



Parts Selection Tool TDK Meister Tutorial

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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

The screenshot displays the TDK Meister software interface. The top menu bar includes File, Home, Impedance, S-parameter, Image Impedance, S->Z Conv., Z->S Conv., and Trans-parameter. The main workspace is divided into several panes:

- Products:** A tree view on the left showing categories like Chip Beads, Filters, and Chokes. A search filter for 'ACM4520(4)' is applied.
- Product List:** A table showing a list of components with columns for Part Number and Status. The number of items is 13.
- Detailed Information:** A pane for the selected part 'ACM4520-231-2P-T000', showing its image, brand (TDK), series (ACM), status (Production), and feature (Common Mode).
- Graphs:** Two graphs are displayed on the right. The top graph shows Magnitude / dB vs Frequency / MHz. The bottom graph shows Voltage / V vs Time / nsec.
- Export Touchstone:** A button in the top right corner, highlighted with a purple dashed box, for exporting data.

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.

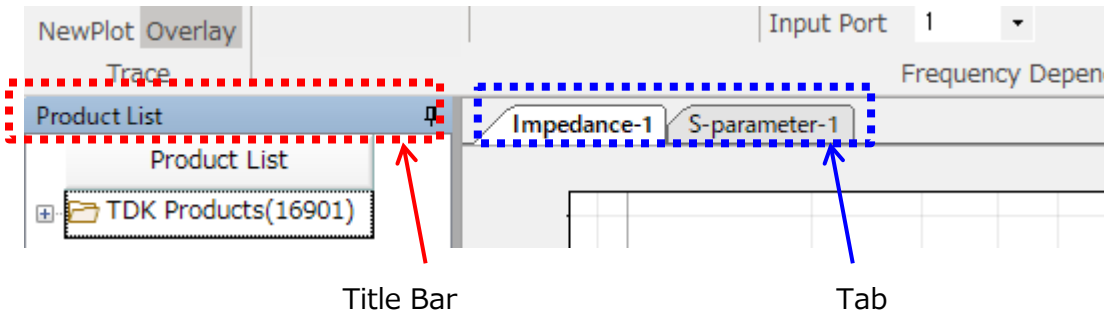
The screenshot shows the TDK Meister software interface with several key components labeled:

- Product List:** A central window displaying a table of components with columns for Part Number, Status, and Main Characteristic.
- Settings for Plot:** A panel on the left containing various filter and display options.
- Plot Buttons:** A set of icons (Z, R, X, Z₀, Y, G, B, Y₀, L, L_p, C_p, C_q, Q, D) used for different types of plots.
- Search by Part Number:** A search bar at the top of the Product List window.
- Port Assignment:** A panel on the right showing S-parameter and port configuration options.
- Detailed Information:** A window at the bottom left showing properties for a selected part (TCM0403S-350-2P-T210).
- Search by Specification:** A window at the bottom center showing a list of parts filtered by various criteria.
- Characteristic Graphs:** Multiple plots on the right, including S-parameter plots, DC Bias Characteristics, and ESD Clamping Voltage plots.

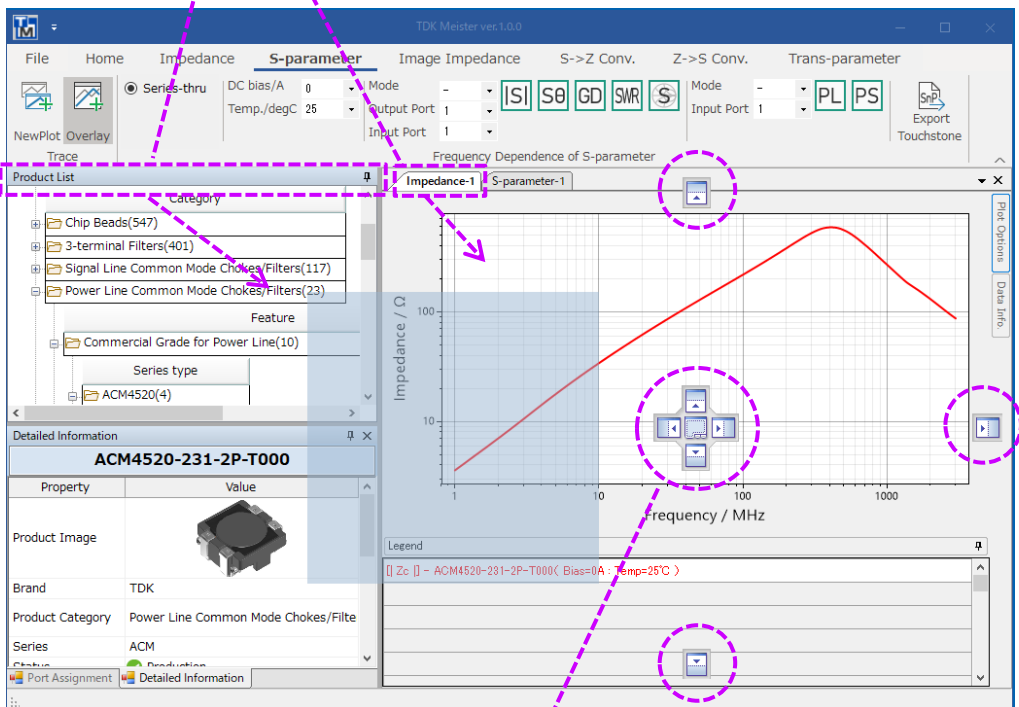
2 Operation of Window

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).

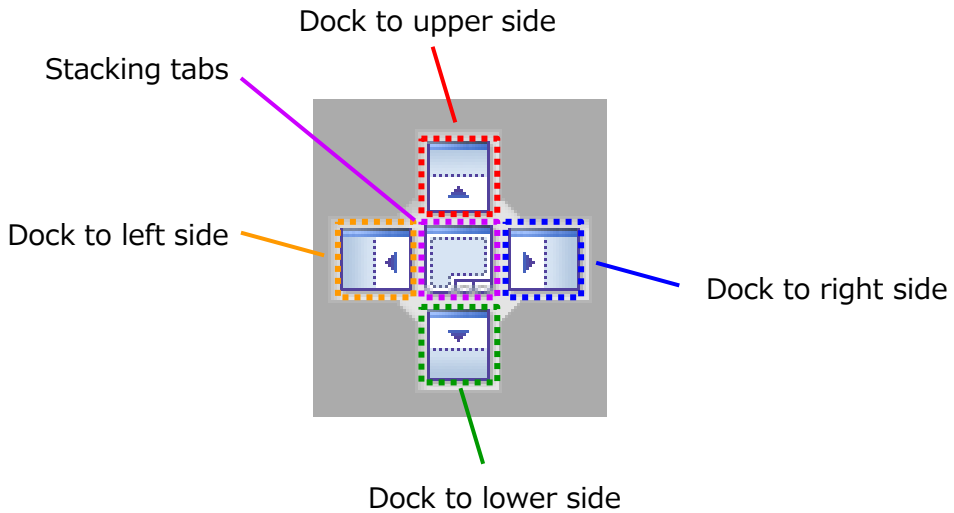


2) Icon showing the destination to dock is displayed, drop on the icon of your intent. (Release the mouse button)

2 Operation of Window

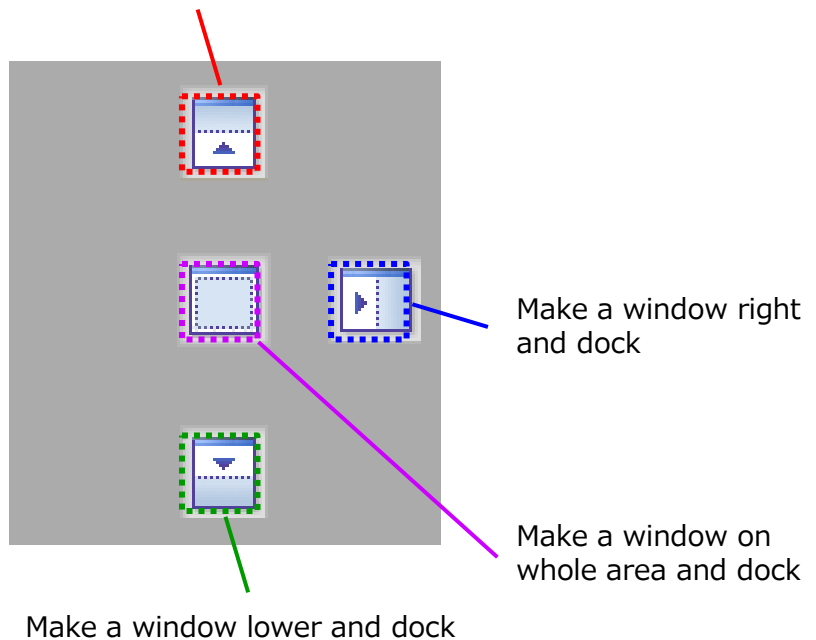
Floating, Docking

In case to dock to an existing window



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

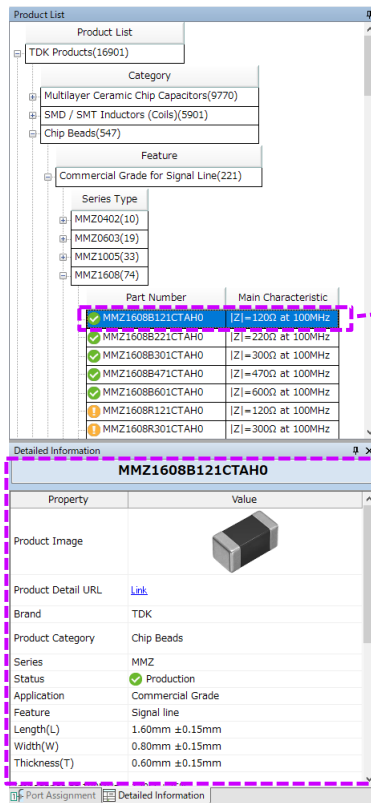
Make a window upper and dock



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.

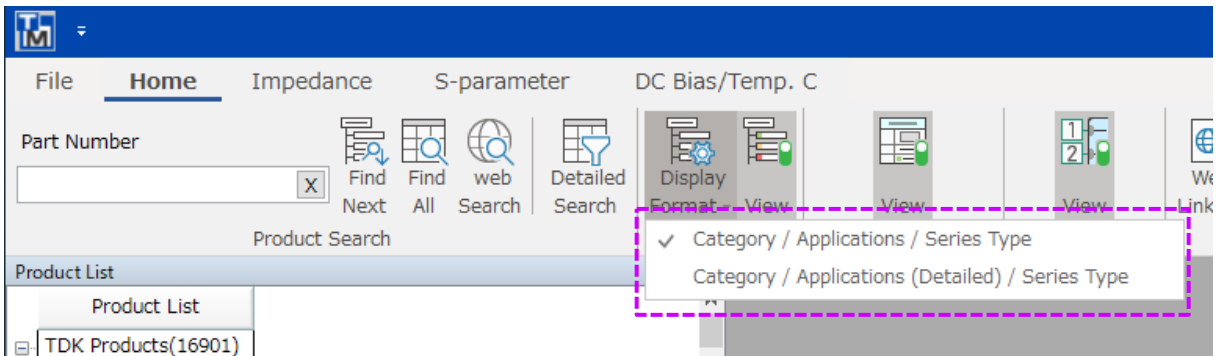
Icons at the left side of each part number mean their product status.

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

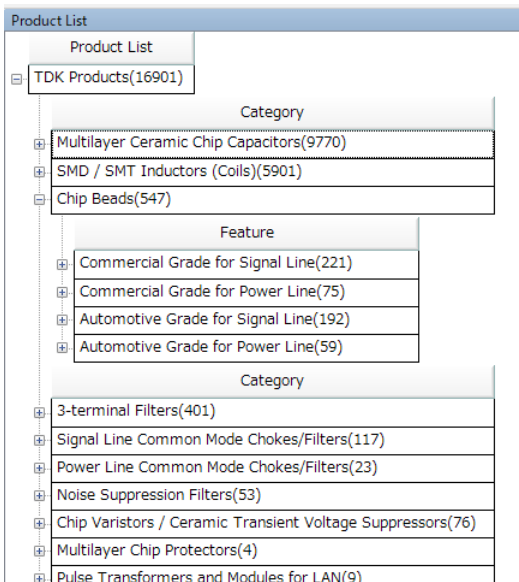
3 Display Information of Products, Search

Product List, Detailed Information

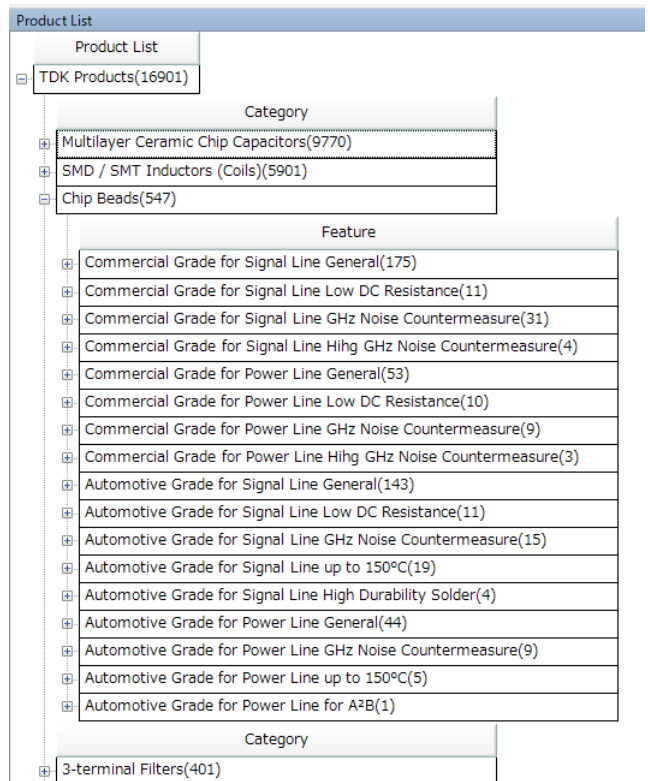
Product List can be displayed in 2 ways. Click Display Format to change the view.



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



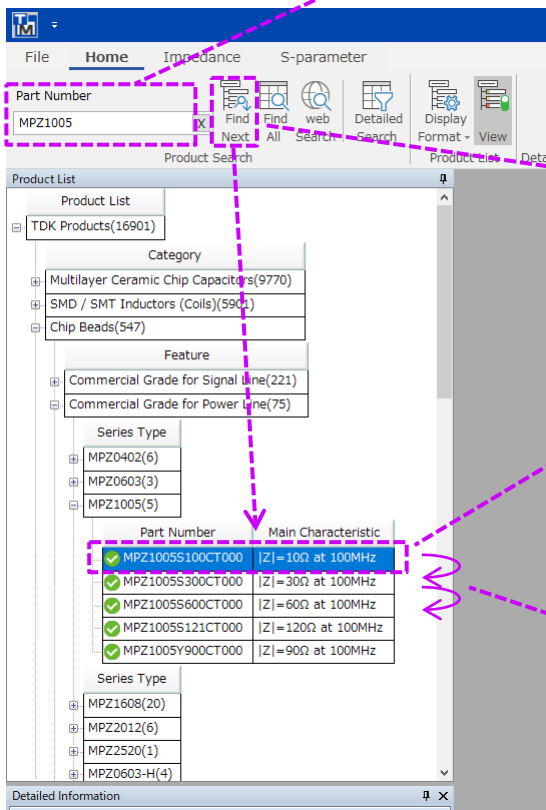
In case "Category / Applications (Detailed) / Series Type" is selected.



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.

- 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

The screenshot shows the TDK Meister software interface. The 'Part Number' field contains 'MMZ1005*'. The 'Find All' dialog is open, displaying a list of search results. The 'Product List' on the left shows the results of the search, with 'MMZ1005Y121CT000' selected. The 'Detailed Information' pane shows the properties of the selected part, including a product image.

Category	Part Number	Status	Main Characteristic	Feature
Chip Beads	MMZ1005B900CT000	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	MMZ1005S800CT000	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

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

- 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.

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.

The screenshot shows the TDK Meister software interface. The main window displays a graph titled "Frequency Dependence of Impedance" with "Impedance / Ω" on the y-axis and "Frequency / MHz" on the x-axis. The graph shows four traces: a blue trace for $|Z|$, a red trace for R , a green trace for $|Z|$, and a yellow trace for $|R|$. The traces show an increasing trend with frequency. The interface includes a "Product List" on the left, a "Detailed Information" panel for "MPZ1005S100CT000", and a "Legend" at the bottom right. The legend lists the traces: $|Z|$ - MPZ1005S100CT000 (Bias=0A : Temp=25°C), R - MPZ1005S100CT000 (Bias=0A : Temp=25°C), $|Z|$ - MPZ1005S300CT000 (Bias=0A : Temp=25°C), and R - MPZ1005S300CT000 (Bias=0A : Temp=25°C). The interface also features a "File" menu, "Home" tab, "Impedance" and "S-parameter" tabs, and a "Plot Options" panel on the right.

1) Select a part number.

3) New trace is added.

List of traces

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.

Mode can be selected for common-mode filters

Plot buttons

Export impedance data as a touchstone format file

Mode: Common Mode
Differential Mode

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

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 S_{dd21}.

Configuration of DUT connection

Export S-parameter data as a touchstone format file

Output/Input port

Input port

Mode can be selected for common-mode filters

Mode can be selected for common-mode filters

Mode

- Single-ended
- sc Sc
- cd Scd
- dc Sdc
- dd Sdd

Mode

- Single-ended
- Common Common Mode
- Differential Differential Mode

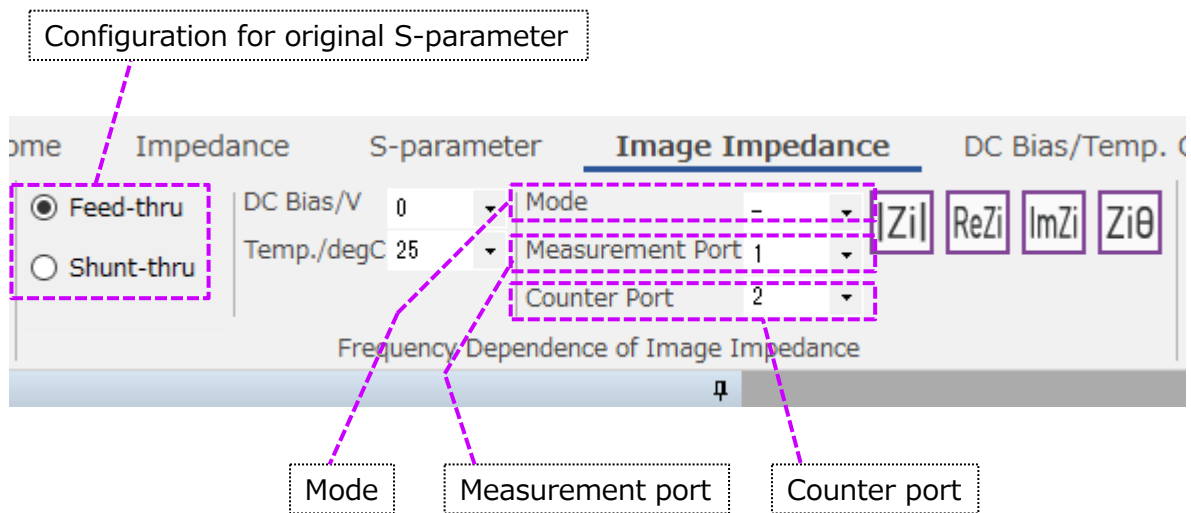
The meanings of each plot button are as follows,

- |S| Magnitude of S
- S∅ Argument of S
- GD Group delay
- SWR Standing wave ratio
- PL Power loss
- PS Power scattering

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.



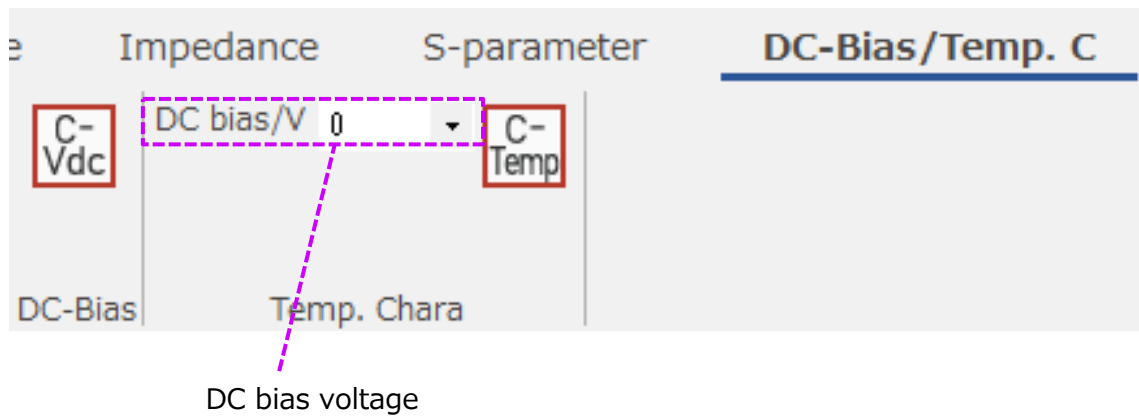
The meanings of each plot button are as follows,

- |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.



The meanings of each plot button are as follows,



DC bias property

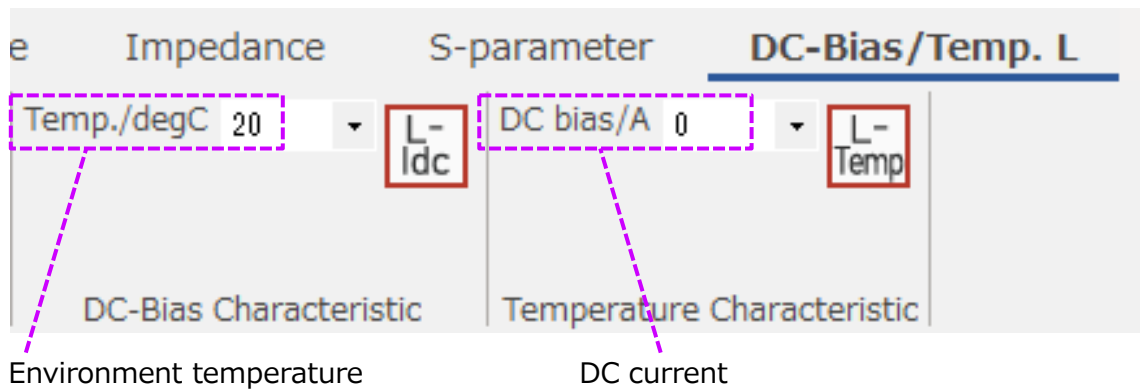


Temperature dependence

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

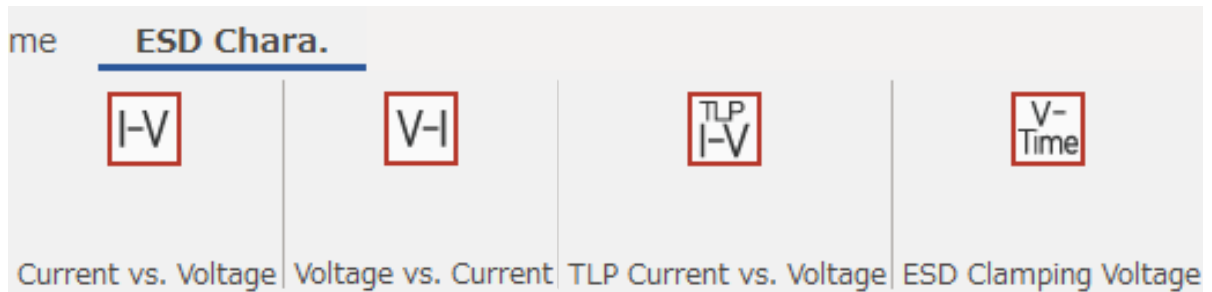


Temperature dependence





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 clamp voltage property

4 Display Graphs for Characteristic Data

Setting for Graphs

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

The screenshot shows the 'Plot Options' dialog box with the 'Axis' tab selected. The 'X Axis' and 'Y Axis' sub-tabs are also visible. The 'Linear or Log' section has 'Log.' selected. The 'Min.' value is 8.10E-1 and the 'Max.' value is 3.70E+3, with the unit set to 'MHz'. The 'Auto Range' checkbox is checked. The 'Major Grid' and 'Minor Grid' checkboxes are checked. The 'Exponential Notation' checkbox is checked, and the 'Num. of Decimal Places' is set to 0. The 'Apply' button is highlighted with a dashed purple box. A vertical sidebar on the right contains 'Plot Options' and 'Data Info.' buttons.

- Linear or Log
- Min, Max values and unit
- Show/hide of grids
- Setting for exponential notation
- Click Apply to apply settings

Setting for traces

The screenshot shows the 'Plot Options' dialog box with the 'Trace' tab selected. The 'Color' is set to 'Red' and the 'Width' is set to 2. The 'Apply' button is highlighted with a dashed purple box. A vertical sidebar on the right contains 'Plot Options' and 'Data Info.' buttons.

- Click Apply to apply settings

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.

Data Info. Plot Options

Info. Table

Freq./MHz

Min. 0.00000E+00

Max. 3.00000E+03

|Zc|/Ω

Min. 1.75000E-02

Max. 5.87205E+02

Num. of Points 176

Data Info.

Table

Data Info. Plot Options

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

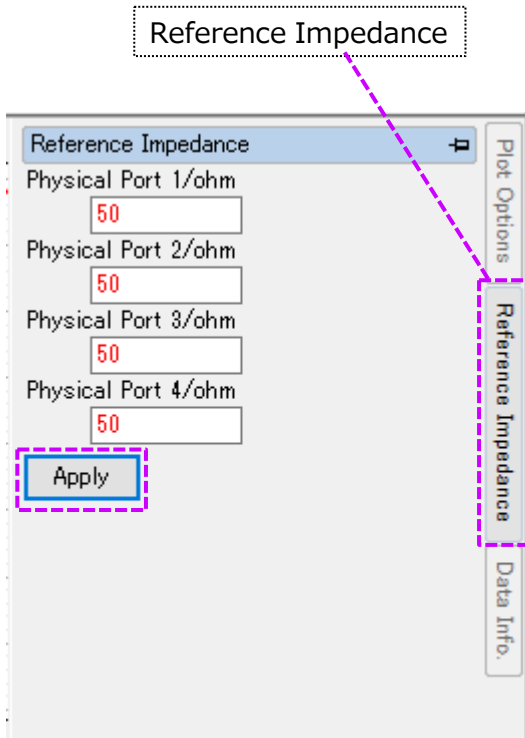
Data Info.

Numeric data for the selected trace is displayed.

4 Display Graphs for Characteristic Data

Reference Impedance

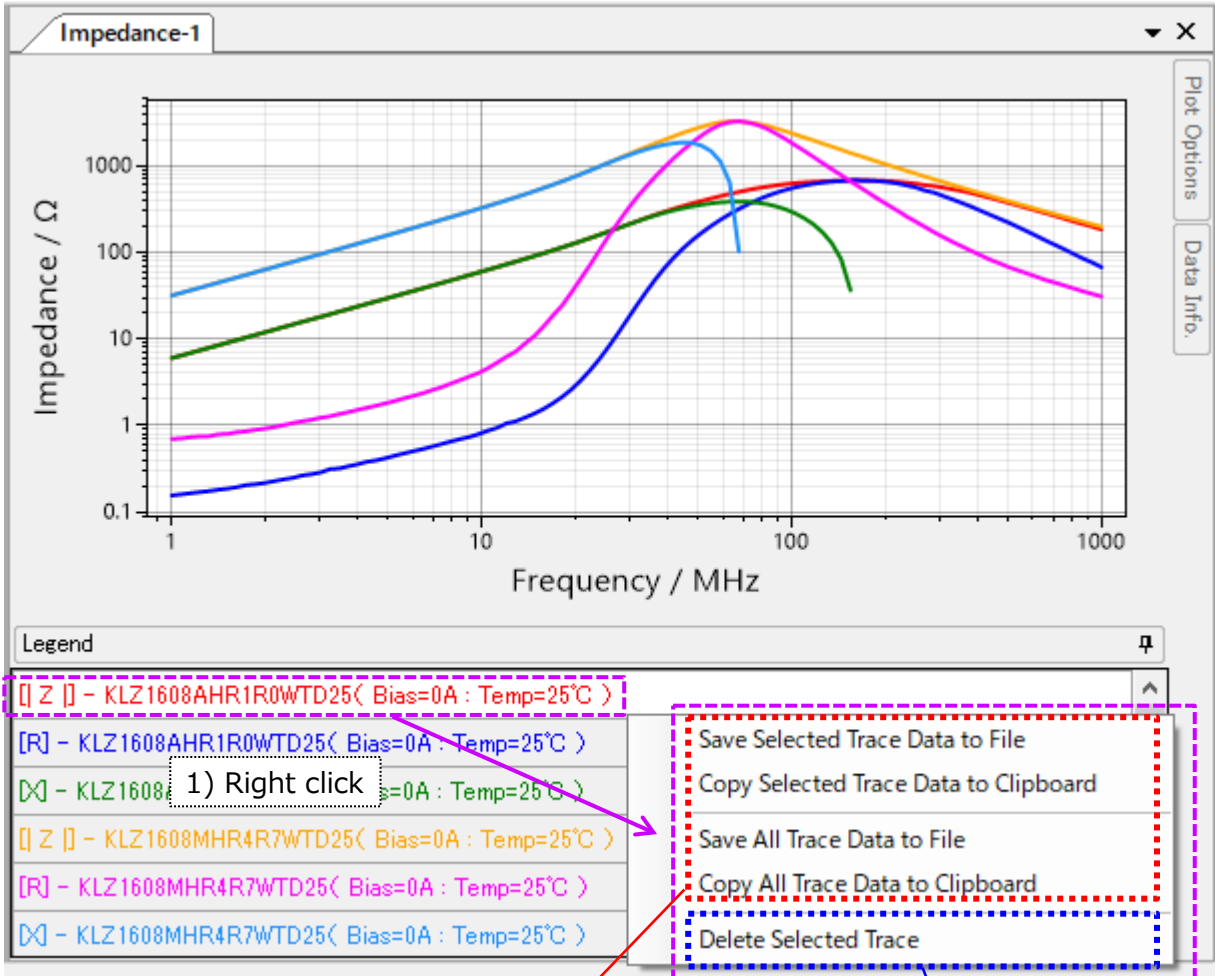
The reference impedance for S-parameter data can be changed. The reference impedance can be set for each port.



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.



Numeric data of the traces can be saved as a file or copied to clipboard.

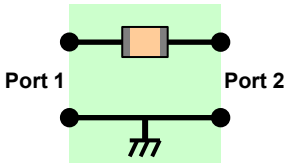
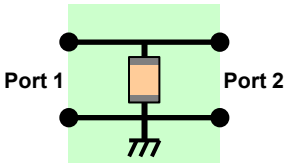
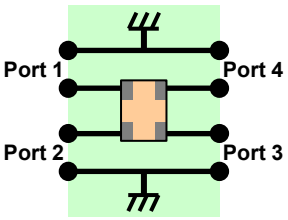
Select to delete the trace.

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

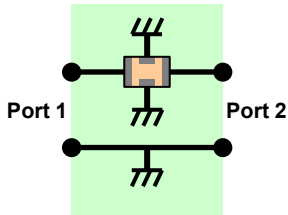
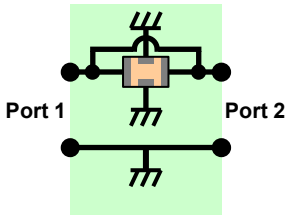
Type of Component	2-terminal Components		4-terminal Components
Products	Inductor, Beads		CMFs
	MLCCs, Varistors		
Configuration	Series-thru	Shunt-thru	Series-thru
Circuit Diagram			

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

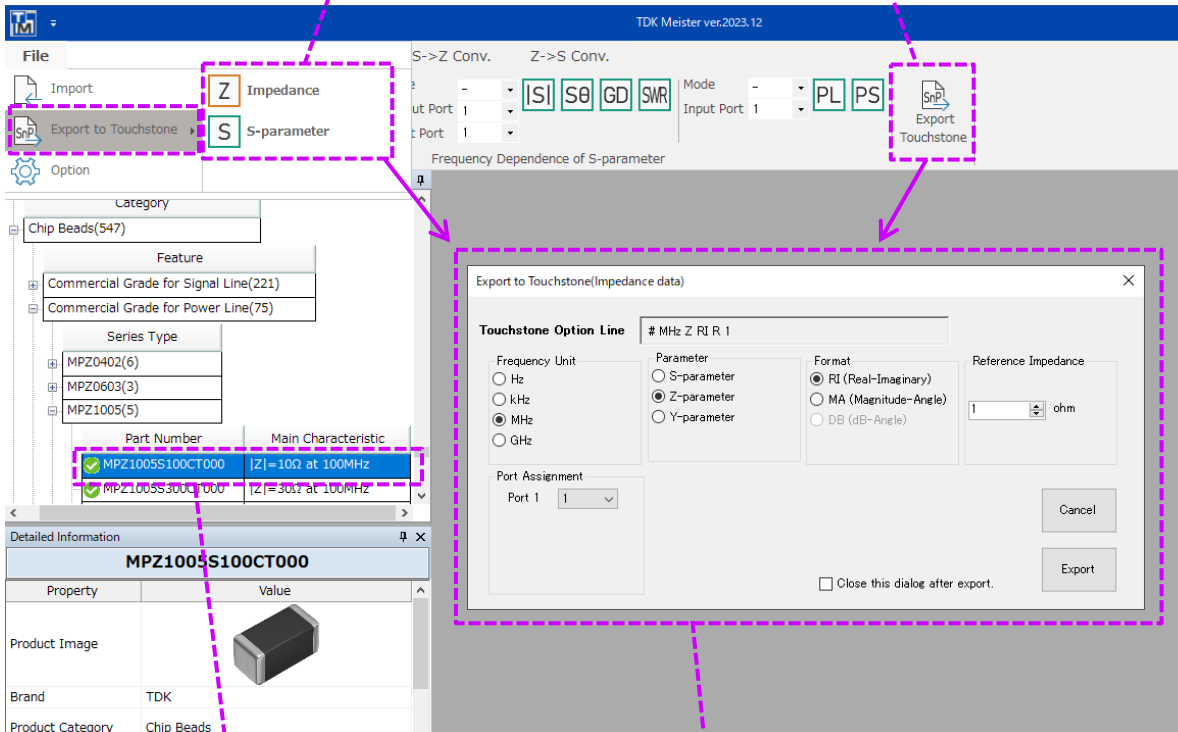
Type of Component	3-terminal Filters		
Products	MEM	YFF	
Configuration	None	Feed-thru	Shunt-thru
Circuit Diagram			
	GND pins of DUT connected to GND of substrate		

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

