

Model 6485-6487 Picoammeter

Maximum Input Voltage Instructions

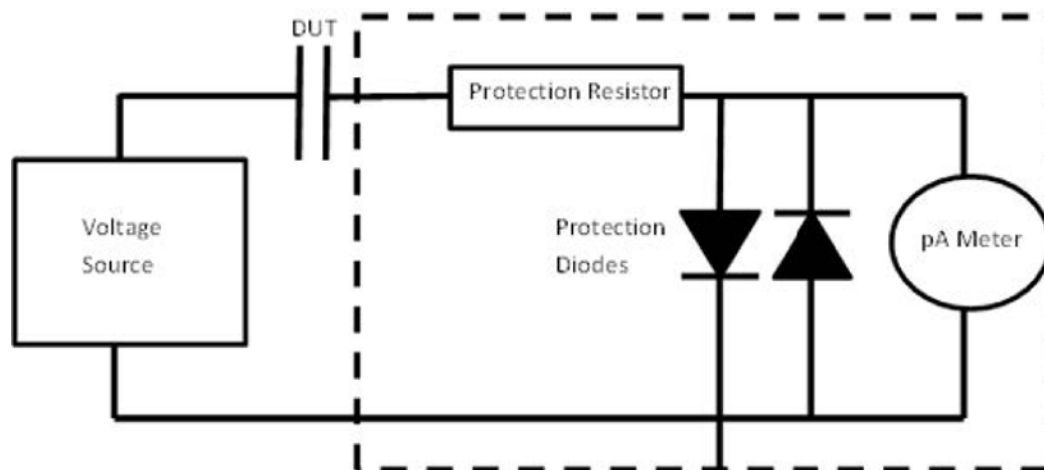
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Instructions

The Model 6485 was designed with input protection to 220 V DC. The Model 6487 is protected to 505 V DC to support its built-in voltage source. Exceeding these values may result in instrument damage that is **NOT COVERED BY THE PRODUCT WARRANTY**.

If you are using one of these products with an external voltage source that exceeds these levels, you need to add external protection in case a device under test (DUT) fails or short circuits.

A common method of protection is to add series resistance between the DUT and the measuring instrument with a diode voltage clamp across the instrument input (see next figure).



This extra protection should be selected to limit the voltage to which the picoammeter is exposed and be rated for the maximum voltage from the voltage source.

For example, if you are using a 1000 V source to test the insulation of a DUT and expect it to be in excess of 100 M Ω , you are trying to measure a current of less than 0.1 μ A. When the system is working properly, the low-leakage diodes will not turn on since the picoammeter input burden voltage is less than 200 μ V. If the DUT shorts, the 1000 V will be applied to the protection resistor. By using a 1 M Ω protection resistor, the current will be limited to 1 mA, and the protection diodes will turn on to protect the picoammeter input. This should be placed in a shielded test fixture (dotted line) to prevent measurement noise and protect the operator from exposed voltage.

NOTE

Low-leakage diodes that have worked well in a number of applications are 1N3595 and MMBD1503.

