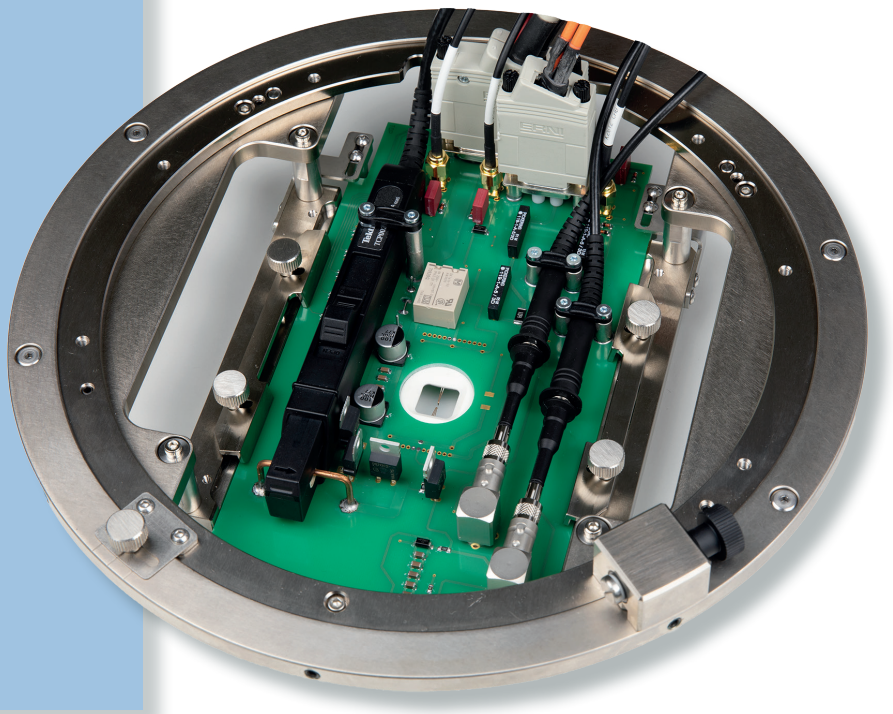
atv
AutomatisierungsTechnik Voigt GmbH

Ultra Fast Dynamic RDS$_{(ON)}$ TEST

Characterization system for GaN-devices

FEATURES & BENEFITS

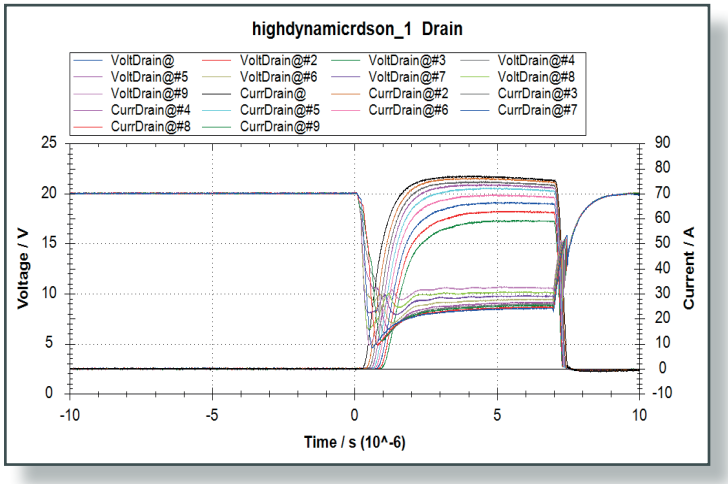
- Off-state up to 1.8 kV on request
- On-state 100 A
- 100 ns sampling time resolution
- Integrated wafer test solution for MPI TS2000-HP & TS3000-HP
- Active probe card
- Gate pulse length 1-100 µs
- Unipolar n-channel or p-channel
- Output characteristic
- Transfer characteristic

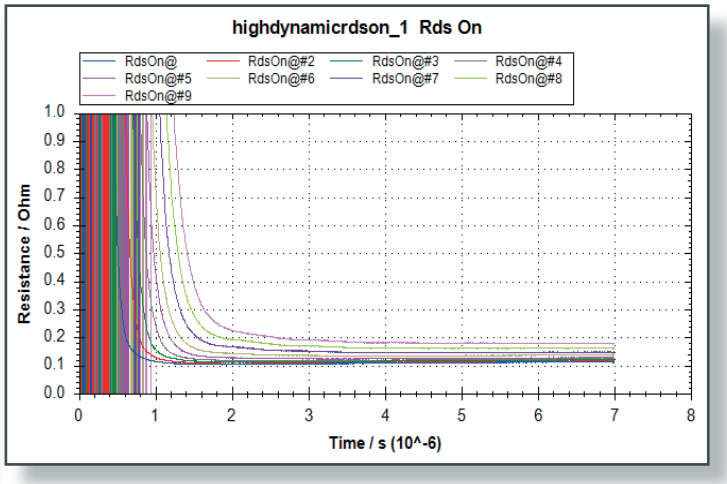


The Ultra Fast Dynamic RDS(on) test is designed for characterization of GaN transistors. A critical requirement in power electronics is obtaining a very low ON resistance (RON) immediately after switching from a high-voltage OFF state to a low-voltage ON state.

The Ultra Fast Dynamic RDS(on) test is able to measure the RDS(on) immediately after switching between OFF state and ON state. The first RDS(on) value is generated after approx. 1 µs. The system is designed for currents up to 100 A (pulsed) and voltages up to 1 kV. Due to the special design of the probecard it is possible to measure further parameters (leakage, and others).

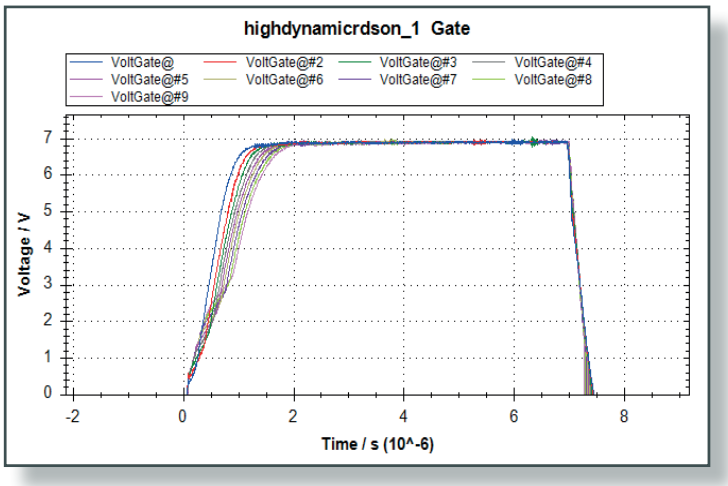
RDS(on) Switching Characteristics





Gate on time:	7 µs
Drain voltage off-state:	50...450 V

- IDrain, VDrain for RDS (on)



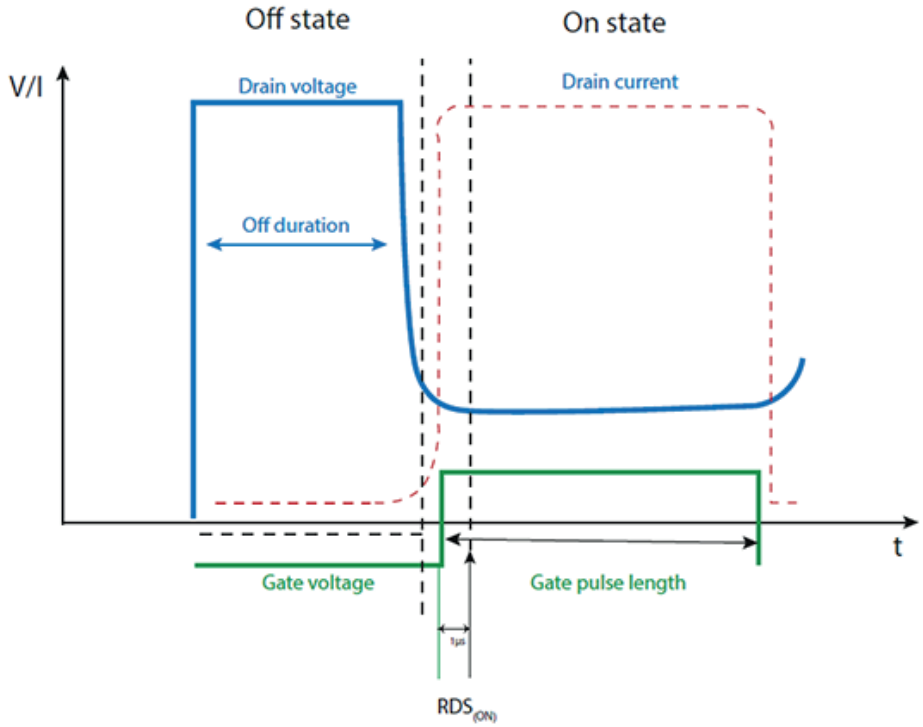
- Shows the gate pulse shape depend on drain voltage off-state

Off state parameters

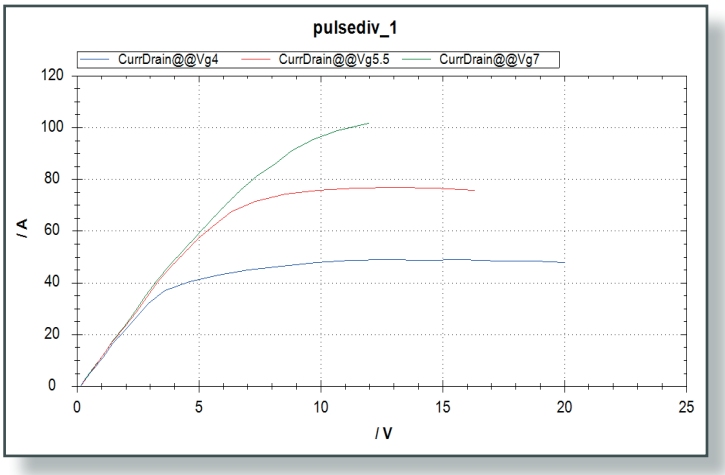
Drain voltage: 0...1000 V	I_D leakage
Off duration	RDS(on) 100 µs x [n] @ 1 kV max.
On duration	1...100 µs, 10...100 A
Gate voltage @ Off ± 10 V	RDS(on)

On state parameters

Gate pulse length: 1...100 µs	Drain voltage: 80 mV resolution
Gate pulse voltage: 0 ± 10 V	Drain current: 100 A max.
First RDS(on): 1 µs	RDS(on) settling 1 µs @ 100 A 500 ns @ 10 A



Output Characteristics



PIV

ID:	up to 100 A pulsed @ 2 µs pulse width up to 10 A pulsed @ 1 µs pulse width

DC Pulse

ID:	50 A (100 A) pulsed 400 µs
Vds:	± 40 V

DC

ID:	20 A
Vds:	± 5 V

System & Software Setup

Measmatic

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