



# Versametrics Dart 1

## Overview

The Versametrics Dart 1 is a portable electronic device characterization platform capable of providing real-time measurements from up to 64 simultaneously connected devices or sensors. The Dart 1 is designed to enable higher throughput testing of many devices as well as improved extended-duration device testing, all in one easy-to-use, versatile platform. Beyond performing high-quality, automated electrical characterization, the Dart 1 offers versatility in measurement conditions through several add-on modules.



## Use Cases

Rapidly testing 64 transistors on a silicon chip.

Capturing a reading from a biosensor on a portable system that can be taken to the clinic.

Long-duration testing of unstable devices to observe degradation over days/weeks.

Characterizing electrical devices *in situ* while probing in an Atomic Force Microscope.

Monitoring reaction rate of an electrochemical cell.

Continuously tracking portable sensors.

## Features

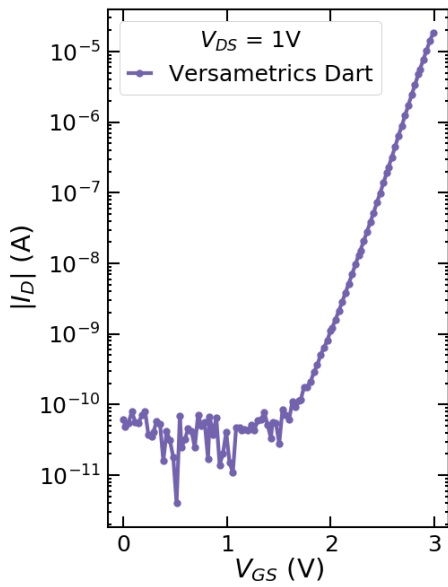
- 64 Selectable Device Pins
- 2- and 3-Terminal Modes
- Software Control & Data Logging
- USB Connectivity
- Bluetooth Add-on Support
- Extendable Modular Accessories

## Applications

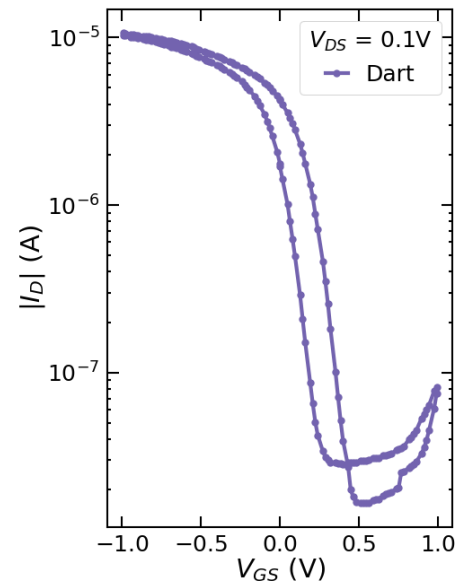
- Solid-state Devices & Sensors
- Biosensors
- In-the-Field Characterization
- *In Situ* Measurements
- High-throughput Device Testing
- Extended-duration Testing

## Technical Specifications

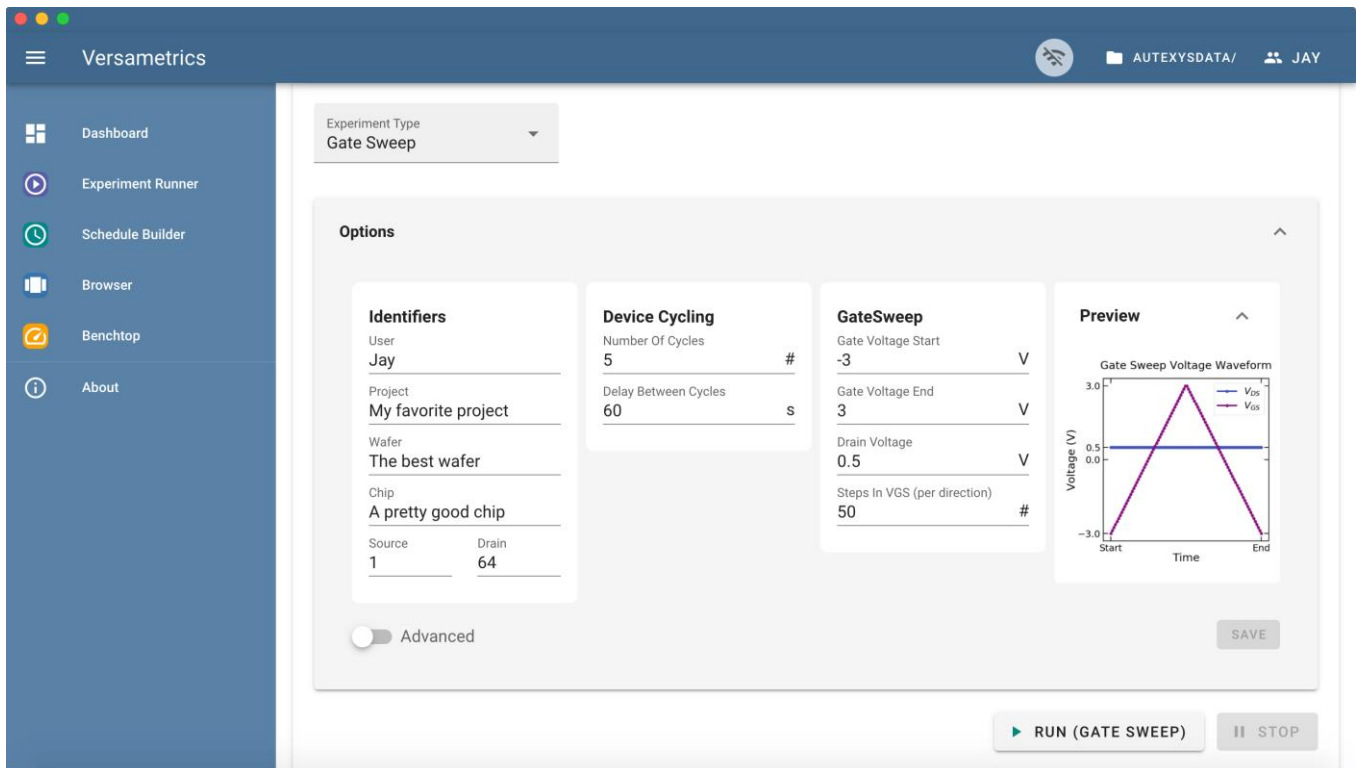
- 5 V USB Power Supply
- +/- 4.0 V Output Voltage Range
- 16 mV Output Voltage Resolution
- 100  $\mu$ A Maximum Current
- 100 pA Noise Floor
- $10^6$  Signal Current Dynamic Range
- 2 Programmable Signal Channels (Source & Drain)
- 1 Fixed Signal Channel (Gate)



**Figure 1.** Wide dynamic range and  $10^{-10}$  A noise floor demonstrated by testing a IRF730 silicon MOSFET.



**Figure 2.** Research-readiness demonstrated by characterization of a research-grade printed carbon nanotube transistor.



**Figure 3.** An example experimental procedure created in the Versametrics software that controls the *Dart* platform.