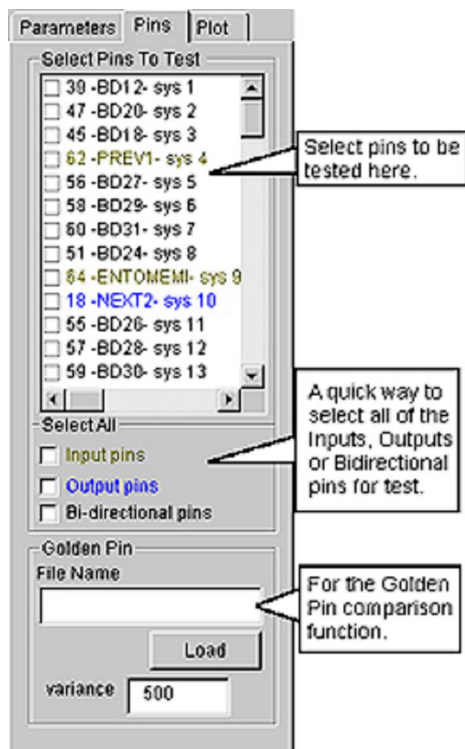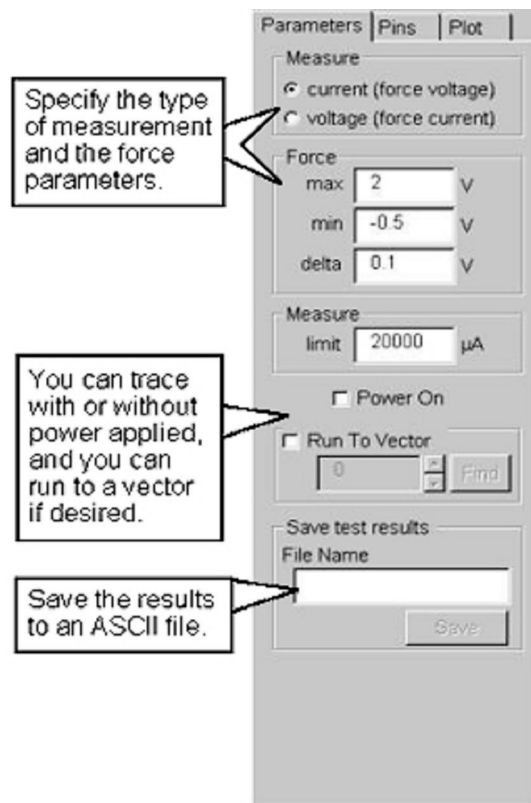# Q: How does the HiLevel Curve Tracer work?

Since you already have a Dut board wired to connect each of your device pins to a tester channel, you perform a Curve Trace measurement with ETS2k. The fundamental principle of curve tracing is to map the relationship of injected input current to measured input voltage (or vice versa) of a target pin, while other pins are either disconnected or connected to ground. The HiLevel Curve Tracer facilitates all of the above with the provision that only one of the other pins will, at a given time, be held to ground (dedicated ground pins are of course held to ground in all cases). However, within the course of the total test, all other pins - one at a time - may be connected to ground. Furthermore, power-pins are usually held to ground unless power (in the Curve Trace Window) is un-checked, in which case all power pins will be physically disconnected during the test(s).

Simply specify the test using the three tabs on the Curve Trace Window (found in the FA sidebar). The easy way to start is with the Pins tab:

Next, set the Parameters for the Force and Run conditions:

Example of some value settings:
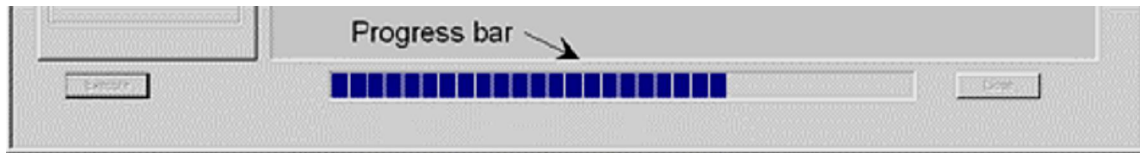Measure mode: force voltage / measure current
Maximum value = 4.1 V
Minimum value = 3 V
Delta value = 0.5 V

Selected Pins will then be tested for three force values: 3, 3.5 and 4 V. Note that minimum and maximum can be positive or negative.

Now you are ready to plot. Hit the Execute button on the Curve Trace window and watch the Progress barí

Progress bar during Curve Trace Execution

The amount of time for the Measurements to complete is a result of how many pins you have selected, and of your measurement resolution ó the Delta you set on the Parameters page. A fine Delta will take longer and more sample points will appear in the plot.
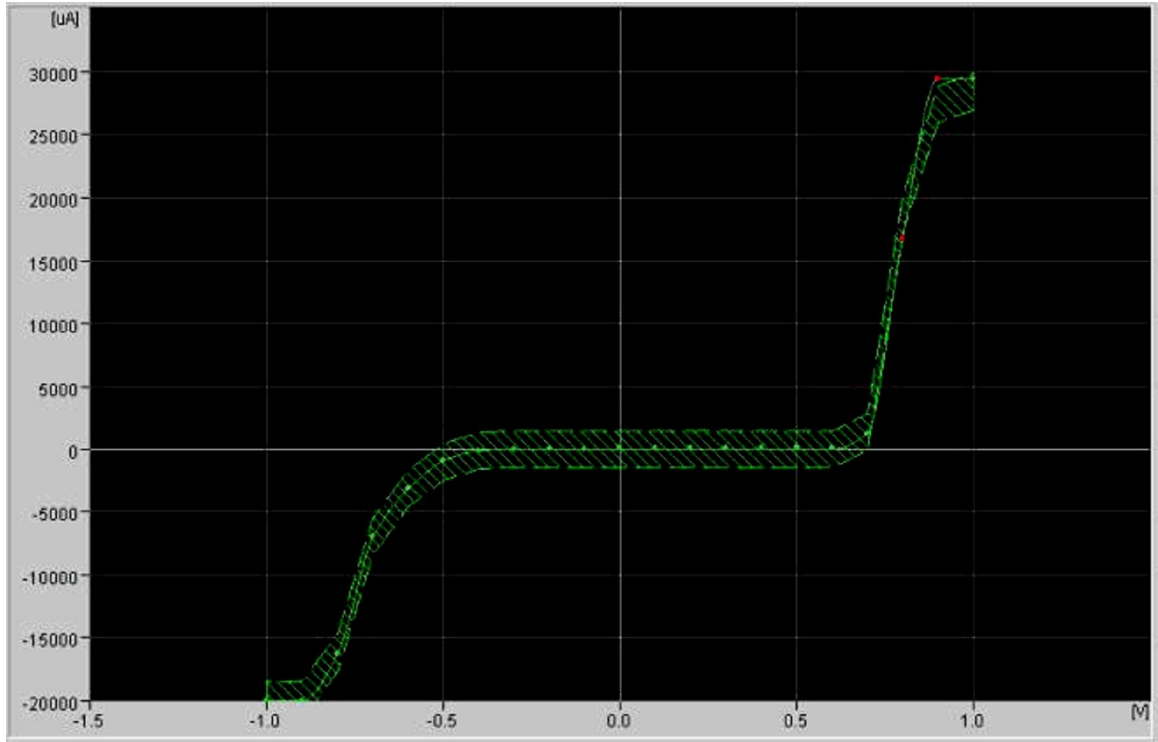
Golden Pin Comparison

The HiLevel Curve Tracer provides for comparing measurements against a known good set of values, referred to as *Golden Pin*. The Load button on the Pins property page enables loading a *result file* as a golden pin. This file will be a curve trace result file that you saved after running a previous plot on a known-good DUT. A Variance edit field is used to specify a range within which the tested pin will be deemed acceptable comparison relative to the golden pin. Hence, measurement values that vary from the golden pin less than õvarianceö will be treated as õgoodö (passing) and others as õbadö (failing). Passing measurements will be marked with green color and failing measurements will be marked with a red dot - measurement outside green area are deemed õbadö. The figure on the last page shows a Golden Pin plot example.

More details about the Curve Trace feature can be found in the Ets2k User Manual.

Golden pin plot Example