



Automated Test Equipment

Increase Speed & Throughput of an Automated Test Station



Factorized Power



Low Noise



Adjustable Power

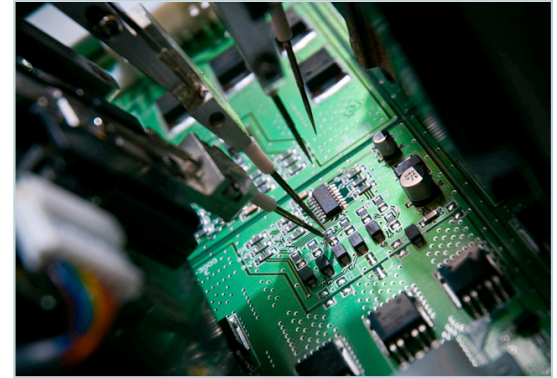


Small Size, Low Profile

The Customer's Challenge

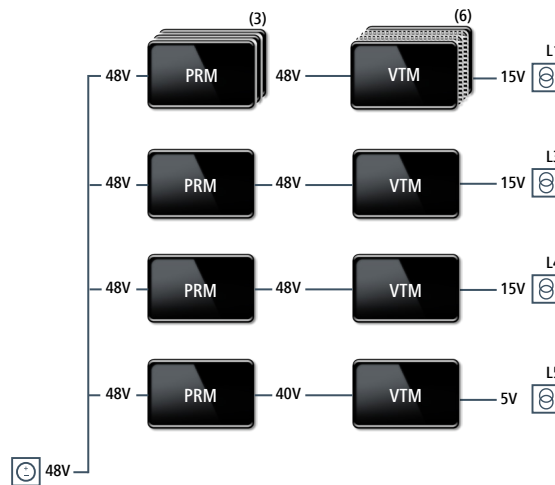
The number of IC pins to be tested is continuously increasing, while for cost reasons the number of chips tested per minute has to increase. This requires a major change in the hardware of the test equipment. The test head itself has to test more pins, move quicker and has to provide different test voltages. Size and weight of the test head are critical elements to achieve these improvements. The same power topology, even with increased efficiency but reduced size, could cause higher operating temperatures of the components and, therefore, reduced reliability – not acceptable in a system running 24 hours every day.

Another challenge is that voltages used for testing the chips have to be adjusted to meet the requirements of the individual chips.



The Solution

The use of Factorized Power enabled the customer to reduce size, weight and heat generation of the conversion stages at the load itself. By splitting regulation (PRM) and transformation (VTM), and only having the transformation part (VTM) at the load itself, losses generated at the load and size of the converter are significantly lower compared to a full converter stage at this point. The regulation itself can happen at another point away from the load.



[Link to Whiteboard »](#)

The Results

The VTMs, with their high switching frequency, and therefore extremely high power density, are very small and lightweight components. This was a major contributor to the reduction of weight of the test head. The very high efficiency of the VTMs reduced the heat generated in the test head and made sure that reliability and MTBF values requested in this environment were met.

Factorized Power allowed an easy adjustment of the load voltage by the PRM regulating the FPA bus voltage. This avoids high setup cost or changes of the equipment when another chip with different voltage requirements has to be tested.

Product Family Key Specifications

PRM™ Regulator Module

Input Voltages	48V, (36 – 75V)
Output Voltage	48V
Output Power	Up to 600W
Efficiency	Up to 97%
Dimensions	32.5 x 22.0 x 6.73mm

VTM™ Current Multiplier

Input Voltages	0 – 60V
Output Voltage	0 – 55V
Output Power	Up to 135A
Efficiency	Up to 96%
Dimensions	32.5 x 22.0 x 6.73mm