

STI User Notes

CURVE TRACER

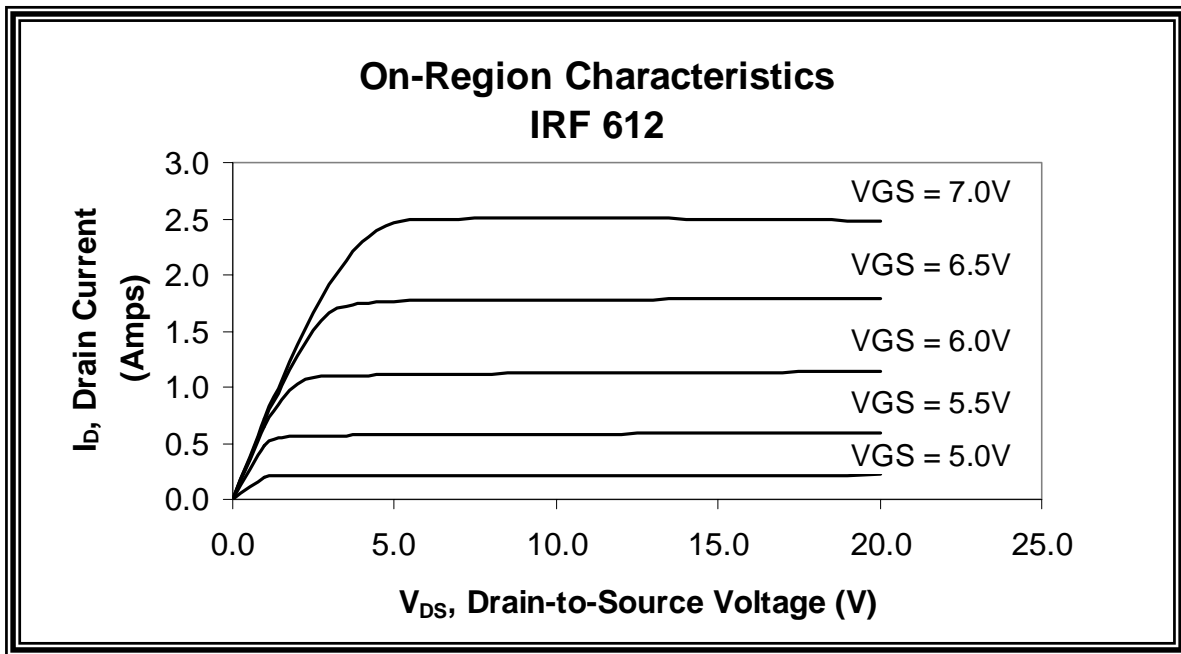


FIG. 1 Sample Curve Trace (Using Excel[®] and data from STI Curve Tracer)

STI offers Curve Tracer capability as an option on Models 5000E and 5300HX Test Systems. Above is shown a curve of an IRF612 MOSFET generated on a Model 5000E Test System and formatted using Microsoft Excel[®]. The curve shows I_D versus V_{DS} as a function of V_{GS} .

See the Curve Tracer Programming screen below. The Y-Axis parameter is the dependent variable. Its maximum limit is programmable in the Curve Tracer setup screen. In the above example the maximum I_D was set to 3 amps (all data points at higher V_{DS} values after the maximum I_D is obtained are not run to avoid damage to the device). The X-Axis increments are programmable in two gradations to allow for more data points in the area of interest. In the above example the V_{DS} is programmed in 0.5 volt increments from 1 to 4 volts and then in 1 volt increments from 4 to 20 volts. Likewise, the V_{GS} can be programmed in two gradations. In the above example to V_{GS} is programmed in 0.5 volt increments for the entire 5 to 7 volt range.

Limits can be set to any value up to the maximum ratings of the STI 5000 Series Test System (1KV standard, 2KV optional; 50A standard, up to 1200A optional).

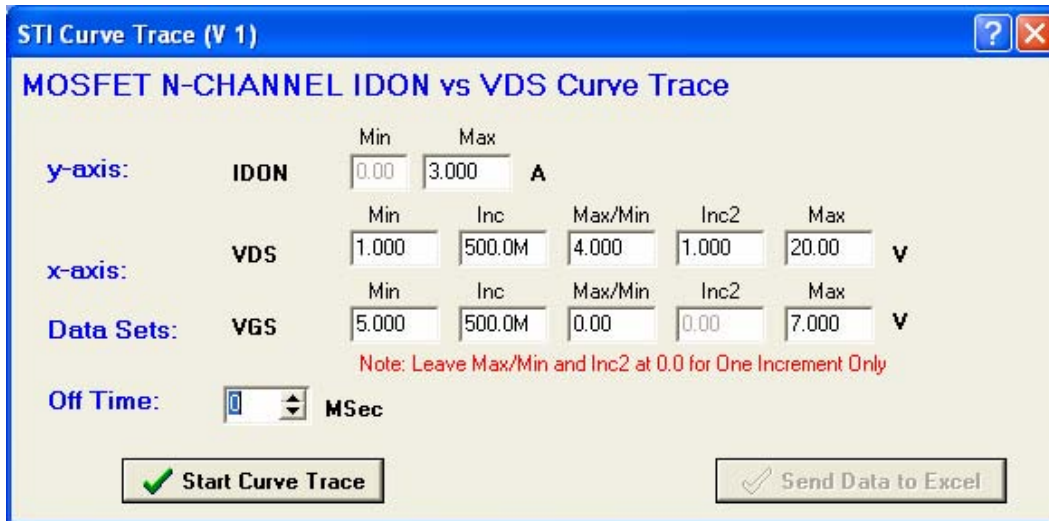


Fig. 2 Curve Tracer Programming Screen

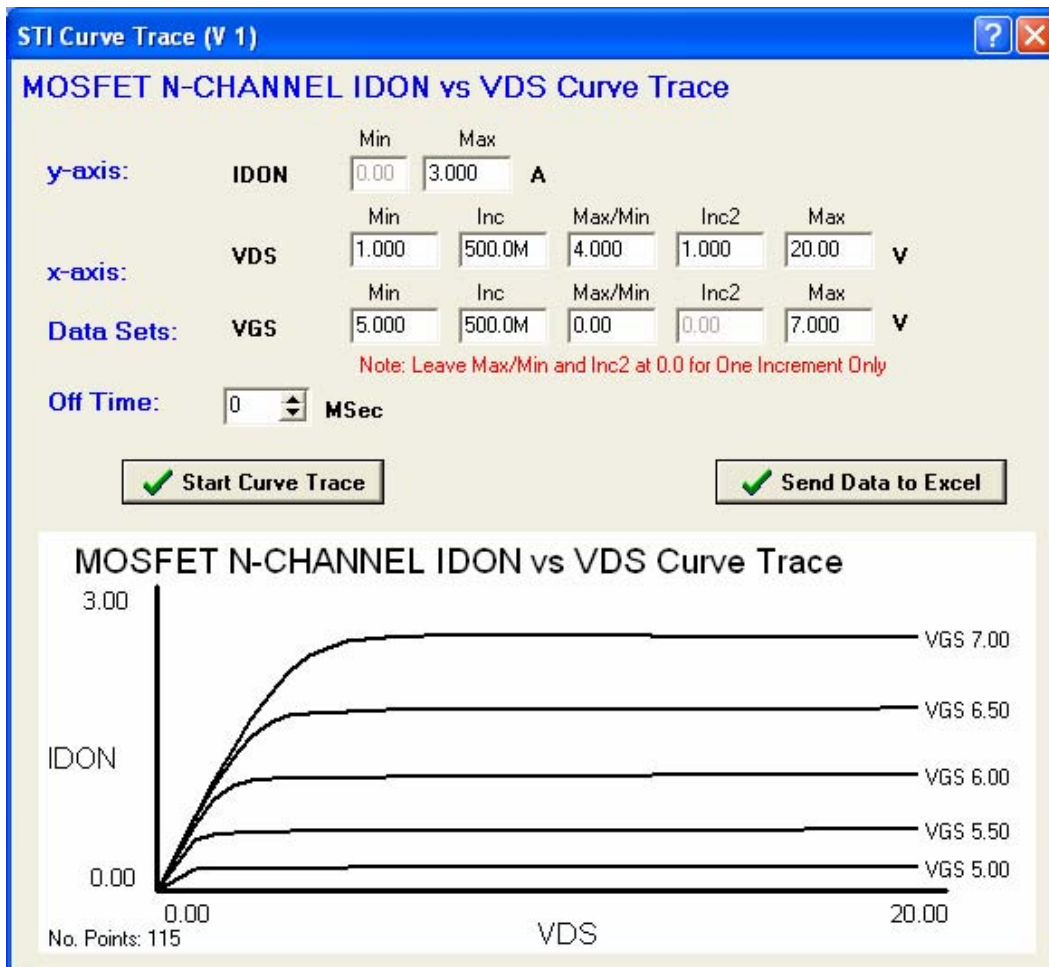


Fig. 3 Curve Tracer Screen after running Curve Trace

Data can be sent directly to Excel® once the "Send Data to Excel" button is enabled.

Curves Available using the STI 5000 Series Tester	
Device Family	Curve Description
MOSFET	ID vs. VDS @ range of VGS
MOSFET	ID vs. VGS @ fixed VDS
MOSFET	RDS(ON) vs. ID @ range of VGS
MOSFET	IS vs. VSD (can be logarithmic)
MOSFET	RDS(ON) vs. VGS @ fixed ID
MOSFET	IDSS vs. VDS
Transistor	VCESAT vs. IC @ fixed IC/IB (can be logarithmic)
Transistor	hFE vs. IC @ range of VCE (can be logarithmic)
Transistor	VBESAT vs. IC @ fixed IC/IB (can be logarithmic)
Transistor	VCE vs. IB @ range of IC (can be logarithmic)
Transistor	VBEON vs. IC @ fixed VCE (can be logarithmic)
Diode	IF vs. VF (can be logarithmic)
Diode	IR vs. VR (can be logarithmic)
ZENER	IZ vs. VS (can be logarithmic)
ZENER	IF vs. VF (can be logarithmic)
TRIAC	IT vs. VT
SSOVP	IT vs. VT
SCR	IT vs. VT
SIDAC	IT vs. VT
IGBT	ICE vs. VCE @ range of VGE
IGBT	ICE vs. VGE @ fixed VCE
IGBT	VCE vs. ICE @ fixed VGE
IGBT	VCE vs. VGE @ fixed IC
J-FET	IDS vs. VDS
J-FET	ID vs. VGS