HP E5250A Features:
- Unique analog bus architecture to allow configuration as a 10 x 48 cross-point matrix or as a 384-channel multiplexer
- 100 fA offset current with 10 tera-Ω channel isolation for accurate current measurement
- 100 μV offset voltage and low contact resistance for accurate voltage measurements
- Plug-in module architecture

HP 4140B Features:
- Three basic semiconductor measurements: I, I-V, and quasi-static C-V
- Two programmable voltage sources: ±100 V programmable source/function generator ±100 V programmable dc voltage source
- Basic accuracy: 0.5%
- High resolution: 1 fA
- Quasi-static C-V: 0.1 pF to 1999 pF, dc voltage ramp rate 1 mV/s to 1 V/s in 1 mV/s increments

HP 4280A Features:
- Built-in sweepable dc source and timer for C-V and C-t (capacitance-time) measurements
- High-speed C-t measurements with minimum measurement interval of 10 ms (10 μs if an external pulse generator is used)
- Basic C measurement accuracy: 0.1%

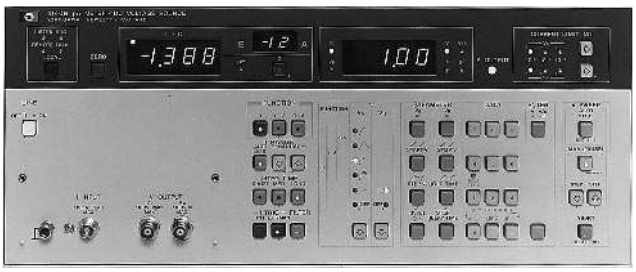
HP E5250A with HP 4155B

HP E5250A Low Leakage Switch

The HP E5250A switch mainframe has four slots for one to four 10 x 12 cross-point matrix modules or one to four 24-channel multiplexer modules. The cross-point matrix provides an automated solution for general parametric measurements while the multiplexer is ideal for long-term reliability measurements. The unique analog bus architecture ensures low noise internal interconnection of the plug-in modules without external cables. The four backside slots provide a maximum of 48 matrix outputs (one mainframe with four matrix modules installed) or 384 multiplexer outputs (four mainframes with four multiplexers installed in each mainframe).

When configured as a 10-input cross-point matrix, this configuration is ideal for general parametric measurements with six I-V triaxial inputs, low leakage (100 fA) performance, and four C-V coaxials, but can also be used for dc source/measure, and pulses up to 10 MHz.

When configured as a multiplexer, each module has 24 channels with an isolated external dc stress bias input for each set of eight channels. To safeguard other devices under stress from any surges when a device breaks down, each channel has a user-selected protection resistor to dampen the surge.

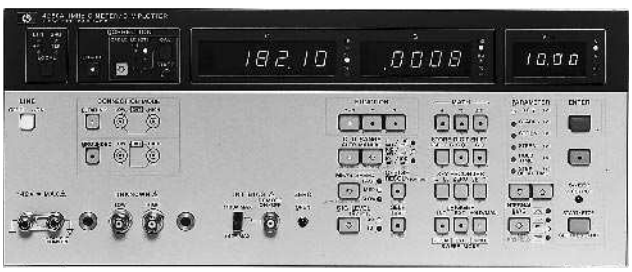


HP 4140B

HP 4140B pA Meter/DC Voltage Source

The HP 4140B pA meter/dc voltage source is part of component-measurement instrumentation. It consists of an extremely stable picoampere meter and two programmable dc voltage sources, one of which operates as a ramp and staircase generator as well as a dc source. These features make the HP 4140B ideal for making dc-characteristic measurements such as leakage current, current-voltage characteristics, and quasi-static C-V measurements, required by the semiconductor industry for new-product development and for improving production yields. It is equally useful in measuring electronic components and materials to determine leakage currents or insulation resistances.

The HP 4140B can contribute to the development, production, and quality control of semiconductor devices and to improvements in the reliability of electronic components and equipment.



HP 4280A

HP 4280A 1 MHz C Meter/C-V Plotter

The HP 4280A 1 MHz C meter/C-V plotter measures the capacitance and conductance of semiconductor devices and materials as functions of applied voltage (C-V) or time (C-t). The HP 4280A consists of a precision 1 MHz C-G meter, a programmable dc bias source that can be swept in staircase fashion, and accurate timing control.

The HP 4280's internal dc bias source has a range of 0 V to ±100 V with 1 mV resolution on the most sensitive range. Various measurement parameters for C-V and C-t measurements can be manually set from the front panel, or these parameters can be set under program control via the GPIB. Settable range for C-t measurement interval is 10 ms to 32 s with a best-case resolution of 10 μs. If an external pulse generator is used, however, measurement intervals as short as 10 μs can be set. Up to 9,999 readings can be set for a C-t measurement. These capabilities make it possible for the HP 4280A to measure the C-t characteristics of virtually any device.

The HP 4280A can measure either floating or grounded devices. Thus, it can be connected to a wafer prober and still provide stable, accurate C and G measurements.