

UIS Avalanche Testing for MOSFET, GaN & SiC

UIS Features

Programmable current trip capability from 1A to 200A

Charge voltage can be greater than BVDS of DUT for fast charging

Over-current and over-voltage protection

Energy cut-off mode

Fast go/no-no production mode

Compatible with MOSFET and Diodes

Key Specs

Up to 2.3kV and 200A

Programmable load inductors from 12.5 μ H to 25mH

- Expandable to 187mH

12 bit, 25ns resolution dual channel waveform capture

Principal Tests

IAR Avalanche Current

EAS Single Pulse Avalanche Energy

EAR Repetitive Pulse Avalanche Energy

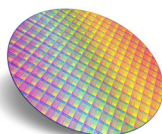
Avalanche can occur in MOSFETs during inductive load switching. The large currents being generated cause high temperatures within the device and can lead to device destruction.

UIS Test Generator

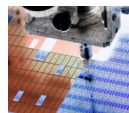
Today's high speed devices lead to higher stresses than were encountered in slower, previous generation devices. Even a small parasitic inductance can cause an over-voltage stress due to the very high-current switching speeds in fast MOSFETs and wide bandgap devices.

Although these conditions are outside the datasheet specification, designers prefer to use repetitive avalanche proof devices rather than moving to larger, more expensive devices with a higher voltage rating.

The ipTEST Unclamped Inductive Switching (UIS) test generator is able to perform UIS tests to confirm the ability of MOSFET devices to withstand avalanche events. An energy cut-off mode terminates the avalanche test when the programmed avalanche energy is reached.



Wafer



Die



Discrete



Module

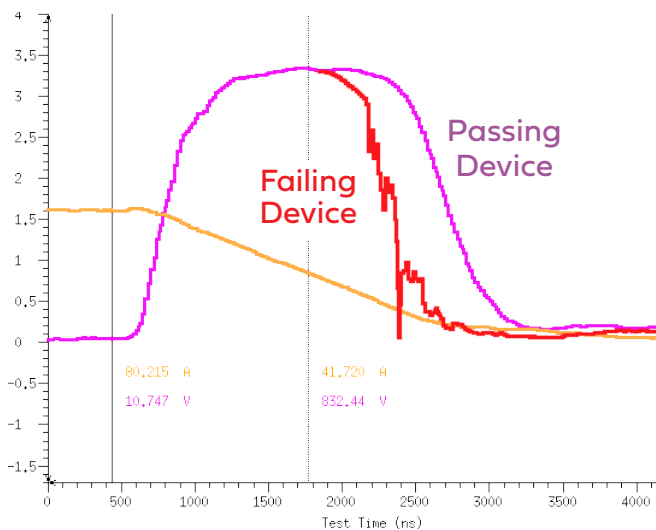
The fastest power discrete semiconductor testers in the world

ipTEST UIS Avalanche Test Generator

Advanced Waveform Capture

On the M2 systems it is possible to look at a waveform for each test. This allows engineers to qualify a test procedure before running a batch in production. The waveform capture is a powerful tool for assisting engineers in developing the test procedures in the fastest time possible.

Captured waveforms can be saved so that they can be viewed and analysed offline using the interactive ipView tools on Linux or Windows platforms.



The UIS test waveform shown here shows the result of a passing test and a failing test, overlaid.

The test plan allows measurements to be calculated from the waveform after it is captured, compared to limits and stored in the datalog. For UIS, the test plan can capture the energy in the UIS waveform.

Your Testing Partner

We specialize in high-speed production-line testers. We design, manufacture and test our systems from the ground up so our technology delivers the highest test speed and productivity.

At ipTEST we focus all our efforts on delivering world class power semiconductor testers. We have over 35 years experience in the industry and have the widest device and test coverage.



ipTEST Mostrak M2 Test System

The UIS test generator is part of the Mostrak M2 test system. The fastest and most productive power discrete semiconductor testers on the market.

High Voltage
Off-state tests

Low Voltage
On-state tests

Dynamic
Switching tests

Avalanche
UIS tests

Gate Resistance
& Capacitance

Thermal
Die-Attach tests



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