Collaborative
Solutions Inc

An ANSYS Support Distributor

Date: July 6, 2000
Subject: ANSYS Tips and Tricks: Using Multi-plot in ANSYS

1. Introduction

ANSYS 5.4 through 5.6 allow users to plot multiple entities (keypoints, lines, areas, volumes, nodes, and elements) in a given window. Prior to ANSYS 5.4, a user was required to plot entities on top of one another, like transparencies. Furthermore, multi-plotting also allows a user to generate graphs.

The following memo discusses how the ANSYS multi-plotting feature works.

2. Discussion on ANSYS Multi-Plotting

The multi-plotting capability is accessed through the Utility Menu and is "modeless". This means that a user can access the multi-plotting capabilities in any processor, although contour plots must be executed when in /POST1, and any time-history plots must be performed while in /POST26.
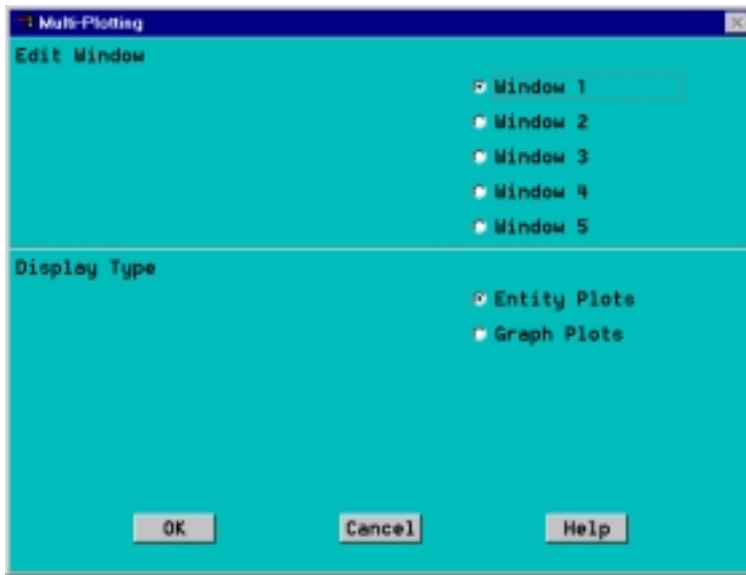
2A. Setting Multi-plot Controls for Individual Windows.

Step 1: Setting the multi-plot settings for individual windows:

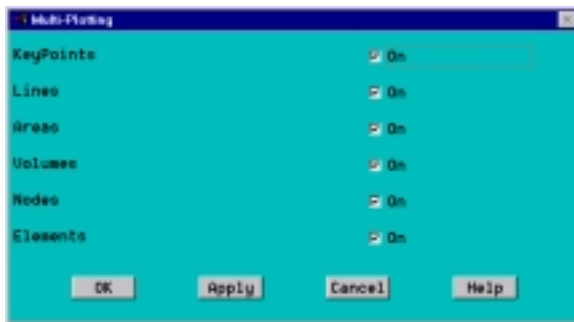Utility Menu> PlotCtrls> Multi-Plot Controls …
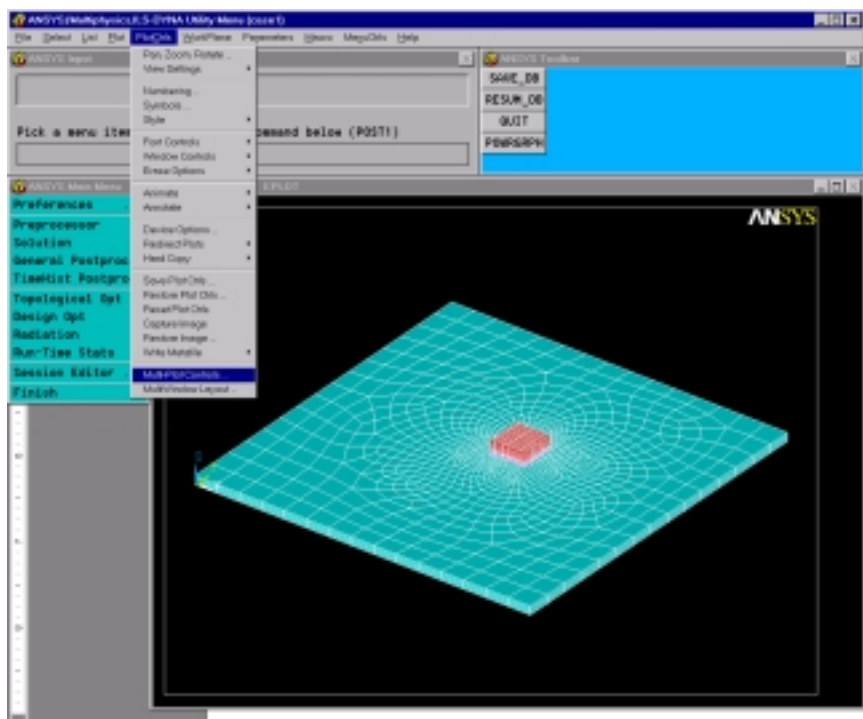
Step 2: Setting the type of display for each window. For now we will discuss 1 window (Window 1), and entity plots.
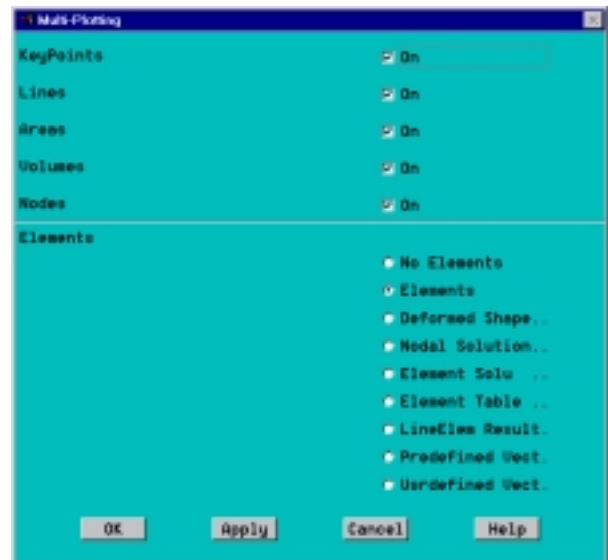

Step 3: Setting which entities to plot in window 1.
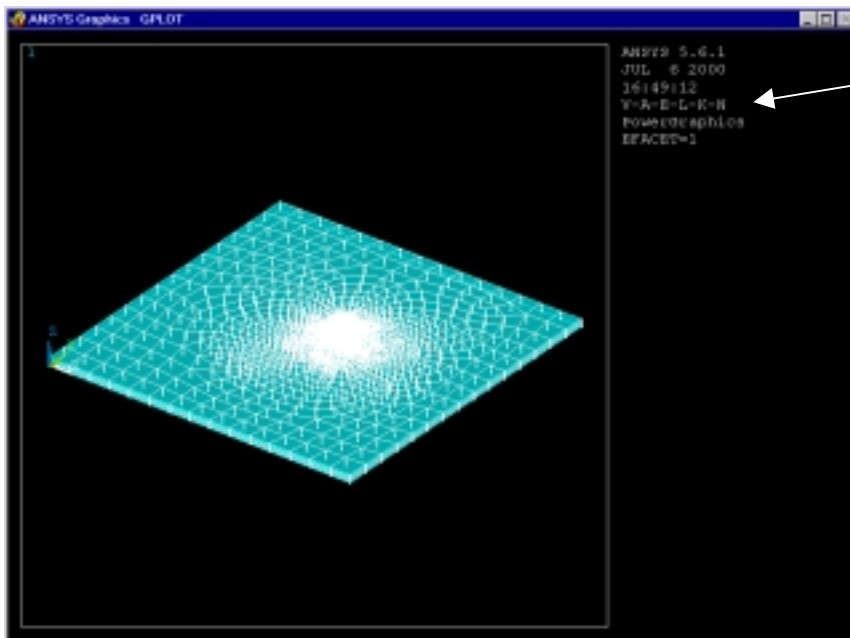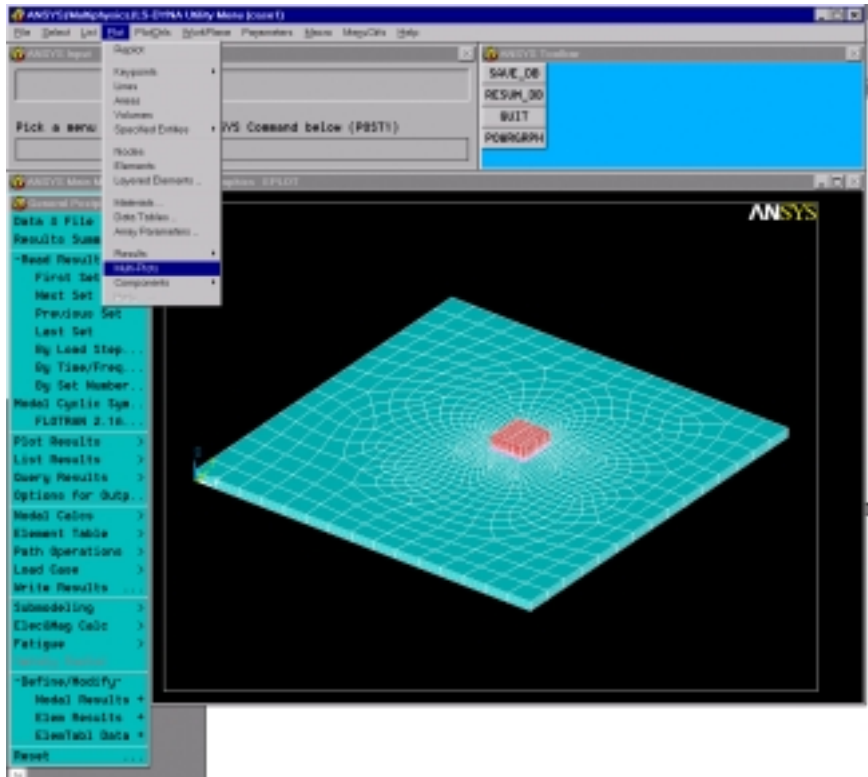
Pre-processor or Solution Processor   General Post-processor

<u>Step 4:</u> Plotting the multi-plot
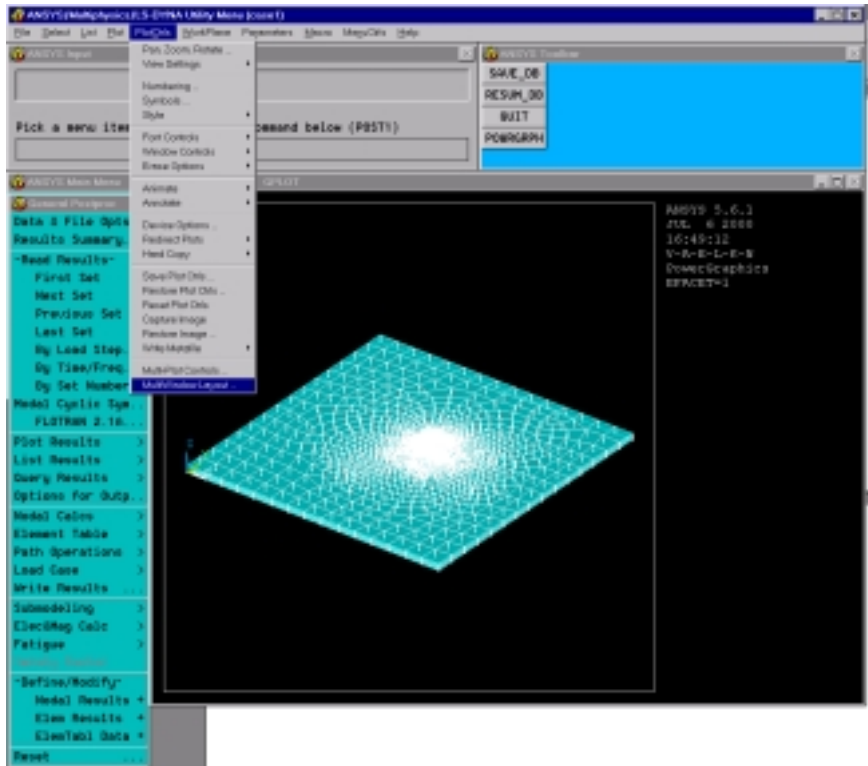
Utility Menu> Plot> Multi-Plot

Note: The legend will give the user feed back about as to what they are plotting. In this case we are plotting Volumes, Areas, Lines, Keypoints, Nodes, and Elements.
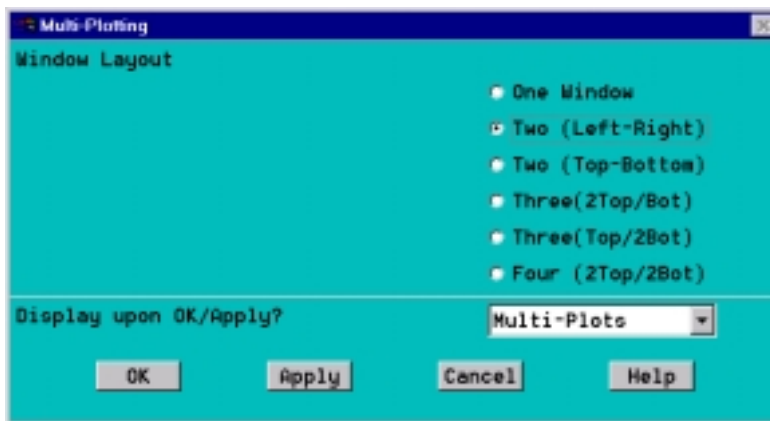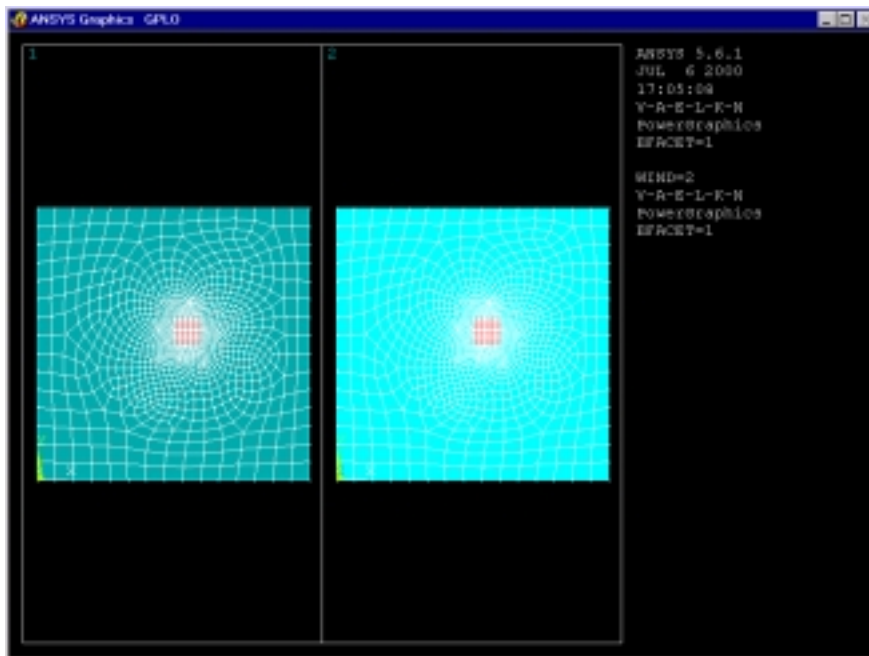
2B: Using Multiple Windows with Multi-Plot

Step1: Setting up multiple windows.
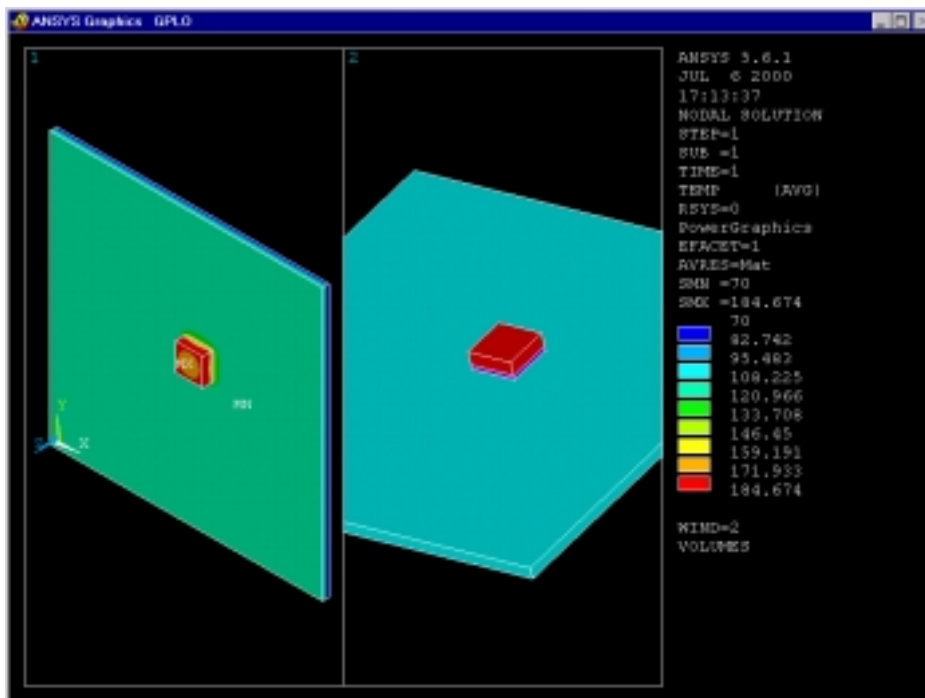
Utility Menu> PlotCntrls>

Step 2: Set how many windows you would like to work with.

Step 3: Use the techniques in section 2A. Setting Multi-plot Controls for Individual Windows. The following is one possible plot configuration.

Window 1 has a temperature plot, and Window 2 has a volume plot with material property numbers turned on.

Note to zoom into Window 2 the Pan-Zoom-Rotate Widget was used.
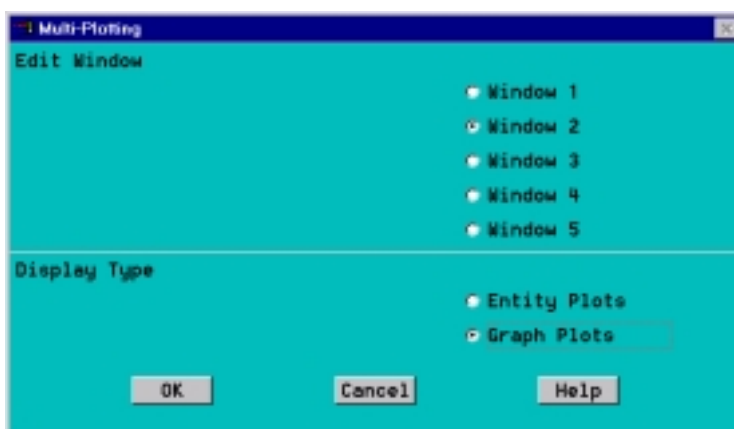
Utility Menu> PlotCtrls> Pan-Zoom-Rotate …
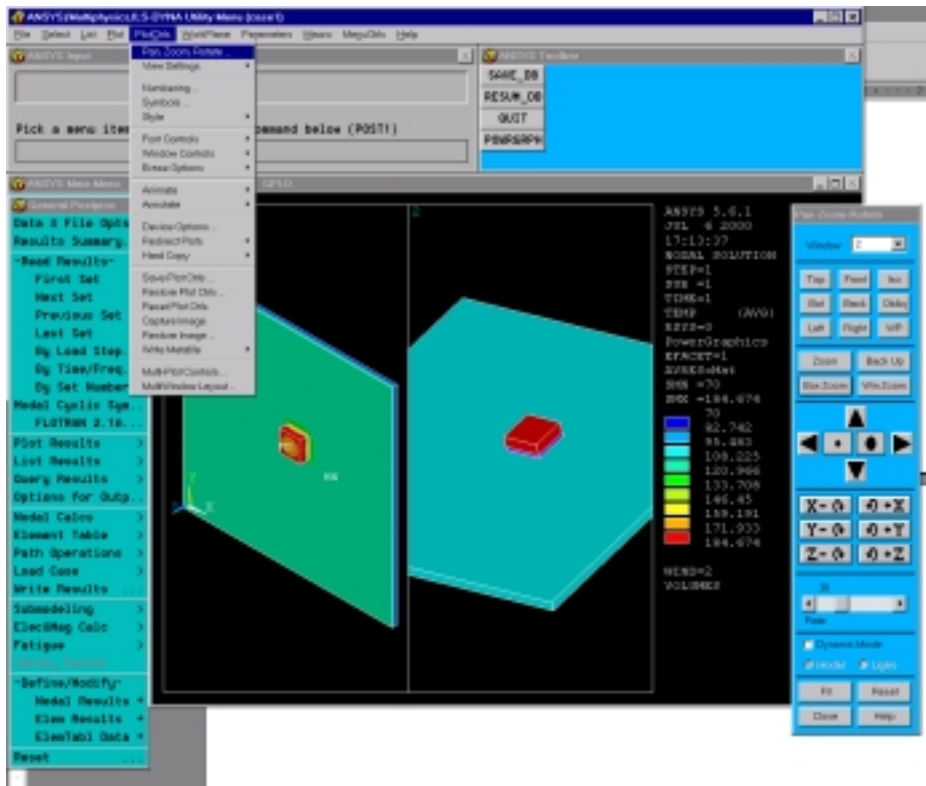
- **Set window setting to the window pan-zoom-rotate**

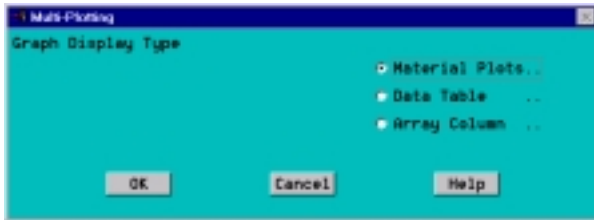- **Change pan-zoom-rotate**

2C: Setting Plots to be Graphs

Step 1: Set the display type to Graph Plots

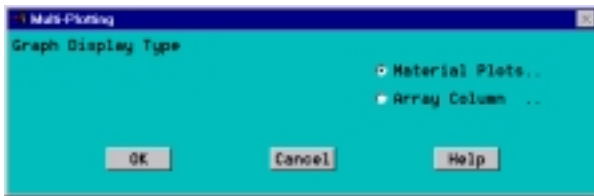Utility Menu> PlotCtrls> Multi-Plot Controls …
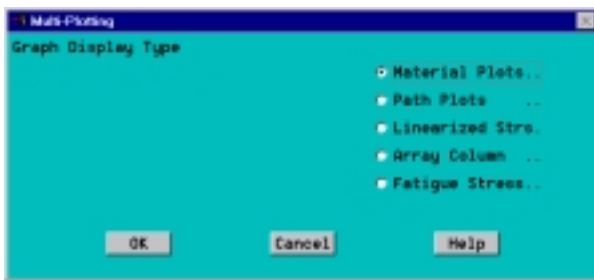
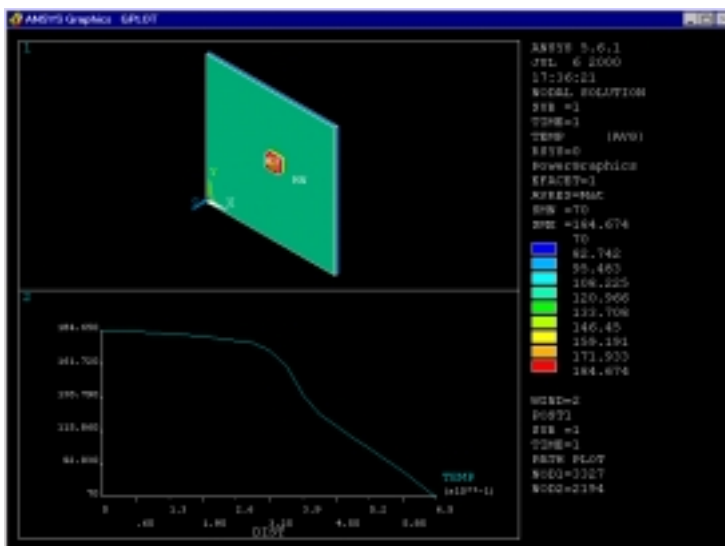Step 2: Set which type of graph you would like plotted

Pre-Processor

Solution Processor

General Post-Processor

Step 3: Plot the Multi-plot. For this example Window 1 is temperatures and Window 2 is a Path plot of temperatures through the chip, solder, and board.

Utility Menu> Plot> Multi-Plot

3. Command Associated with Multi-Plotting

The following command can be used for multi-plotting scripts and macros. Please see the ANSYS on-line help for more information.

/GCMD,WN,lab1,lab2,lab3,lab4,lab5,lab6,lab7,lab8,lab9,lab10,lab11,lab12
Controls (sets) the type of element or graph plots, for a specified window in connection with the ***GPLOT*** command.

/GTYPE,WN,lable,key
Controls (sets) the type of entity plot for a specified window in connection with the ***GPLOT*** command

GPLOT
Generates a plot with the ***/GCMD*** and ***/GTYPE*** settings.

4. Summary

The multi-plotting capabilities in ANSYS can help a user visualize their models and document their analyses better. This memo described how to use multi-plot with multiple windows. Next, this memo showed how to plot entities, graphs, and results quantities in the different windows. Lastly, this memo showed users how to pan-zoom-and rotate in the different windows.

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