

Use of a multimeter to test thyristors, diodes and GTO's.

WESTCODE

An IXYS Company

All Westcode devices are tested using equipment specifically designed to accurately perform the tests required for the various parameters in the IXYS selector guide and rating reports.

In many situations the only test equipment available to an end user of a thyristor, diode or GTO is limited to a battery operated DVM or multimeter. This interpretation of this type of measurement can be misleading under certain conditions. In extreme cases, the use of this type of equipment can result in damaged or destroyed devices.

The voltage of the multimeter will typically be less than 10 Volts. Thyristor, diode and GTO voltage/ leakage characteristic are considered to be non-linear. Therefore, the leakage current measured at this voltage will, in most cases not reflect the leakage current at the rated maximum voltage of the device. The lowest leakage measured at low voltage may not be the lowest leakage device when measured at high voltage under normal circuit conditions.

In certain situations, it may be appropriate to use a multimeter, for instance if it is suspected that within a circuit there are potentially short circuit devices. If a multimeter is used under these circumstances, ensure that the resistance is only measured across the device and does not include components in parallel with it. In addition, ensure that the device is under sufficient clamping force such that the internal components within the device are in contact.

The second point is important since an "open circuit" measurement may result if there is not sufficient clamping force on the device. Under these conditions, the only valid result is zero Ohms indicating a potentially short circuit device.

High voltage insulation/continuity testers should **not** be used as damage to the semiconductor device could occur.

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