000	
Data Record Status Description Component Pin User Text	View X View Y Zoom Test X Test Y ScanSig ScanCom Signature
.EPT file > 1/1	960 682 1 Video Contraction Co
To write >	804 288 5.6 0 0 0 O
^Update^ ^Update^	^Update^

Fig. 96

electronplus⁺

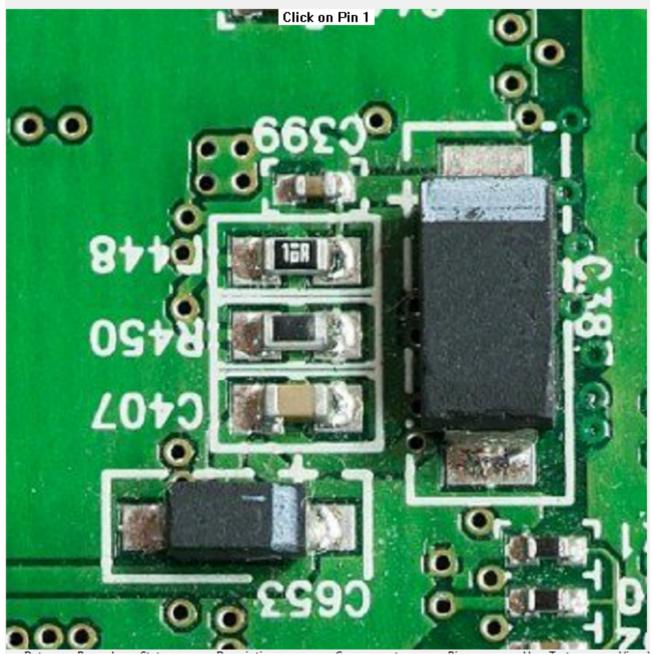
We will now add a component (small electrolytic capacitor - C653), first we create the name of the part and then select the component type - component name will be automatically assigned if you don't input a name (it can be renamed later):

e* Edit/Add Records & Images	- O X
	1. Select a PCB image to use for this testplan:
	Select Image C:\ASA demos\demo.jpg
	2. Select record: 2a. Manual insert/delete controls:
	< > < Manual Insert Before Manual Insert After >
0.0	<< >> Delete Whole Component
	First Last Delete Single Pin Record
	3. Adjust the image to show the Component (e.g. IC17, CONN23, PL7, U56 etc):
	ZOOM + UP
	ZOOM - SELECT ZOOM LEFT CENTRE RIGHT
	ZOOM ALL DOWN
	4. Name the Component you want to odd (e.g. IC17, CONN23, PL7, U56 etc):
00431	C653 AutoIncrement Component Number
USVO STORES	
and the second second	5. Select the Component type & quantity of this:
	2 pin v
	6. New Component will be 6a. Move the posistion of a single created AFTER the current pin:
Distantiant of the local distance of the loc	Create New Component Move Pin
	7. Follow instructions on PCB image, use (single left mouse click) to ident pin location. To create another Component record, goto step 2.
	Ensure you SAVE any changes (or to save as a different file - use the main menu):
CC01 A 1	Quick Save
Data Record Status Description Component Pin User T	: View X View Y Zoom Test X Test Y ScanSig ScanCom Signature
.EPT file > 1/1	804 288 5.6 0 0
To write >	804 288 5.6 0 0 Video Single Pin Record On
^Update^ ^Update^	^Update^

Fig. 97



Now we click "Create New Component", as soon as this is done the text at the top of the image screen will show "Click on Pin 1":





Now we click the mouse pointer on Pin 1 of the capacitor - a PINK square (PINK=test point without signature assigned, square indicates it is Pin 1) as well as crosshairs will now be displayed:

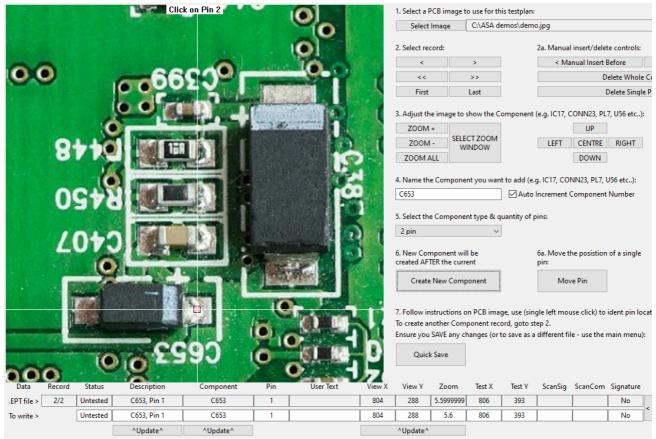


Fig. 99

Note that the text boxes at the bottom of the screen will be updated. Next, we click the mouse pointer on Pin 2 of the component:

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NEW C					•			1. Select a F	CB image t	o use for th	is testplan:						
								Select	lmage	C:\ASA d	emos\dem	o.jpg					
					1	o		2. Select ree	cord:		2a. Manual insert/delete controls:						
-						10		<		>		< Ma	nual Insert E	Before	Manual Insert After >		
0.0	2			SOLL	Harmonica		1	<<		>>			D	elete Whole	e Component		
		1.1		- Alarki				First		Last			[Delete Singl	e Pin Record		
		1	00.0	P. 4			1	3. Adjust th	e image to s	how the C	omponent	(e.g. IC17, C		7, U56 etc)	:		
	1		Name and Address		X1 -12-22	The second second		ZOOM	CELE	стгоом			UP				
	Q	10	18			1000		ZOOM	- W	NDOW		LEFT	CENTRE	RIGHT			
			A CONTRACTOR				-	ZOOM	ALL				DOWN				
		10				0		4. Name th	e Compone	nt you wan	t to add (e.	g. IC17, COI	NN23, PL7, U	U56 etc):			
	0					10:	1.1	C654			🛛 🖂 Auto	Increment (Component	Number			
	•		-					5. Select th	e Componer	nt type & q	uantity of p	oins:					
						5		2 pin		~							
	L	070	1 Street	mar 100	Contraction of the			6. New Cor	nponent wil	be		ба. Move tl	ne posistion	of a single			
		10			- Anna		10 1	created AF	TER the curre	ent		pin:	· · ·				
				-	and the			Create	New Comp	onent		Mov	e Pin				
			1.00	And and a second second													
		•	TO LET			Transa and		7. Follow in	structions o	n PCB ima	ge, use (sin	gle left mou	ise click) to	ident pin lo	cation.		
			and the second second		-				nother Com								
				00	MIC			Ensure you	SAVE any ch	langes (or i	to save as a	different fil	e - use the r	main menu):		
5	1.1	iO		190	0			Quic	k Save								
00	Ô.		9		~ (77										
Data	Record	Status	Description	Component	Pin	User Text	View X	View Y	Zoom	Test X	Test Y	ScanSig	ScanCom	Signature			
.EPT file >	3/3	Untested	C653, Pin 2	C653	2		804	288	5.5999999	706	392			No	< Update Single Pin Recon		
To write >		Untested	C653, Pin 2	C653	2		804	288	5.6	706	392			No	s opuate single Pin Recon		
			^Update^	^Update^				^Update^									

Fig. 100

Note that as the component ID has been automatically incremented (as the tick-box "Auto Increment Component Number" is selected).



Next we will click the "Create New Component" button and then use the mouse pointer to define more pins of a few more passive components:

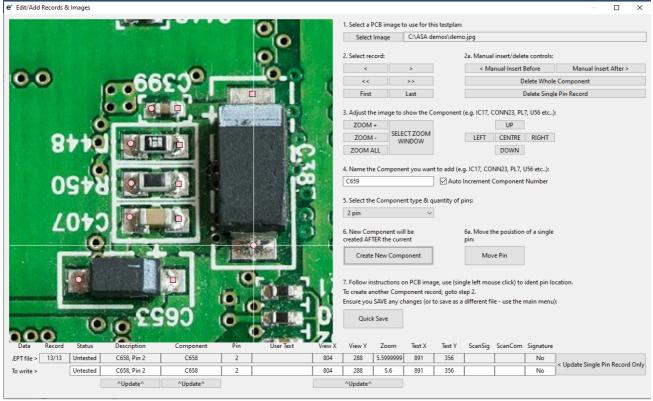


Fig. 101

Now we've added these extra 5 components (extra 10 pins), we will adjust their names to suit. This is done by:

1. Selecting the record to adjust using either the "Select record" controls OR clicking the mouse pointer on any pink square/circle belonging to the component.

2. Changing the component name in the field shown below:

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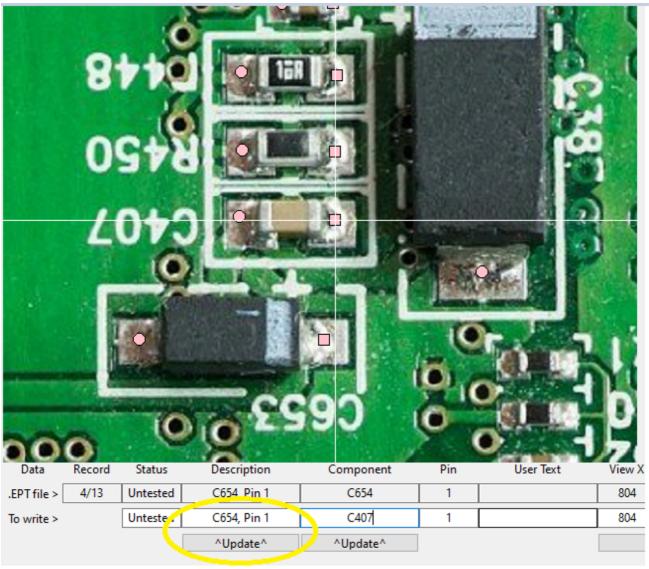


Fig. 102

3. Pressing the "^Update^" button (to complete the Component name change).

Both pin records for that component (formerly C654) have now been changed to C407:

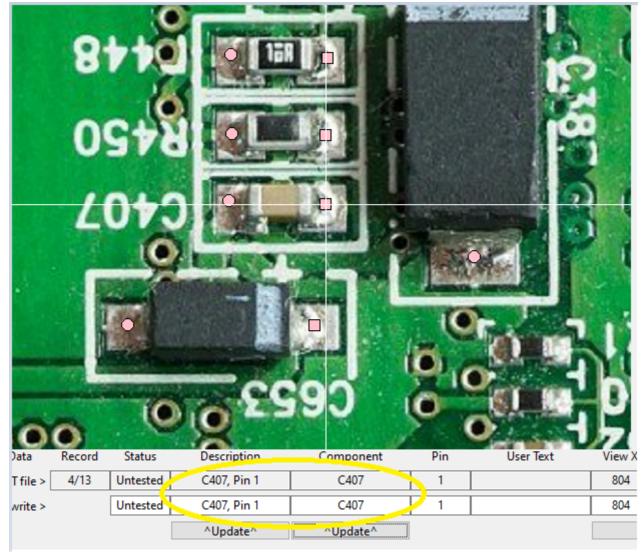


Fig. 103

Be sure to hit "Quick Save" regularly.

.5.6.4 Adding an IC

Adding an IC is very similar to adding a simple 2 pin component.

1. First we find the last component record by pressing "Last"** :

	2. Select record:		2a. Manual ins
Ξ.	<	>	< Manua
1	<<	>>	
	First	Last	
1	3. Adjust the ima	ige to show the C	omponent (e.g. IC17, CON
	ZOOM +		
1	Z00M -	SELECT ZOOM WINDOW	LEFT C
Fig. 1	ZOOM ALL		C

Fig. 104

2. Next we locate the IC we want to setup (using "ZOOM ALL" to show the whole PCB and the "SELECT ZOOM WINDOW" to show the IC:

- 3. Set the name of the component IC (in this case A215).
- 4. Select the component (8 pin DIP/SO).

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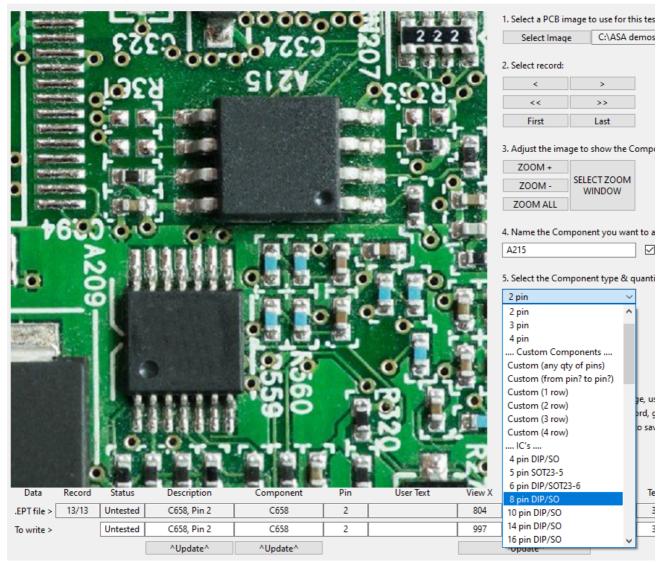


Fig. 105

electronplus⁺

With that done, now click the "Create New Component" button, and the screen looks like this:

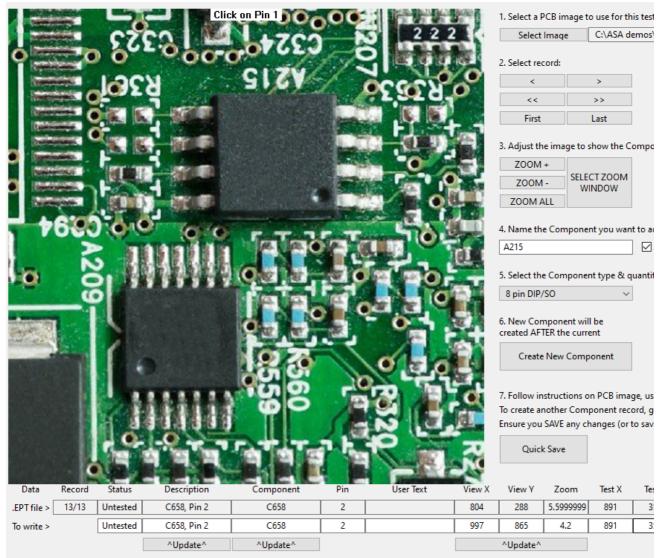


Fig. 106

Click the mouse pointer onto Pin 1 of the IC and a PINK square will be created.

Instead of automatically going to Pin 2, the software will ask you to click on the last pin on that side (e.g. Pin 4):



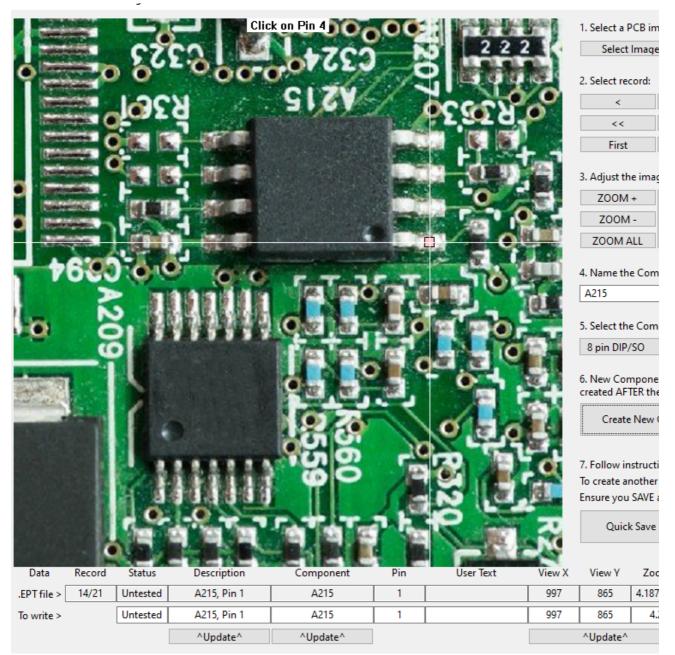


Fig. 107

Once Pin 4 has been added, the software will automatically create Pins 2 and 3, then will ask for Pin 5:

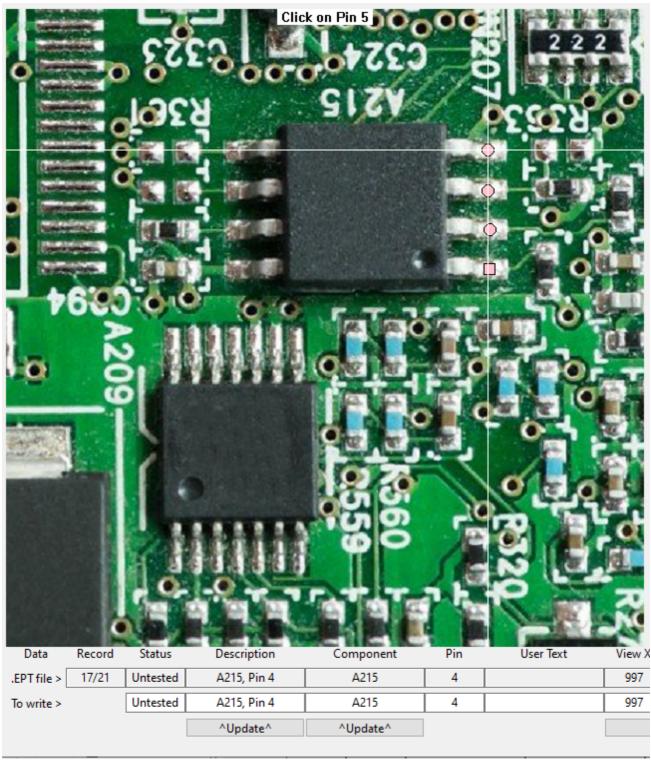


Fig. 108

Once Pin 5 has been added, the software will ask for Pin 8:

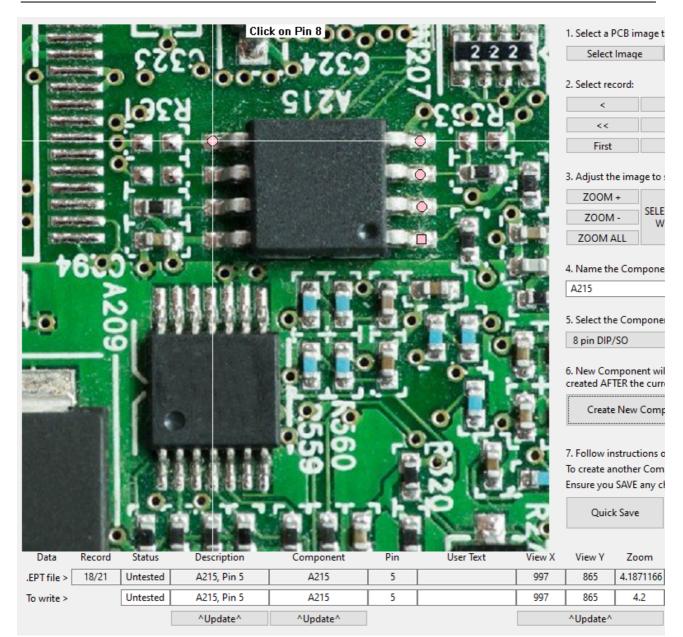
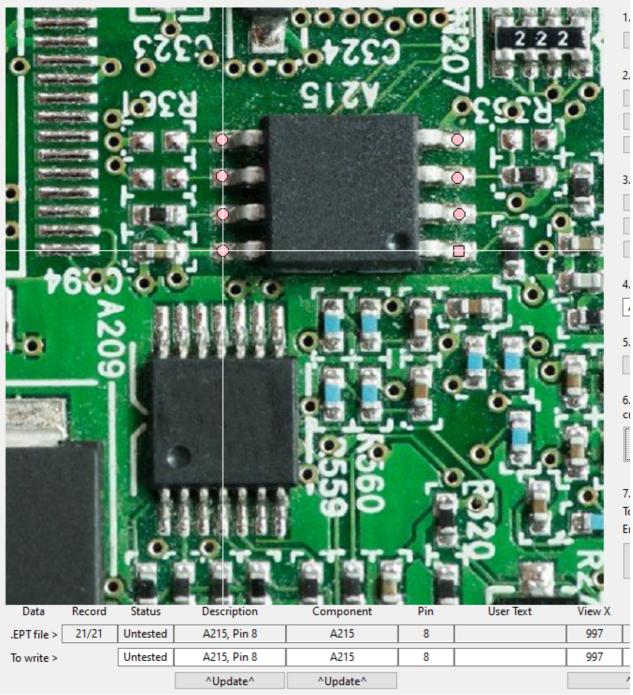


Fig. 109



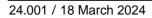


When Pin 8 has been added, the software will automatically create Pins 6 & 7:

Fig. 110

This process also works with square package components (like QFP's) as well as multi-row connectors.

An example of a QFP (64 pins), this was done by defining only 8 locations (Pins 1,16,17,32,33,48,49 and 64):



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								Select 2. Select re 2. Select re 3. Adjust the 200M 200M 200M 200M 4. Name the 1C66 5. Select the 64 pin QF 6. New Concreated AF Created 7. Follow in To create a Ensure you	Image cord: e image to + SELE W ALL e Compone e Compone P (square) mponent wi TER the curr New Comp istructions of nother Com	ent
Data	Record	Status	Description	Component	Pin	User Text	View X	View Y	Zoom	Test X
.EPT file >	22/85	Untested	IC65, Pin 1	IC65	1		1420	915	3.8128490	1503
To write >		Untested	IC65, Pin 1	IC65	1		1420	915	3.8	1503
			^Update^	^Update^				^Update^		
Fig. 111										

Fig. 111

Be sure to hit "Quick Save" regularly.

**Components do not have to be inserted at end of the sequence - the software will automatically insert the new component after the currently selected component record.



.5.6.5 Moving a pin

If a pin is placed in the wrong place, then it can be moved using the "Move Pin" button/function:

1. Select the Pin to move:

	1. Select a PCB image to use for this testplan:	
	Select Image C:\ASA demos\demo.jpg	
	2. Select record: 2a. Manual insert/delete controls:	
00 0 T		er >
	C C C C C C C C C C C C C C C C C C C	
	First Last Delete Single Pin Record	
	3. Adjust the image to show the Component (e.g. IC17, CONN23, PL7, U56 etc):	
	ZOOM + UP	
OTTO METER	ZOOM - SELECT ZOOM LEFT CENTRE RIGHT	
	ZOOM ALL DOWN	
	4. Name the Component you want to add (e.g. IC17, CONN23, PL7, U56 etc): Unknown_1 Unknown_1 Auto Increment Component Number	
	5. Select the Component type & quantity of pins:	
	Components V	
	6. New Component will be 6a. Move the posistion of a single	
	created AFTER the current pin:	
	Create New Component Move Pin	
	7. Follow instructions on PCB image, use (single left mouse click) to ident pin location.	
	To create another Component record, goto step 2.	
	Ensure you SAVE any changes (or to save as a different file - use the main menu):	
0 2550 0 5	Quick Save	
000 0		
Data Record Status Description Component Pin	User Text View X View Y Zoom Test X Test Y ScanSig ScanCom Signature	
.EPT file > 6/21 Untested R450, Pin 1 R450 1	804 288 5.5999999 812 291 No <	cord Only
To write > Untested R450, Pin 1 R450 1	804 288 5.6 812 291 No	.oru Only
^Update^ ^Update^	^Update^	

Fig. 112

2. Press the "Move Pin" button, text will appear at the top of the PCB image ("Move Pin: Click on new location for Pin 1"), click the mouse pointer on the new location for the Pin:

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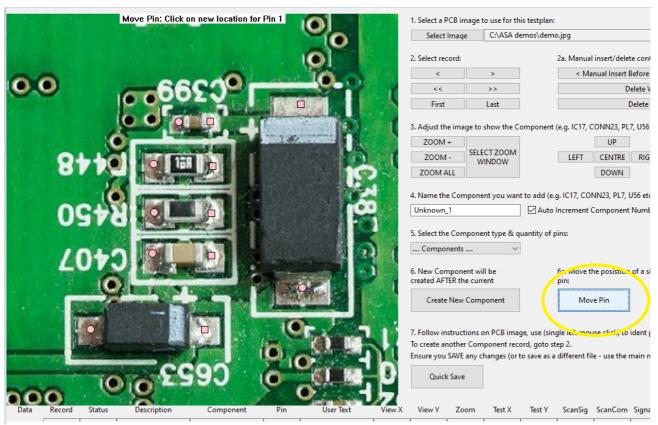


Fig. 113

The Pin has been relocated to the new position:

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1. Select a PCB image to use for this testplan: Select Image C:\ASA demos\demo.jpg 2. Select record: 2a. Manual insert/delete < < Manual Insert Be > 0.0 Del << >> De First Last 3. Adjust the image to show the Component (e.g. IC17, CONN23, PL7, Z00M + UP SELECT ZOOM Z00M -LEFT CENTRE WINDOW ZOOM ALL DOWN 4. Name the Component you want to add (e.g. IC17, CONN23, PL7, US Auto Increment Component N Unknown_1 5. Select the Component type & quantity of pins: Components \sim 6. New Component will be created AFTER the current ба. Move the posistion с pin: Create New Component Move Pin 7. Follow instructions on PCB image, use (single left mouse click) to ic To create another Component record, goto step 2. Ensure you SAVE any changes (or to save as a different file - use the m Quick Save Data Record Status Description Component Pin User Text liew X View Y Zoom Test X Test Y ScanSig ScanCom .EPT file > 6/21 R450, Pin 1 5.5999999 787 286 Untested R450 1 804 288 To write > Untested R450, Pin 1 R450 1 804 288 5.6 787 286 ^Undate^ ^Undate/ ^Undat

Fig. 114

Be sure to hit "Quick Save" regularly.

.5.6.6 Deleting components/pins

To delete a whole component, select any pin record that contains that component, then press the "Delete Whole Component" button:

AMENT DIR 18 CANA	the self line					1. Select a l	PCB image t	o use for th	is testplan:				
				TO L		Select	lmage	C:\ASA de	emos\demo.j	pg			
						2. Select re	cord:		2a		insert/delet		
00		-	-	10	N 18.	<		>		< Ma	nual Insert P	Refore	Manual Insert After >
			Harmon		1	<<		>>			D	elete Whole	e Component
		- Hull				First		Last			L	Jelete Singi	e Pin Kecord
			The second			3. Adjust th	ne image to	show the Co	omponent (e.	a. IC17_C	ONN23 PL	7 U56 etc)	
	Let	and in the second	1- 2.50			ZOOM				, -	UP	,,	
	1 Minutesting	and days (199	1212			ZOOM	SELE	стгоом		LEFT	CENTRE	RIGHT	
8770					1.1	ZOOM	W	INDOW			DOWN	NOT	
						2001017					DOWN		
		State and State				4. Name th	e Compone	nt you want	t to add (e.g.	IC17, CON	IN23, PL7, U	J56 etc):	
UC+30				10	1.1	R472			🗹 Auto Ind	crement C	omponent	Number	
USIN		2301				E Colombi			uantity of pin	_			
	all states						e compone	ni type o qi	uantity of pin	5			
104		D I	Landson.		1.	2 pin		~					
LUV		and the second	-		1		nponent wi		6 a	a. Move th	e posistion	of a single	
10			-		1 1	created AF	TER the curr	ent	pi	in:			
THE REAL PROPERTY OF			and the			Create	New Com	ponent		Mov	e Pin		
and the second second			- Automation										
			10			7. Follow ir	structions	on PCB imag	ge, use (single	e left mou	se click) to	ident pin lo	cation.
			lan .						ord, goto step				
-towns to an Amazortha			0.0	And a state of the		Ensure you	SAVE any c	hanges (or t	o save as a di	fferent file	e - use the r	main menu)):
Construction of the local data	C	ian i	-	ALL BAL		Quic	k Save						
			5	A DESCRIPTION OF									
	1						_						
Data Record Status	Description	Component	Pin	User Text	View X	View Y	Zoom	Test X		scanSig	ScanCom	-	
.EPT file > 8/83 Untested	C657, Pin 1	C657	1		804	288	5.5999999		211			No	< Update Single Pin Record Only
To write > Untested	C657, Pin 1	C657	1		804	288	5.6	811	211			No	
	^Update^	^Update^				^Update^							

Fig. 115

The component record (in this example R448) that contained Pins 1 & 2 has been deleted. Deleting components with a large number of pins may take several seconds.



To delete a single pin record, select the pin and press the "Delete Single Pin Record", in this case 'C399, Pin 1' has been deleted:

difference and		Los calles in		•		10	1. Select a F	CB image t	o use for th	iis testplan:				
							Select	lmage	C:\ASA d	emos\demo	o.jpg			
					0		2. Select ree	cord:			2a. Manual	insert/dele	te controls:	
00					10	N 18.	<		>		< Ma	nual Insert I	Before	Manual Insert After >
		666	C J P L	Hartson		1	<<		>>			D	elete Whol	e Component
			- Alak			-	First		Last				Delete Sing	le Pin Record
		• • •	10.1	Para an			3. Adjust th	e image to	show the C	omponent	(e.g. IC17, C	ONN23, PL	7, U56 etc)):
				1-2.51			ZOOM	+				UP		
	JL L				Carola a st	1	ZOOM		CT ZOOM		LEFT	CENTRE	RIGHT]
							ZOOM		INDOW			DOWN		
(1942	61			i di		4. Name th ?	e Compone	nt you wan		g. IC17, CON Increment (
							5. Select th	e Compone	nt type & q	uantity of p	ins:			
	I DL						2 pin		~]				
							6. New Cor created AF Create	nponent wil TER the curr New Comp	ent		6a. Move tř pin: Mov	ne posistion e Pin	of a single	
	(O	23.01	回 190				7. Follow in To create an Ensure you Quict	nother Com	ponent rec	ord, goto st	ер 2.			
Data Reco	ord Status	Description	Component	Pin	User Text	View X	View Y	Zoom	Test X	Test Y	ScanSig	ScanCom	Signature	
.EPT file > 8/8	2 Untested	C399, Pin 2	C399	2		804	288	5.5999999	783	211			No	
To write >	Untested	C399, Pin 2	C399	2		804	288	5.6	783	211			No	< Update Single Pin Record Only
		^Update^	^Update^]			^Update^							

Fig. 116

Be sure to hit "Quick Save" regularly.

..5.7 Capturing Golden signatures

Capturing 'golden' signatures should happen AFTER the test file has been setup and the test points have been chosen.

Capturing signatures can be done either singly ("Single Capture") or automatically ("Auto Capture"):



ASA101A User Manual support@electron.plus

.5.7.1 Single Capture



ASA101A User Manual support@electron.plus

.5.7.2 Auto Capture



..5.8 Performing a test

.5.8.1 Auto Test



6 Technical