

Parts Selection Tool TDK Meister Tutorial

TDK Corporation
Electronic Components Business Company
Application & Product Management Group
Products & Application Collaboration
June 25, 2025

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Note: The screenshots used in this document are ones in development.
Those may differ from the actual ones.

1 Overview of TDK Meister

Major Functions of TDK Meister

TDK Meister is a software tool that can search TDK's electronic components and display their characteristics.

TDK Meister has 4 major functions;

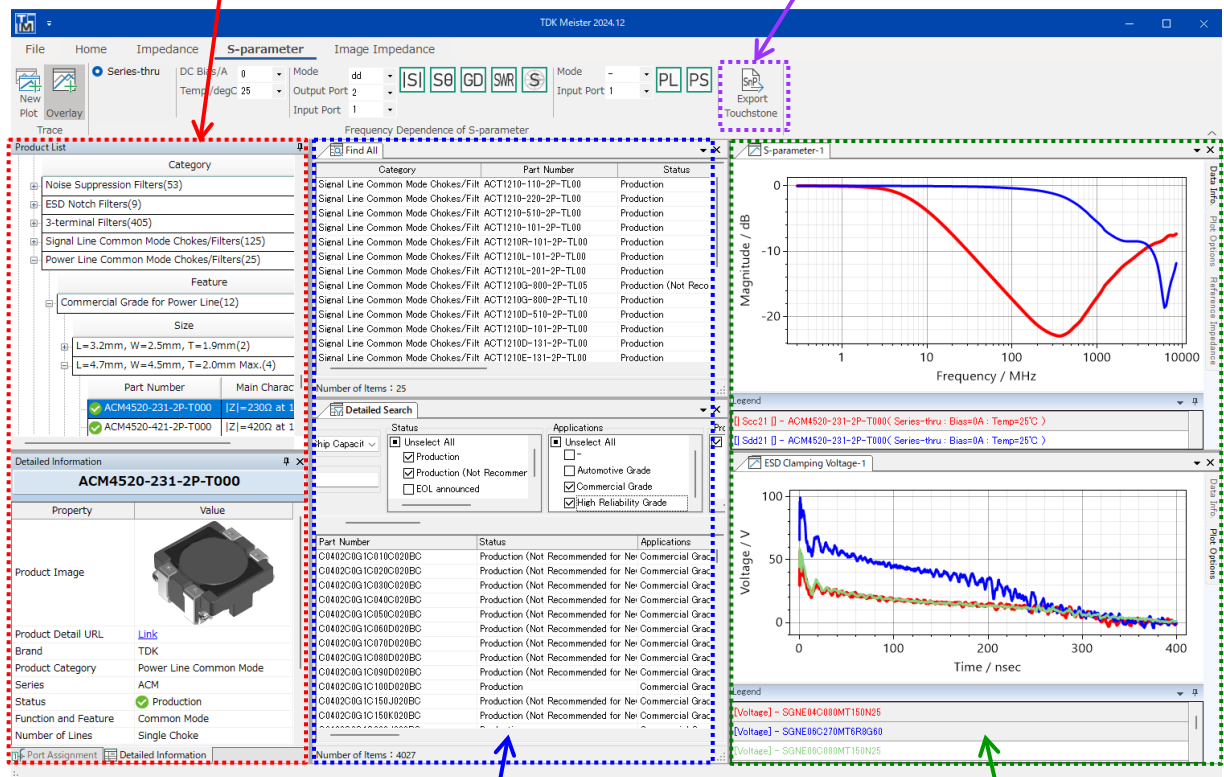
- 1 Display Information of Products,
- 2 Search,
- 3 Display Graphs for Characteristic Data, and
- 4 Output Data.

1 Display Information of Products

- Product List
- Detailed Information

4 Output Data

- Export Touchstone files



2 Search

- Search by Part Number
- Search by specification

3 Display Graphs for Characteristic Data

- Impedance data
- S-parameter data
- DC Bias property
- DC Superimposition property
- Current-Voltage property

1 Overview of TDK Meister

Window, Icons, Menu

The window of TDK Meister consists of Product List, Detailed Information, Search by Part Number, Search by Specification, Plot Buttons, Settings for Plot, Characteristic Graphs, Port Assignment, and so on.

Product List

Settings for Plot

Plot Buttons

Search by Part Number

Port Assignment

Detailed Information

Search by Specification

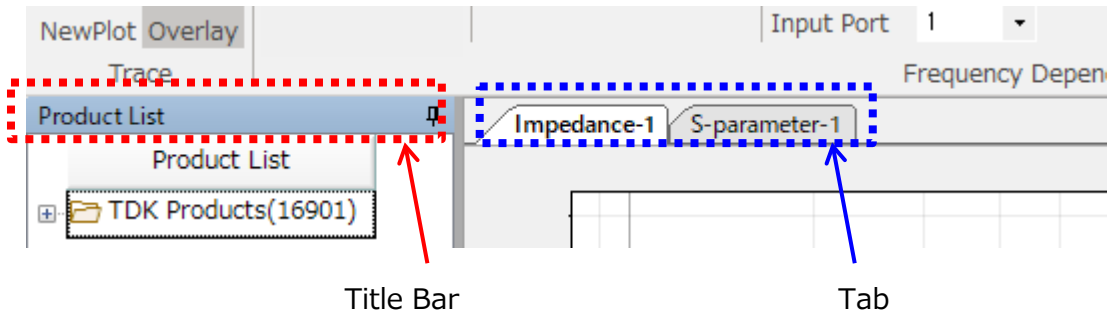
Characteristic Graphs

The screenshot displays the TDK Meister software interface. At the top, there is a menu bar with 'File', 'Home', and 'Impedance'. Below the menu bar is a toolbar with icons for 'NewPlot Overlay', 'DC bias/A', 'Temp./degC', and a 'Touchstone' button. The main window is divided into several panels. On the left, there is a 'Product List' panel showing a tree view of components. In the center, there is a 'Detailed Information' panel for the selected part 'TCM0403S-350-2P-T210'. To the right of this panel is a 'Search by Specification' panel with checkboxes for 'Production', 'EOL announced', and 'Obsolete'. Further right is a 'Search by Part Number' panel with a text input field. On the far right, there is a 'Port Assignment' panel showing a circuit diagram. Below the 'Detailed Information' panel, there are two 'Characteristic Graphs' panels. The first graph shows 'Impedance / dB' vs 'Frequency / MHz' with a legend for 'Ecc21 D - TCM0403S-350-2P-T210K Series-thru: Bias=0A: Temp=25C'. The second graph shows 'ESD Clamping Voltage / V' vs 'Time / nsec' with a legend for 'BOL322518RT-100M-DC Temp=40C', 'BOL322518RT-100M-DC Temp=20C', and 'BOL322518RT-100M-DC Temp=85C'. At the bottom, there is a 'Settings for Plot' panel with a 'Plot Buttons' section containing icons for 'Z', 'R', 'X', 'Z0', 'Y', 'G', 'B', 'Y0', 'L', 'p', 'Cs', 'Cp', 'Q', and 'D'. The 'Plot Buttons' section also includes a 'Frequency Dependence of Impedance' plot and a 'Touchstone' button.

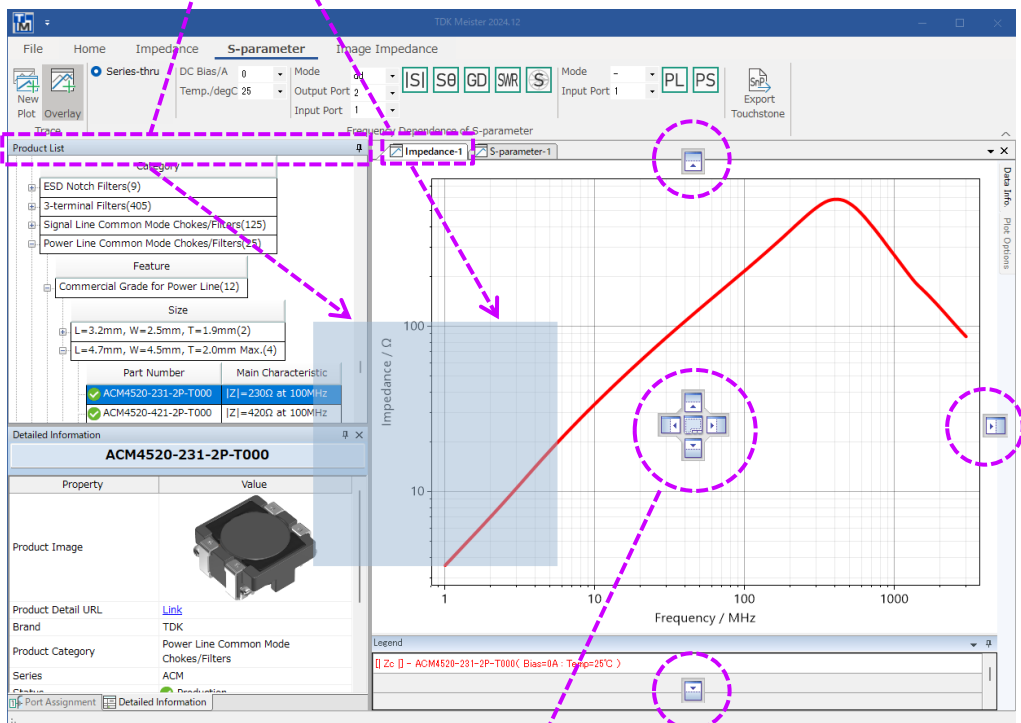
2 Operation of Window

Floating, Docking

Each window can float and dock. To float and dock, drag and drop the title bar or tab at the upper part of each window.



1) Drag and drop the title bar of the window you want to moved. (Move mouse pressing the mouse button).

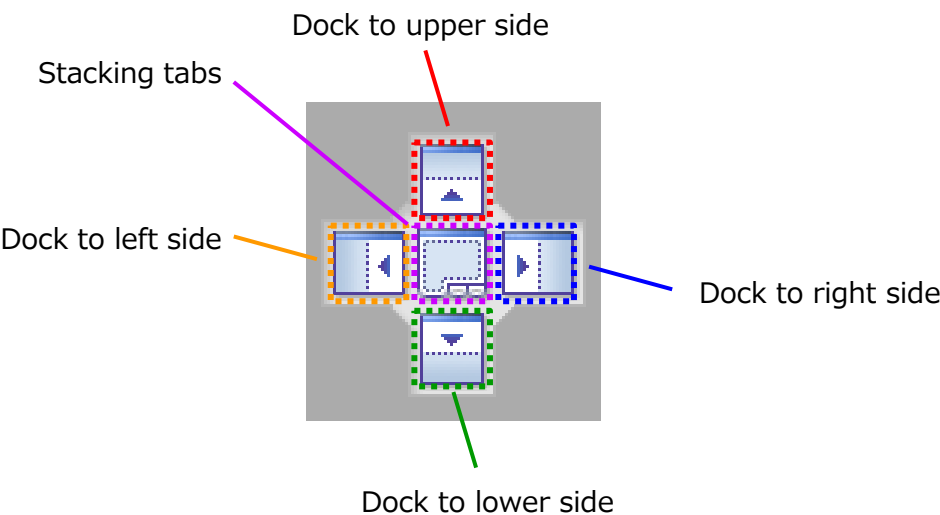


2) Icon showing the destination to dock is displayed, drop on the icon of your intent. (Release the mouse button)

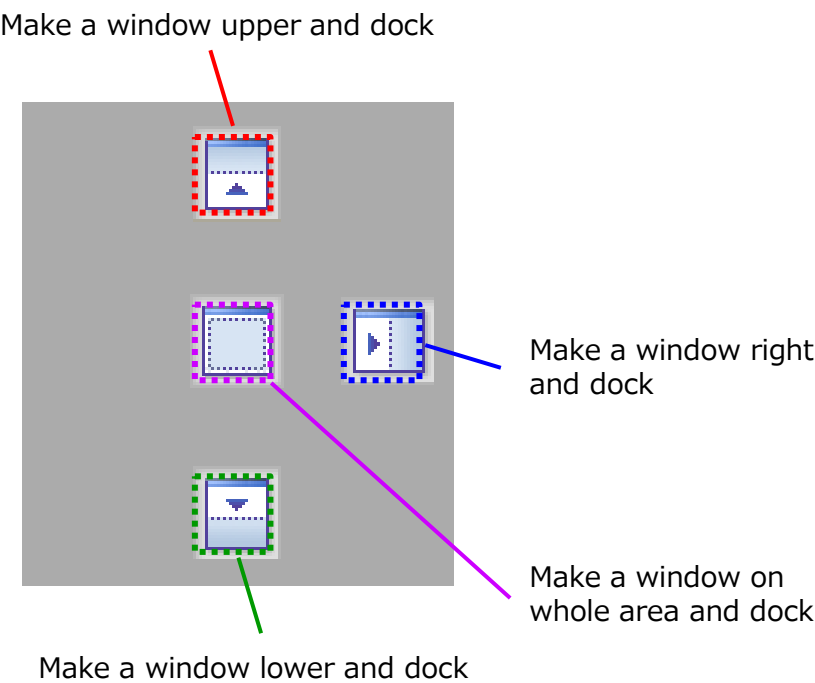
2 Operation of Window

Floating, Docking

In case to dock to an existing window



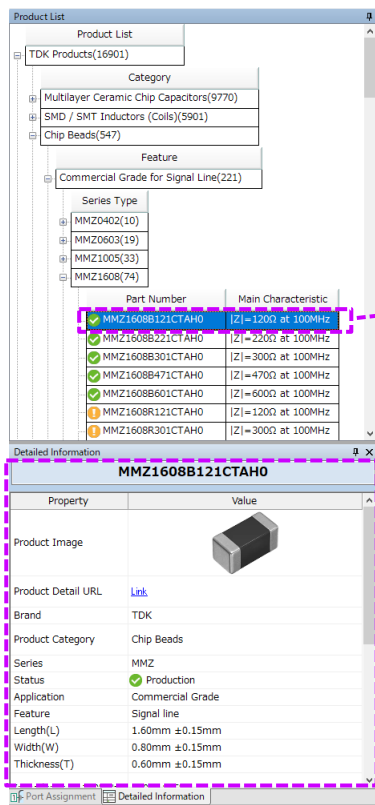
In case to make a new window and dock to it.



3 Display Information of Products, Search

Product List, Detailed Information

In Product List, part numbers of TDK electronic components are classified by product category, grade and feature, and series and displayed. Main characteristic and product status of each part number are also displayed. Once you click and select a part number in Product List, its product image, basic information, size, electronic characteristics, environment, and link to web page on TDK Product Center are displayed in Detailed Information.



1) Select part number in Product List

2) Detailed Information of the part number selected in Product List is displayed.

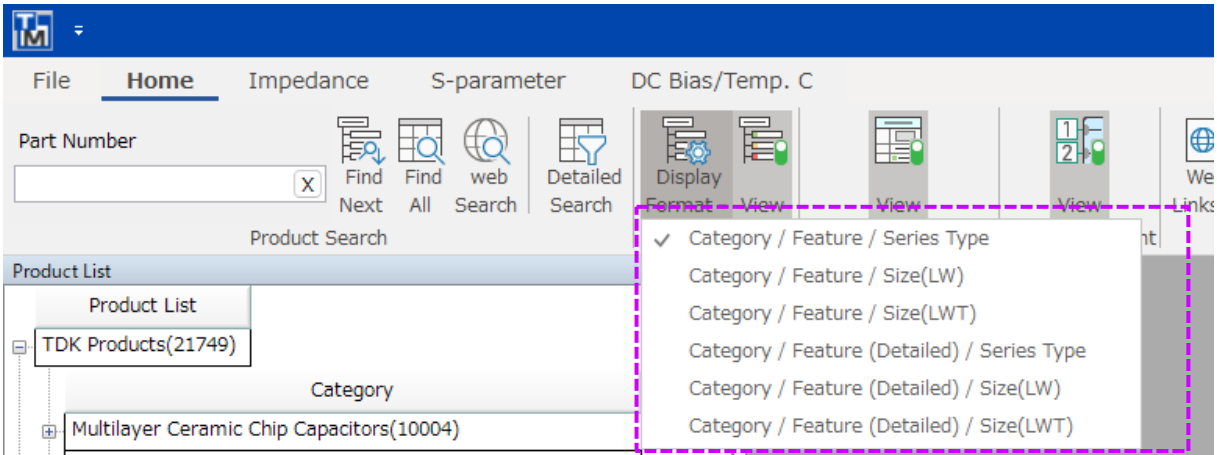
Icons at the left side of each part number mean their product status.

- Production
- Production (Not Recommended for New Design)
- EOL announced
- Obsolete
- In Development

3 Display Information of Products, Search

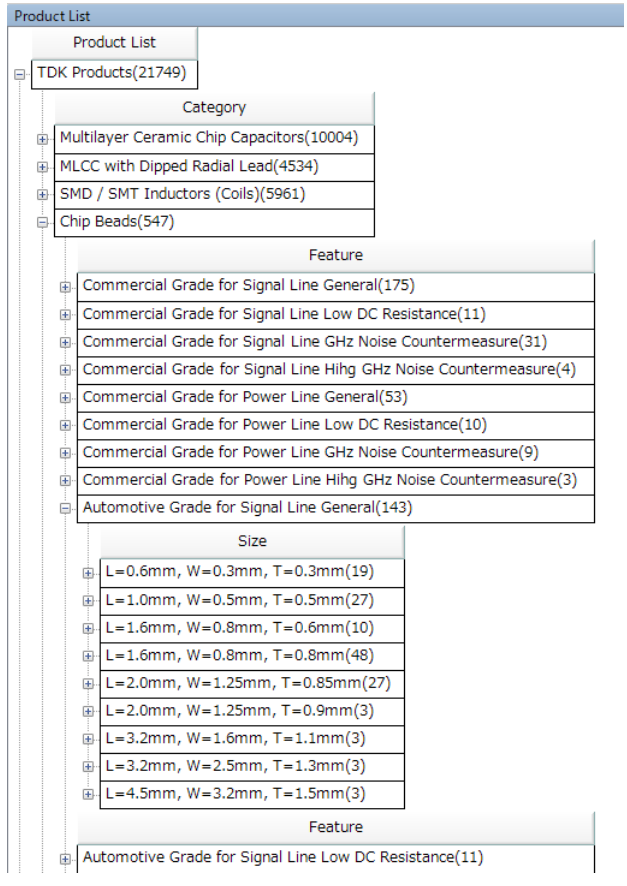
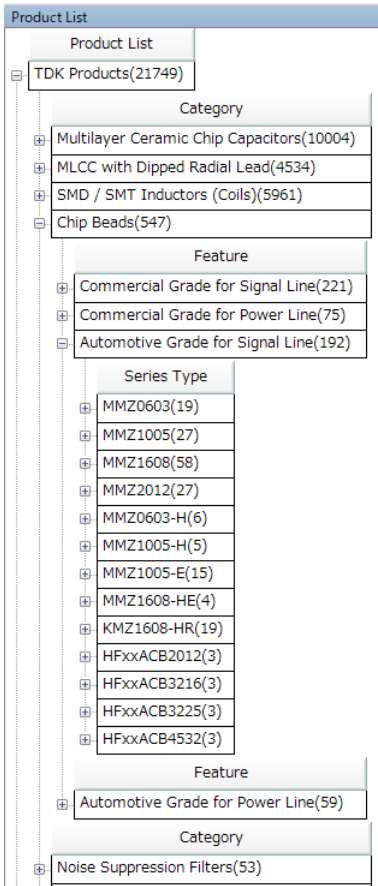
Product List, Detailed Information

Product List can be displayed in 6 ways. Click Display Format to change the view.



In case "Category / Feature / Series Type" is selected.

In case "Category / Feature (Detailed) / Size(LWT)" is selected.



3 Display Information of Products, Search

Search by Part Number, Find Next

Using search by part number, you can find the part number in Product List sequentially or can list all the part numbers that match the string input in the text box.

1) Input a string for search.

2) Click Find Next button or press Enter key.

3) The part number that matches the string input is selected.

4) By clicking Find Next button, the part number is selected sequentially.

Part Number	Main Characteristic
MPZ1005S100CT000	Z =10Ω at 100MHz
MPZ1005S300CT000	Z =30Ω at 100MHz
MPZ1005S600CT000	Z =60Ω at 100MHz
MPZ1005S121CT000	Z =120Ω at 100MHz
MPZ1005Y900CT000	Z =90Ω at 100MHz

- Following the wild cards can be used.
 - The asterisk (*) matches any sequence of characters.
 - The question mark (?) matches any single character.

3 Display Information of Products, Search

Search by Part Number, Find All

Using search by part number, you can find the part number in Product List sequentially or can list all the part numbers that match the string input in the text box.

1) Input a string

2) Click Find All

3) All the part number found are displayed

4) Click a part number found, then it is selected in Product List.

Category	Part Number	Status	Main Characteristic	Feature
Chip Beads	MMZ1005B00CT000	Production	Z =80Ω at 100MHz	Commercial Grade for Signal Line General
Chip Beads	MMZ1005B121CT000	Production	Z =120Ω at 100MHz	Commercial Grade for Signal Line General
Chip Beads	MMZ1005B601CT000	Production	Z =600Ω at 100MHz	Commercial Grade for Signal Line General
Chip Beads	MMZ1005S00CT000	Production	Z =80Ω at 100MHz	Commercial Grade for Signal Line General
Chip Beads	MMZ1005S121CT000	Production	Z =120Ω at 100MHz	Commercial Grade for Signal Line General
Chip Beads	MMZ1005S241CT000	Production	Z =240Ω at 100MHz	Commercial Grade for Signal Line General
Chip Beads	MMZ1005S601CT000	Production	Z =600Ω at 100MHz	Commercial Grade for Signal Line General
Chip Beads	MMZ1005S102CT000	Production	Z =1000Ω at 100MHz	Commercial Grade for Signal Line General
Chip Beads	MMZ1005Y400CT000	Production	Z =400Ω at 100MHz	Commercial Grade for Signal Line General
Chip Beads	MMZ1005Y800CT000	Production	Z =800Ω at 100MHz	Commercial Grade for Signal Line General
Chip Beads	MMZ1005Y121CT000	Production	Z =120Ω at 100MHz	Commercial Grade for Signal Line General
Chip Beads	MMZ1005Y241CT000	Production	Z =240Ω at 100MHz	Commercial Grade for Signal Line General
Chip Beads	MMZ1005Y301CT000	Production	Z =300Ω at 100MHz	Commercial Grade for Signal Line General
Chip Beads	MMZ1005Y471CT000	Production	Z =470Ω at 100MHz	Commercial Grade for Signal Line General
Chip Beads	MMZ1005Y601CT000	Production	Z =600Ω at 100MHz	Commercial Grade for Signal Line General
Chip Beads	MMZ1005Y102CT000	Production	Z =1000Ω at 100MHz	Commercial Grade for Signal Line General

Property	Value
Product Image	

- Find All goes in real time. With changing of the string input, the result changes immediately.
- Following the wild cards can be used.
 - The asterisk (*) matches any sequence of characters.
 - The question mark (?) matches any single character.

3 Display Information of Products, Search

Search by Catalog Specification

Using search by catalog specification, you can search products combining multiple specifications. Since the search result is dynamically renewed with change of the search conditions, you can quickly and easily narrow down the part numbers that meet the specifications that you need.

1) Click Detailed Search.

2) Detailed Search window opens

3) Select the product category.

4) Set the search conditions.

6) Click a part number, then it is selected also in Product List.

5) All the part number match with the input conditions are listed.

- Following the wild cards can be used in search condition by part number.
 - The asterisk (*) matches any sequence of characters.
 - The question mark (?) matches any single character.

4 Display Graphs for Characteristic Data

Basic Operation

Various characteristic data of TDK electronic components are registered in TDK Meister, and you can plot them on a graph. The frequency dependence of Impedance and S-parameter data can be plotted for almost all the products. The DC bias, DC superimposition, temperature, and voltage-current characteristics can also be plotted depending on product category.

Select creating a new plot and adding the trace or adding the trace in an existing plot. Up to 30 traces can be displayed in each plot.

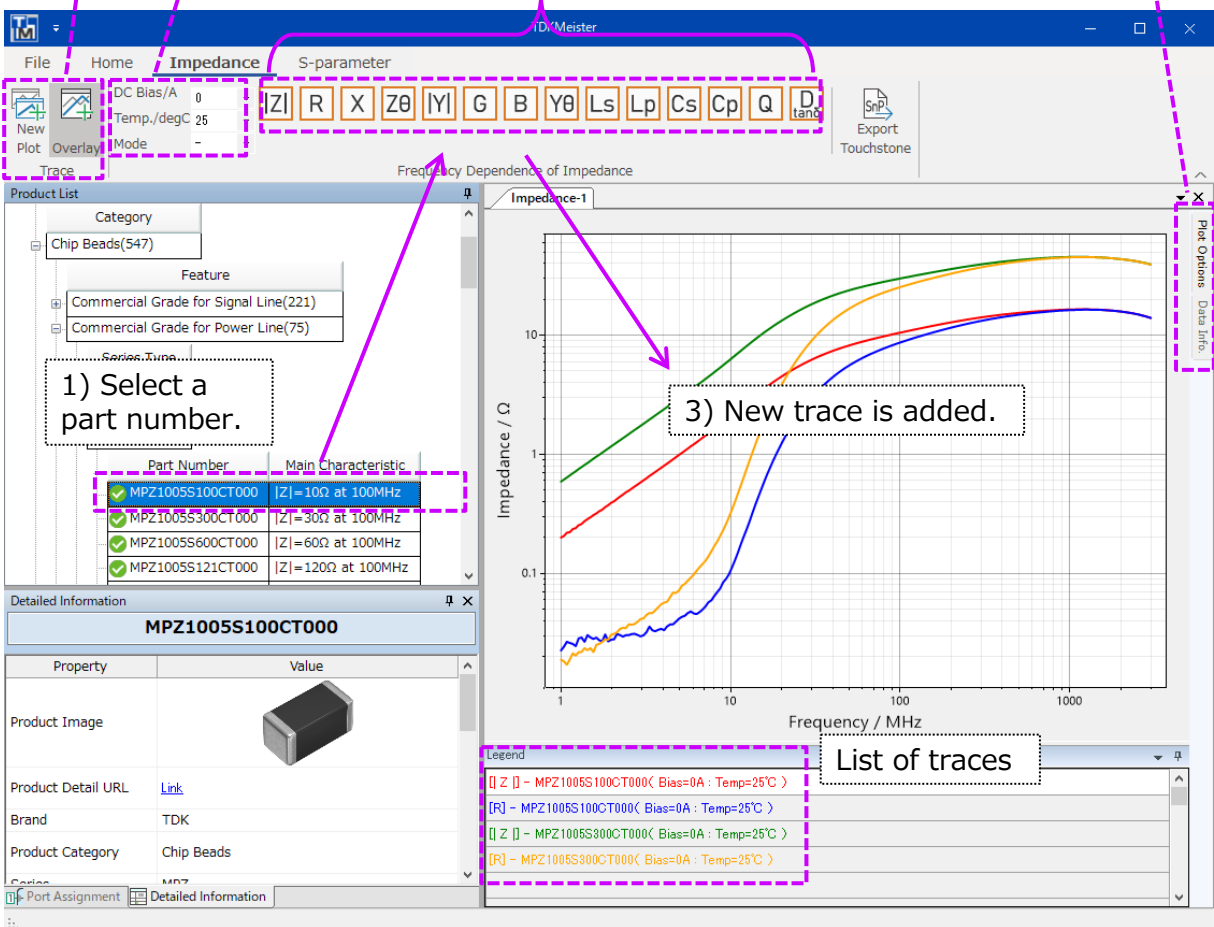
Tabs to select the options for plots or display the numeric data.

Select conditions for DC bias, temperature.

2) Click the button of the property you want to plot.

1) Select a part number.

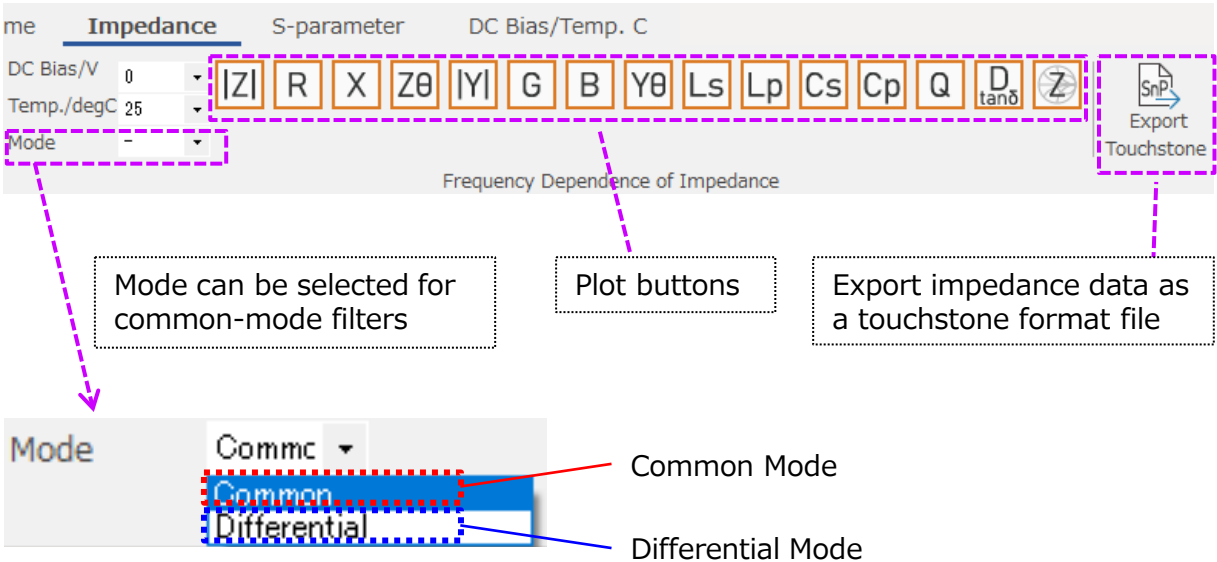
3) New trace is added.



4 Display Graphs for Characteristic Data

Impedance

There are around a dozen plot buttons in the Impedance tab. For example, $|Z|$ means the magnitude of impedance, and L_s means the equivalent series inductance. Once you click one of those buttons, the characteristic for the part number selected in Product List is plotted.



The meanings of each plot button are as follows,

$ Z $	Magnitude of Z	$Y\theta$	Argument of Y
R	Real part of Z	L_s	Equivalent series inductance
X	Imaginary part of Z	L_p	Equivalent parallel inductance
$Z\theta$	Argument of Z	C_s	Equivalent series capacitance
$ Y $	Magnitude of Y	C_p	Equivalent parallel capacitance
G	Real part of Y	Q	Quality factor
B	Imaginary part of Y	$D_{\tan\delta}$	Loss coefficient
		Smith chart icon	Smith chart

4 Display Graphs for Characteristic Data

S-parameter

Open S-parameter tab to display S-parameter data. In order to plot it, you need to set some conditions. Mode is setting for single-ended or mixed-mode, Input Port and Output are setting for ports. For example, Mode is "dd", Output Port is "2", and Input Port is "1" then, it means the mixed-mode S-parameter Sdd21.

Configuration of DUT connection

Export S-parameter data as a touchstone format file

me Impedance **S-parameter** DC Bias/Temp. C

☒ Series-thru ☐ Shunt-thru

DC Bias/V 0 Temp./degC 25

Mode Output Port 1 Input Port 1

|S| Sθ GD SWR S PL PS

Export Touchstone

Frequency Dependence of S-parameter

Output port

Input port

Mode can be selected for common-mode filters

Mode can be selected for common-mode filters

Mode

Output Port

Input Port

Single-ended

Sc

Scd

Sdc

Sdd

Single-ended

Common

Differential

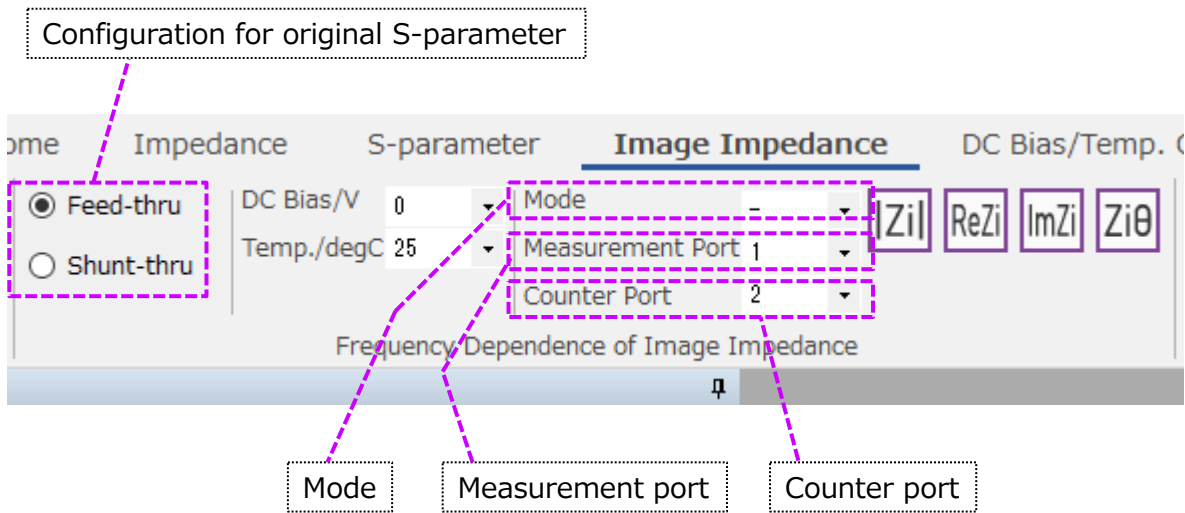
The meanings of each plot button are as follows,

S	Magnitude of S	PL	Power loss
Sθ	Argument of S	PS	Power scattering
GD	Group delay		
SWR	Standing wave ratio		
S	Smith chart / Polar chart		

4 Display Graphs for Characteristic Data

Image Impedance

Open Image Impedance tab to display Image Impedance. In order to plot it, you need to set some conditions. Mode is setting for single-ended or mixed-mode, Measurement Port is the subject port for displaying image impedance, and Counter Port it the port paired with Measurement Port. For example, Mode is "Differential", Measurement Port is "1", and Counter Port is "2" then, it means the image impedance for differential mode at port 1 between port 1 and 2.



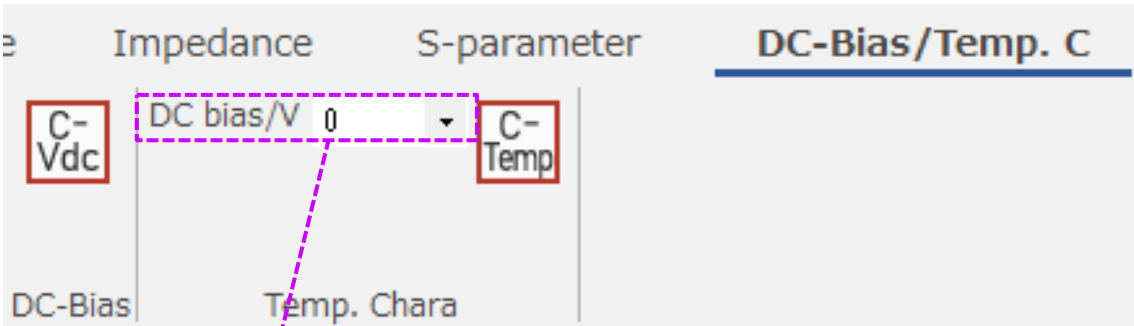
The meanings of each plot button are as follows,

- |Zi| Magnitude of Zi
- ReZi Real part of Zi
- ImZi Imaginary part of Zi
- Ziθ Argument of Zi

4 Display Graphs for Characteristic Data

DC Bias, Temperature Characteristics

The DC bias characteristic and temperature characteristic can be displayed for multilayer ceramic chip capacitors.



DC bias voltage

The meanings of each plot button are as follows,



DC bias property

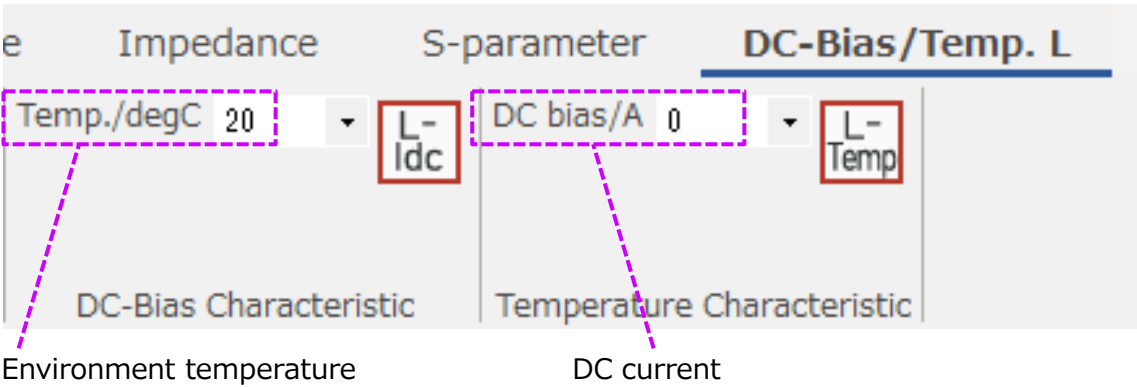


Temperature dependence

4 Display Graphs for Characteristic Data

DC Superimposition, Temperature Characteristics

The DC superimposition characteristic and temperature characteristic can be displayed for inductors for power circuits.



The meanings of each plot button are as follows,



Superimposition property

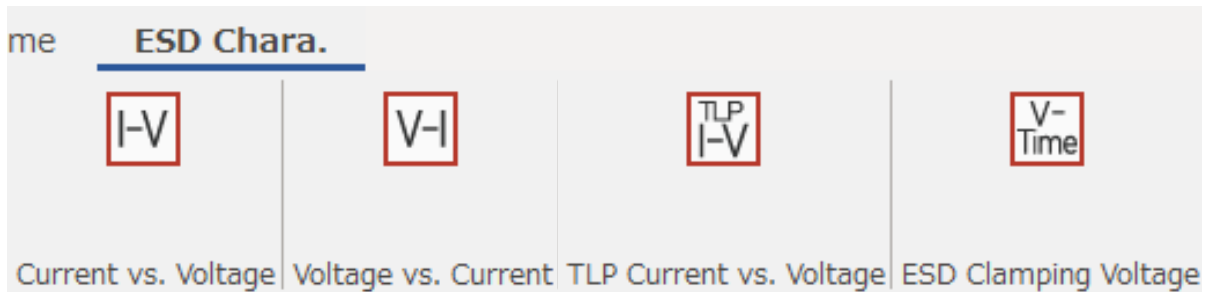


Temperature dependence





4 Display Graphs for Characteristic Data

ESD Characteristics

The current-voltage characteristic, ESD clamping voltage, etc. can be displayed for ESD protection devices.



The meanings of each plot button are as follows,

-  Current-voltage property
-  Voltage-current property
-  TLP current-voltage property
-  ESD cramp voltage property

4 Display Graphs for Characteristic Data

Setting for Graphs (XY Graph)

The format, scale, unit for graph axis, show or hide for grids, color and width for trace can be adjusted.

Setting for X and Y axis

Linear or Log

Min, Max values and unit

Show/hide of grids

Setting for exponential notation

Click Apply to apply settings

Setting for traces

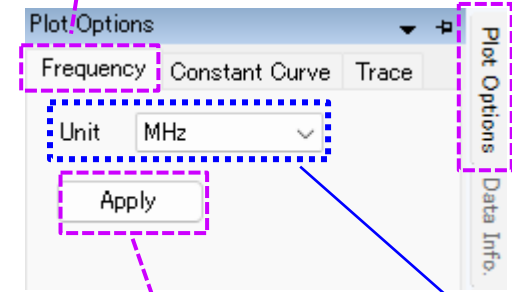
Click Apply to apply settings

4 Display Graphs for Characteristic Data

Setting for Graphs (Smith Chart / Polar Chart)

The unit for frequency, color and width for trace, constant curve can be adjusted.

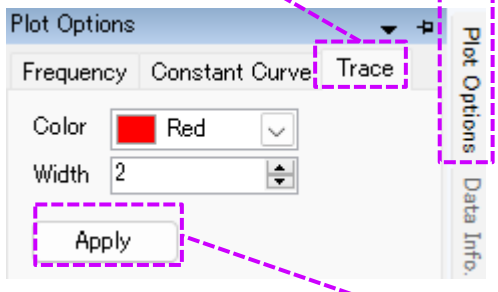
Setting for frequency



Click Apply to apply settings

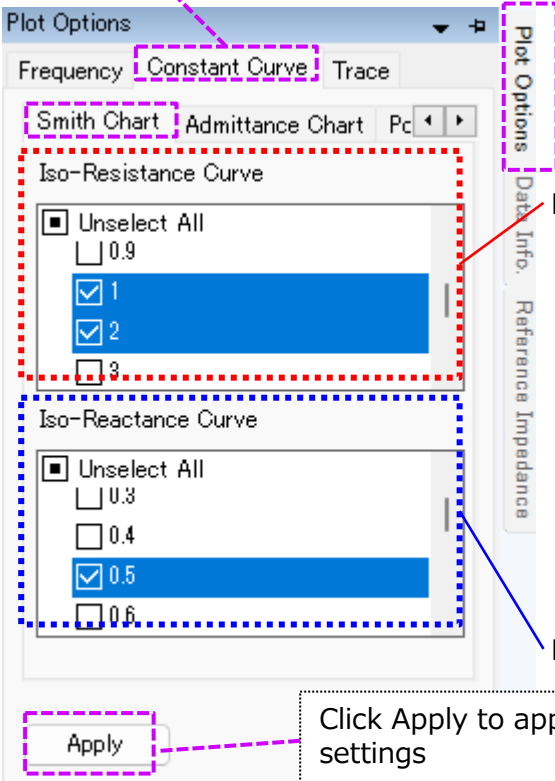
Frequency unit

Setting for traces



Click Apply to apply settings

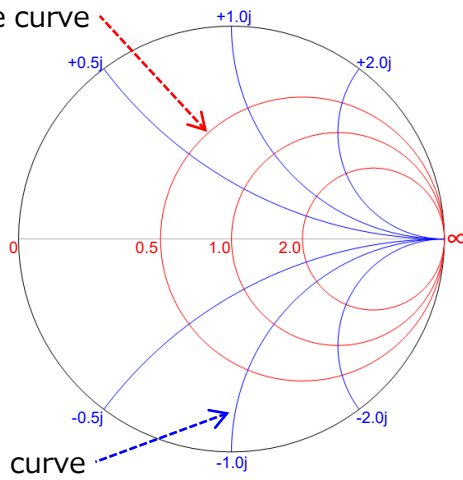
Setting for Constant Curve



Click Apply to apply settings

Resistance curve

Reactance curve

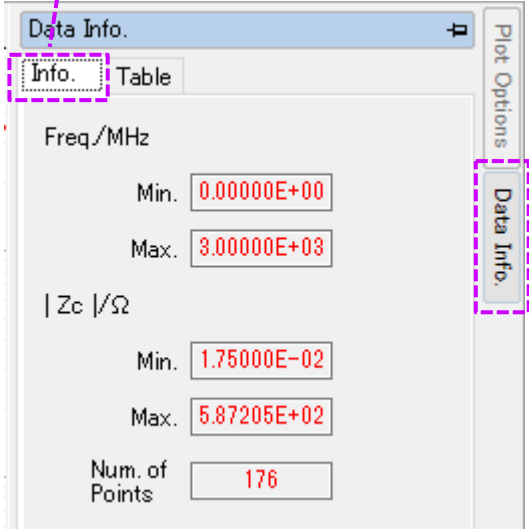


4 Display Graphs for Characteristic Data

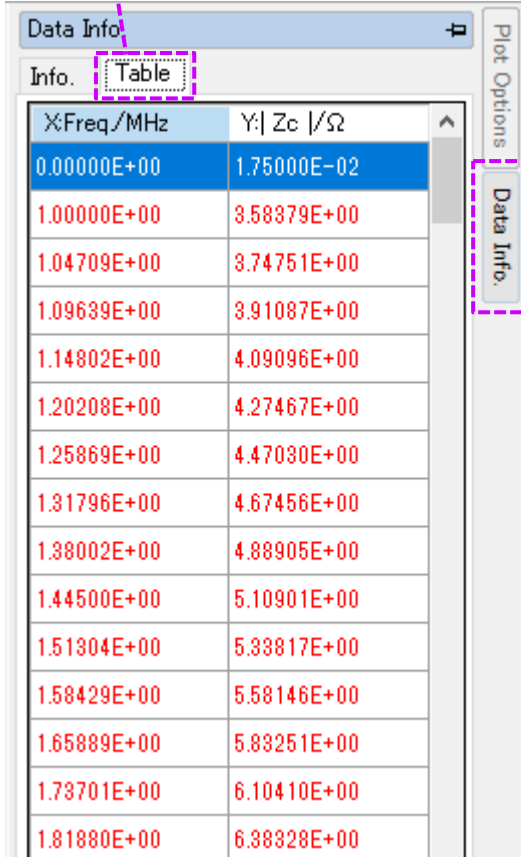
Data Information

For the trace data selected in Legend, minimum value, maximum value, number of points, and data table can be displayed.

Info.



Table



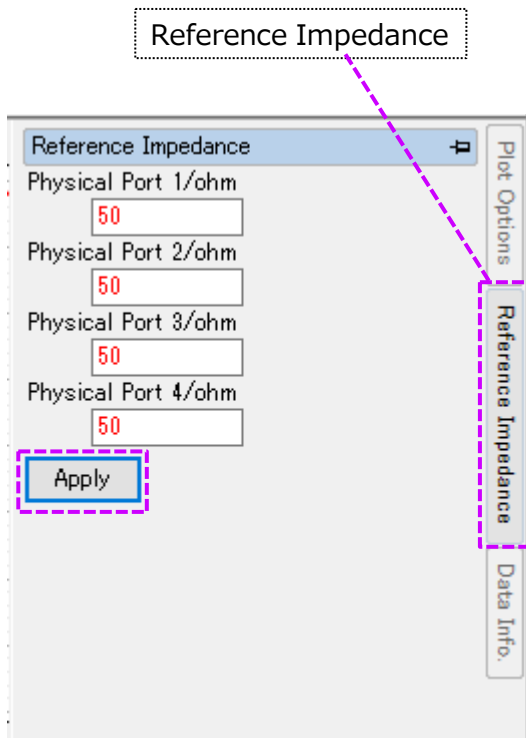
X:Freq./MHz	Y: Zc /Ω
0.00000E+00	1.75000E-02
1.00000E+00	3.58379E+00
1.04709E+00	3.74751E+00
1.09639E+00	3.91087E+00
1.14802E+00	4.09096E+00
1.20208E+00	4.27467E+00
1.25869E+00	4.47030E+00
1.31796E+00	4.67456E+00
1.38002E+00	4.88905E+00
1.44500E+00	5.10901E+00
1.51304E+00	5.33817E+00
1.58429E+00	5.58146E+00
1.65889E+00	5.83251E+00
1.73701E+00	6.10410E+00
1.81880E+00	6.38328E+00

Numeric data for the selected trace is displayed.

4 Display Graphs for Characteristic Data

Reference Impedance

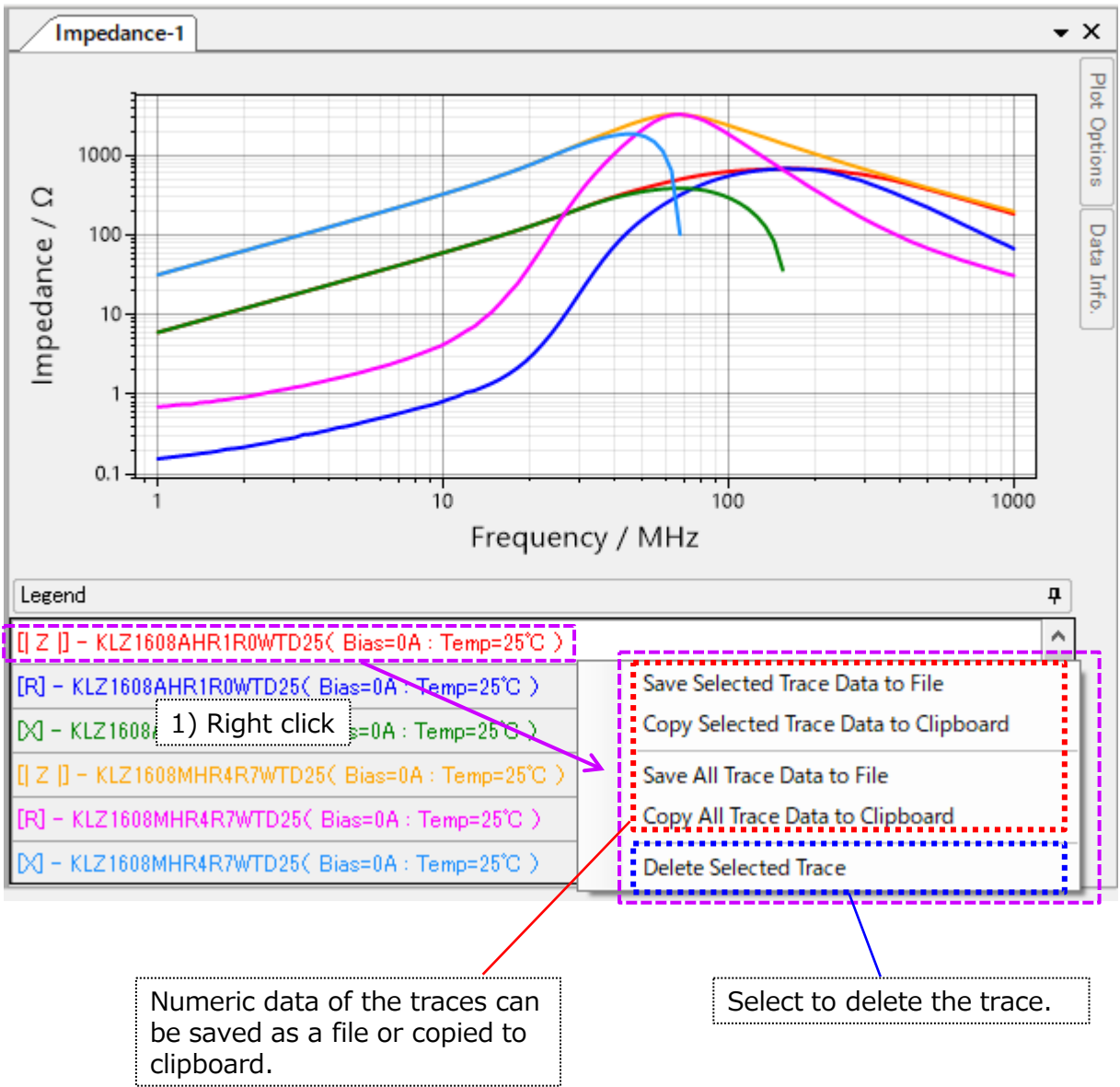
The reference impedance for S-parameter data can be changed. The reference impedance can be set for each port.



4 Display Graphs for Characteristic Data

Legend

The numeric data, screen shot can be saved as a file or copied to clipboard from the right click menu in Legend.

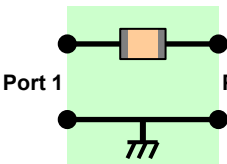
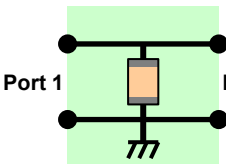
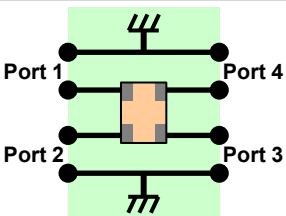


4 Display Graphs for Characteristic Data

DUT Configurations to obtain S-parameter

Following the configurations are used to obtain S-parameter data for electronic components with 2 or 4 terminals.

- Series-thru
- Shunt-thru

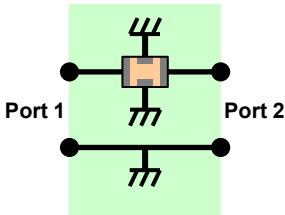
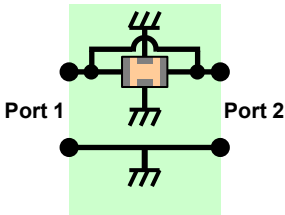
Type of Component	2-terminal Components		4-terminal Components
Products	Inductor, Beads		CMFs
	MLCCs, Varistors		
Configuration	Series-thru	Shunt-thru	Series-thru
Circuit Diagram			

4 Display Graphs for Characteristic Data

DUT Configurations to obtain S-parameter

Following the configurations are used to obtain S-parameter data for 3-terminal Filters.

- General / Feed-thru
- Shunt-thru

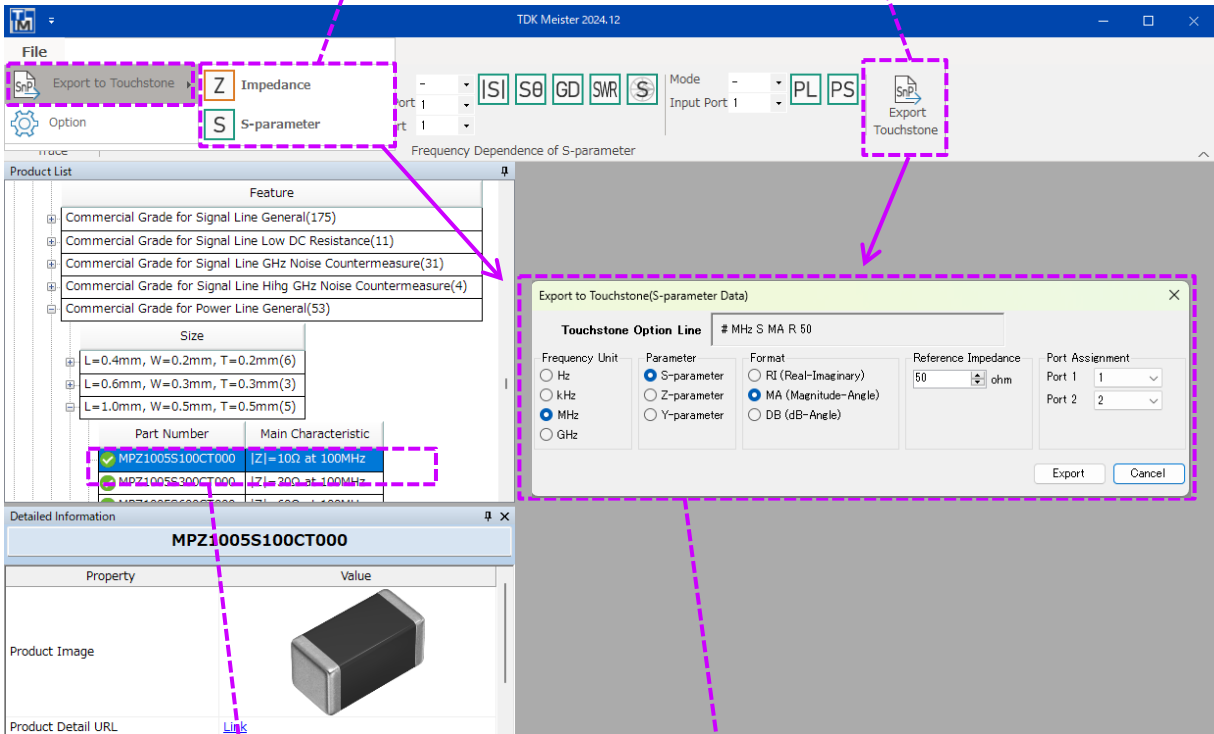
Type of Component	3-terminal Filters		
Products	MEM	YFF	
Configuration	None	Feed-thru	Shunt-thru
Circuit Diagram			
	GND pins of DUT connected to GND of substrate		

5 File Operation

Export

Impedance or S-parameter data of the selected part can be export as a touchstone format file.

1) Select Export from File Menu or click Export button



Selected part number

2) Set conditions and export

