IT2705 Modular DC Power Analyzer

– Revolutionizing Test Solutions for DC-DC Converters and Power Management Chips

Background

Power management ICs (PMICs) and DC-DC converters serve as the 'energy hub' of electronic systems, responsible for power conversion, distribution, monitoring, and management. They deliver precise voltages to various loads, enable efficient charging, and enhance overall system performance. With the rapid growth of industries such as 5G communications, electric vehicles, AI servers, and consumer electronics, these devices are continuously evolving toward miniaturization, lower power consumption, higher efficiency, greater integration, and enhanced safety.

Testing Requirements and Challenges

Key performance testing for DC-DC converter include:

- **DC parameters**: conversion efficiency, load regulation, line regulation, quiescent current, etc.
- **Dynamic response**: voltage stability under load transients, startup characteristics, and more.

Traditional testing typically requires multiple instruments working together, such as a digital multimeter (DMM), power supply, electronic load, oscilloscope, and arbitrary waveform generator. This setup not only results in complex wiring but also causes data acquisition to be unsynchronized across devices, making it difficult to

capture transient details accurately. The testing workflow is cumbersome and inefficient.

Ideally, by integrating the functions of multiple instruments into a unified platform with built-in waveform analysis and data logging, it becomes possible to simplify the test architecture, reduce footprint, improve data synchronization, and achieve one-stop testing of DC-DC converters and power management ICs—from power supply and load conditions to waveform analysis.

IT2705 – Redefining Future-Ready Integrated Power Testing

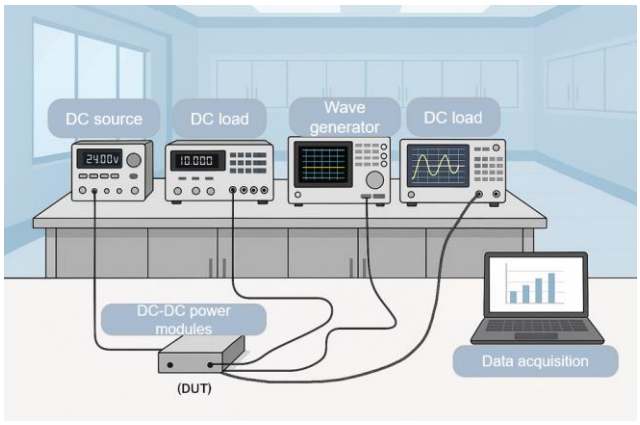

fig1- traditional

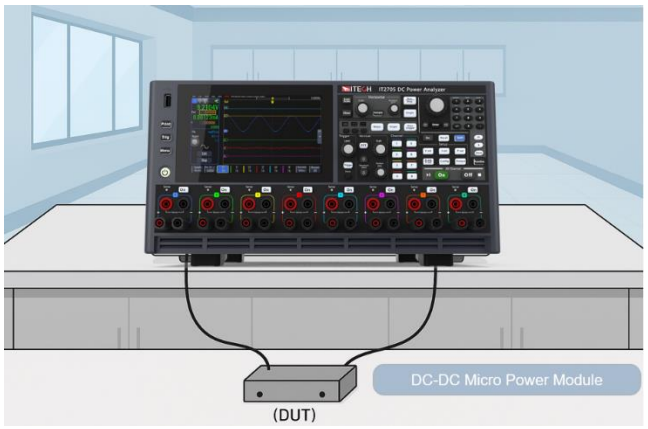

fig 2- with IT2705

Highlights of IT2705 DC Power Analyzer

1. Modular and Flexible Configuration

The IT2705 is an 8-slot modular power analyzer, supporting DC power supplies, regenerative electronic loads, bidirectional DC power supplies, and SMU source meters (4 categories, 20 models, covering 20 W to 500 W per module). Modules of the same type can be paralleled in master-slave mode to expand power, maximizing equipment utilization and broadening the test range.

2. Fully Integrated Test Ecosystem – One-Stop Workflow

The IT2705 replaces the traditional "multi-instrument setup" with an all-in-one platform, integrating powerful waveform editing and simulation capabilities to enable complex condition testing. With the IT2705, you gain every tool essential for a complete test ecosystem: **source + load + SMU + oscilloscope + data recorder + arbitrary waveform generator + battery simulator + battery tester**.

3. High-Speed, High-Precision SMU

The IT27814 four-quadrant SMU module offers a minimum current range of ±10 µA with resolution up to 6 µV/100 pA.

- Four current ranges with seamless auto-ranging enable accurate analysis of transient current changes from low-power sleep mode to active operation.
- Oscilloscope sampling rate up to 200 kHz ensures precise capture of microsecond-level parameter variations.

With its multi-function integration, flexible scalability, high-speed measurement, and advanced battery simulation capabilities, the IT2705 delivers an efficient, precise, and future-ready solution for testing DC-DC converters and power management ICs. Whether for efficiency verification, power consumption analysis, or dynamic characteristic evaluation, the IT2705 makes testing simpler and more reliable.

🎥 **Watch the IT2705 in action as it performs a complete real-world test of a DC-DC device!**

https://youtu.be/h7zIe6Iq9_c