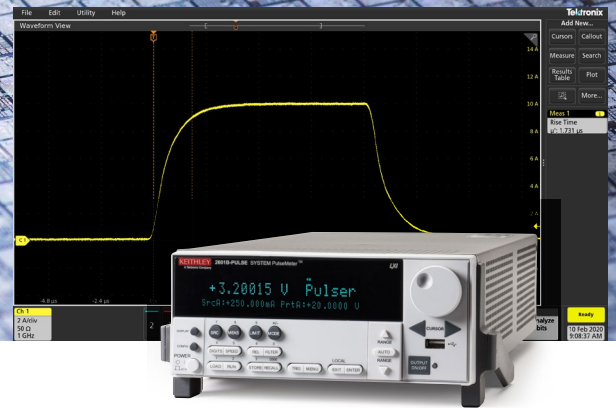


Case Study

Overcoming Source Measurement Obstacles MPI Corporation



THE CUSTOMER CHALLENGE

Headquartered in Taiwan, [MPI Corporation](#) produces a wide range of technology products ranging from probe cards and production LED/Photonics test equipment to advanced semiconductor test equipment and eco-minded thermal products. Developing these innovative technologies requires reliable, cutting-edge test equipment to validate, troubleshoot and optimize designs for their customer's demanding applications.

With VCSEL applications being a key focus market, MPI needed a source measurement unit (SMU) that was well-suited for a variety of testing applications (see below). Tektronix's innovative and efficient SMU product has enabled MPI to provide ideal solutions for their customers.

Vertical Cavity Surface Emitting Laser (VCSEL) Testing

Known to be temperature-sensitive, VCSEL emission spectra are altered by the temperature dependence of the refractive index and the thermal expansion of the resonator material. This leads to varying power curves and optical uniformity. VCSEL testing requires precise current control to avoid damage to both the DUT and probe.

Light Intensity-Current-Voltage (LIV) Testing

Typical SMU designs can only deliver longer pulses ($>100 \mu\text{s}$) and require multiple instruments to measure LIV electrical test parameters (I_f , V_f , V_r , I_{Leakage} , $V_{\text{Breakdown}}$).

Laser Diode (LD) Testing

When outputting current pulses, cabling and inductance can be problematic for laser diode testing. Because inductance resists current variations, the current source may overcompensate the output voltage, resulting in overshoot and ringing as the pulse settles.



“The 2601B-PULSE one-box unit gives exactly what our customers need for measuring high current output, low current sensitivity and short pulse solutions with significantly less damage to both DUTs and probe tips.”

– Hector Lin, Product Development Manager

THE SOLUTION

Tektronix's 2601B-Pulse SMU has helped MPI streamline its product development by addressing these challenges with a handful of key features.

- Combining the capabilities of multiple instruments like voltage sources, DMMs, and switches into one reliable device means less time building and tuning complex setups and more time making real progress on product development.
- The 2601B-Pulse control loop system constantly adjusts the output for load changes, minimizing overshoot or ringing when outputting a pulse from 10 μ s to 500 μ s up to 10 amps.
- PulseMeter™ Technology minimizes the risk of damaging VCSELs and burning out probing equipment.
- Dual 1 MS/s digitizers enable capturing the source output and measurement simultaneously making it easier to review test results quickly without the need for a separate instrument.
- TSP-Link™ technology together with TSP™ technology enables high-speed, SMU-per-pin parallel testing and low-latency communication. This makes testing multi-zone VCSELs in parallel and improving throughput much more accessible.

ABOUT MPI CORPORATION

For more information about MPI corporation and to learn more about their probe cards, Photonics test & measurement equipment, advanced semiconductor test equipment and eco-minded thermal products, please visit their website: mpi-corporation.com

MPI CORPORATION



MPI wafer/chip prober. Image courtesy of MPI™.

Contact Information:

- Australia** 1 800 709 465
- Austria*** 00800 2255 4835
- Balkans, Israel, South Africa and other ISE Countries** +41 52 675 3777
- Belgium*** 00800 2255 4835
- Brazil** +55 (11) 3759 7627
- Canada** 1 800 833 9200
- Central East Europe / Baltics** +41 52 675 3777
- Central Europe / Greece** +41 52 675 3777
- Denmark** +45 80 88 1401
- Finland** +41 52 675 3777
- France*** 00800 2255 4835
- Germany*** 00800 2255 4835
- Hong Kong** 400 820 5835
- India** 000 800 650 1835
- Indonesia** 007 803 601 5249
- Italy** 00800 2255 4835
- Japan** 81 (3) 6714 3010
- Luxembourg** +41 52 675 3777
- Malaysia** 1 800 22 55835
- Mexico, Central/South America and Caribbean** 52 (55) 56 04 50 90
- Middle East, Asia, and North Africa** +41 52 675 3777
- The Netherlands*** 00800 2255 4835
- New Zealand** 0800 800 238
- Norway** 800 16098
- People's Republic of China** 400 820 5835
- Philippines** 1 800 1601 0077
- Poland** +41 52 675 3777
- Portugal** 80 08 12370
- Republic of Korea** +82 2 565 1455
- Russia / CIS** +7 (495) 6647564
- Singapore** 800 6011 473
- South Africa** +41 52 675 3777
- Spain*** 00800 2255 4835
- Sweden*** 00800 2255 4835
- Switzerland*** 00800 2255 4835
- Taiwan** 886 (2) 2656 6688
- Thailand** 1 800 011 931
- United Kingdom / Ireland*** 00800 2255 4835
- USA** 1 800 833 9200
- Vietnam** 12060128

* European toll-free number. If not accessible, call: +41 52 675 3777



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