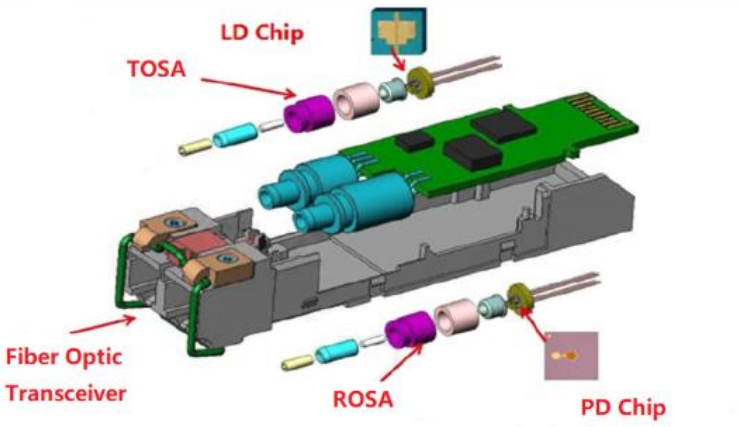
Optical modules are a core component of modern communication technology, widely used in data centers, 5G networks, and optical fiber communications. Optical modules typically consist of optical transmitting components, optical receiving components, laser diode chips (LD), photodetector chips (PD), and other parts. To ensure these devices operate normally under the requirements of high performance, high speed, and high stability, the accuracy and reliability of testing equipment are crucial. ITECH's IT2800 series Graphical Source Measure Unit, with their high precision, high resolution, and high-speed pulse scanning advantages, provide an excellent solution for testing optical modules and their core optoelectronic chips.

For a standard laser chip test, the core test parameters of its LIV characteristics include:

1. IV Characteristics – Apply a positive drive current to both ends of the laser chip (for example, from 1mA to 100mA with a step of 1mA) and scan to obtain the IV characteristic curve.
2. Optical Power Test – Measure the emitted optical power of the laser chip under each current step.
3. Dark Current Test – Measure the reverse current (dark current) of the LD (Laser Diode) at each current step. The current is usually in the mA, μA, or even smaller range.

Some manufacturers perform both LIV testing and spectral analysis in the same test to simplify the process. Of course, in addition to LIV testing, laser chips also need to undergo reliability testing, such as verifying their performance stability under different temperature and humidity conditions.

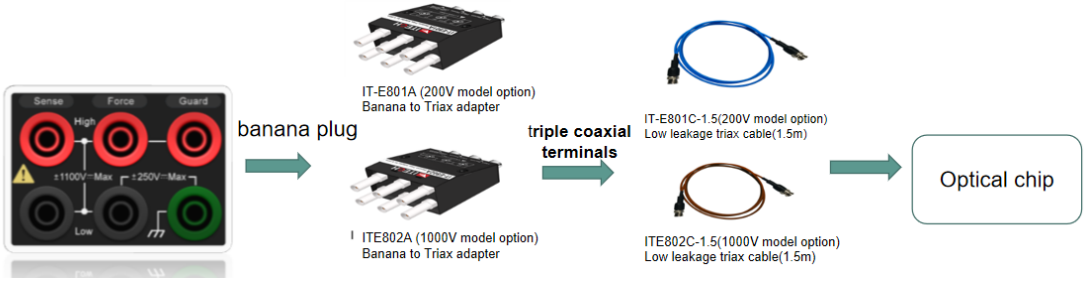


IT2800 series Source Measure Unit provides precise solutions for testing the LIV characteristics of laser chips.

The IT2800 series source measure unit integrates six device functions into one unit: voltage source, current source, DVM, electronic load, battery simulator, and pulse generator. It offers both DC and pulse output modes, meeting the diverse needs of optical module production and high-precision optical chip testing.

1. High-Precision Measurement – Dark Current Testing of Laser Chips

In dark current measurement, the IT2800 series offers current resolution as high as 100nV/10fA, enabling precise capture of weak current signals and providing important data for evaluating the performance of optical chips. Additionally, to significantly enhance the stability of measurements for weak currents in the nA to pA range, the IT2800 series offers professional accessories such as high-shielded, three-coaxial cables, addressing common issues where weak current signals are disturbed by external interference, leading to significant measurement deviations.

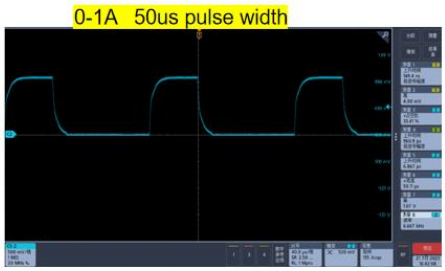


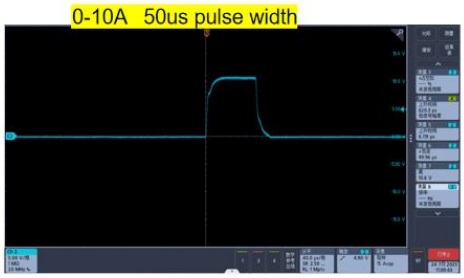
2.DC and Pulse Scanning Output Modes – LIV Characteristic Testing of Laser Chips

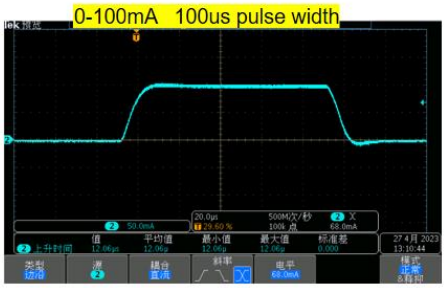
The IT2800 series provides precise constant current output to drive the laser chip and simultaneously measures the optical power output of the chip, helping users perform optoelectronic conversion efficiency testing. Additionally, the IT2800 series offers various scanning modes, such as Linear/Log/Pulsed Linear/Pulsed Log, allowing users to quickly generate the IV characteristic curve of the laser chip through the built-in scanning function, thereby improving testing efficiency.

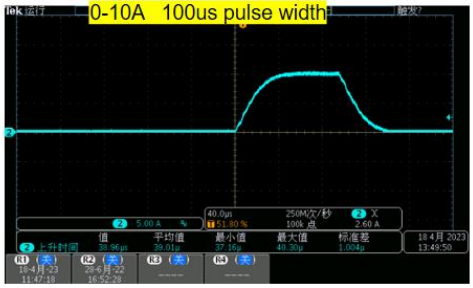
Advantage 1: The IT2800 series features a large display, allowing for direct testing and output of IV tests, making the process efficient and convenient.

Advantage 2: High-speed pulse output without overshoot









Summary

Optical modules and optical chips are the cornerstone of modern communication technologies, and the accuracy and reliability of their testing determine the performance of terminal devices. ITECH's IT2800 series source measure unit, with its high precision, multi-functional design, and efficient measurement solutions, provides comprehensive support for testing optical modules and optical chips, helping customers improve product quality and accelerate the research and development process.

If you are interested in the applications of the IT2800 series source measure unit in the field of optical communication, please feel free to contact us for more technical information and solutions.

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