Leading the Way for High-Voltage Transistor Characterization for Power Electronics

- High voltage / high power capability – 1200 V, 100 A, 5000 W
- Dynamic on-resistance accuracy – optimized for 10 mΩ or less
- Unsurpassed current resolution – less than 0.01% of maximum current
- Short pulses and fast rise/fall times – supports isothermal through self-heating testing

The PHD3100 supports the industry’s most advanced high-powered devices. Leveraging recent breakthroughs in component and pulser-circuit technology provides unparalleled speed, accuracy, and resolution. Dynamic on-resistance of the latest transistors can now be measured with precision.

The PHD3100 operates with the AU4850 Pulsed IV/RF Characterization System; this compact and versatile test solution accurately simulates real life and delivers unparalleled performance, capturing measurements with incredible accuracy and speed.

Preliminary Specifications

<table>
<thead>
<tr>
<th>Parameter:</th>
<th>BETA Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Voltage</td>
<td>1200 V</td>
</tr>
<tr>
<td>Max Current Pulsed</td>
<td>100.0 A</td>
</tr>
<tr>
<td>Max Current DC</td>
<td>1.25 A</td>
</tr>
<tr>
<td>Typical Error</td>
<td>0.01% of max current</td>
</tr>
<tr>
<td>Max Power</td>
<td>&gt; 5000 W</td>
</tr>
<tr>
<td>Min Pulse Width</td>
<td>&lt; 500 ns</td>
</tr>
<tr>
<td>Max Pulse Width</td>
<td>1000 µs</td>
</tr>
<tr>
<td>Current Resolution</td>
<td>0.01% of max current</td>
</tr>
<tr>
<td>Voltage Resolution</td>
<td>15 bits</td>
</tr>
<tr>
<td>Max Pulse Repetition Frequency (PRF)</td>
<td>28 KHz</td>
</tr>
</tbody>
</table>

Gallium Nitride (GaN)
Silicon Carbide (SiC)
Graphene
LDMOS

Application Areas
- Aerospace and defense
- Automotive and transportation
- Battery, energy, and smart grid
- Communication
- Computer and peripherals
- Consumer appliances
- Displays and video products
- Industrial
- LED and general lighting
- Medical
- Motor control
- Power systems
Voltage and Current Measurements

Output Voltage Versus Time – Rising Edge

Output Voltage Versus Time – Falling Edge

Pulsed IV Plot (Top) and Resulting $R_{on}$ of 0.1 Ω SiC Device (Bottom)

Pulsed IV Plot (Top) and Resulting $R_{on}$ Device with Soft Knee Region (Bottom)

Pulsed IV Plot (Top) and Zoomed-in View of Bottom 1 A (Bottom)