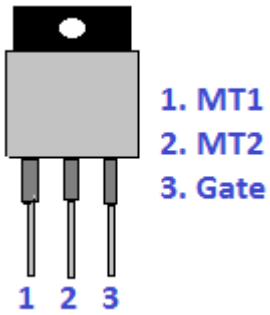
How to test a TRIAC with diode mode?

A Thyristor is a four-layer semiconductor device, consisting of alternating P type and N type materials (PNPN). The four layers act as bistable switches. As long as the voltage across the device has not reversed (that is, they are forward biased), thyristors continue to conduct electric current. The most common type of thyristor is the silicon-controlled rectifier (**TRIAC**).

current flows until a pulse is applied to the gate. Then the Triac begins to conduct and continues to conduct until the voltage between the MT1 and MT2 is reversed or reduced below a certain threshold value. Using this type of thyristor, large amounts of power can be switched or controlled using a small triggering current or voltage.

The TRIAC is another important member of the thyristor family. It is basically two parallel SCRs tuned in opposite directions, with a common gate terminal.
The DIAC conducts both ways, anode-cathode terminology is not used. The two main electrodes are called:

- **Main terminal MT1 and**
- **Main terminal MT2**



- **While the common terminal is called gate GATE (G)**

FIRST TIME USING DIGITAL MULTIMETER

1. Never exceed the protection limit values indicated in specifications for each range of measurement.
2. When the value scale to be measured is unknown beforehand set the range selector at the highest position.
3. When the meter is linked to measurement circuit, do not touch unused terminals.
4. Before rotating the range selector to change functions, disconnect the test leads from the circuit under test.
5. Never perform resistance measurements on live circuit.
6. Always be careful when working with voltage above 60v DC of 30v Ac RMS. KEEP THE FINGERS BEHIND THE PROBE BARRIERS WHILE MEASUREING,
7. BEFORE ATTEMPTING TO INSERT TTRASISTORS FOR TESTING, ALWAYS BE SRE THA TEST LEADS HAVE BEEN DISCONNECTED FROM ANY MEASUREMENT CIRCUIT.
8. COMPONENTS SHOULD NOT BE CONNECTED TO THE hfe SOCKET WHEN MAKING VOLTAGE MEASUREMENTS WITH TEST LEADS.

Important:

1. If the resistance being measured exceeds the maximum value of the range selected or the input is not connected, an over range indication "!" will be displayed.
2. When checking in-circuit resistance, be sure the circuit under test has all power removed and that all capacitors have been discharged fully.
3. For measuring resistance above 1 Mohms the meter may take a few seconds to get stable reading.,

this is normal for high resistance measurements.

SELECT DIODE MODE IN DIGITAL MULTIMETER.

STEP-1. DMM Means Digital Multimeter

- Connect DMM positive **test-lead** to MT1
- **Negative test-lead** to MT2 = DMM READING SHOWS OL OR '1' OR OPEN (MEANS OPEN LINE)

STEP-2.

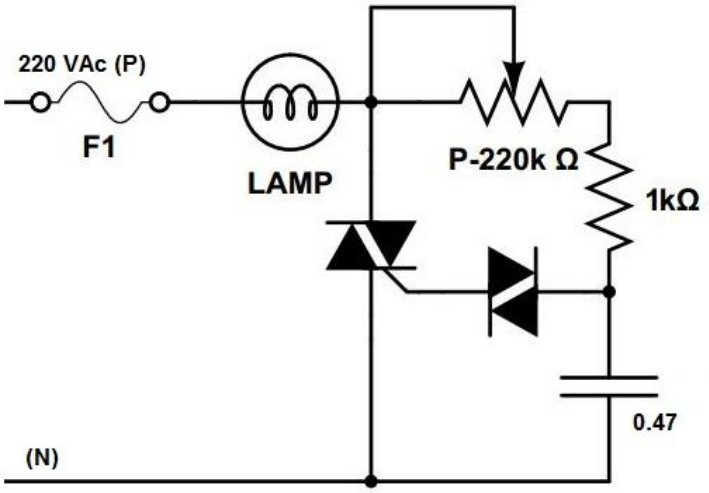
- Connect **Negative test-lead** to MT1
- **Positive test-lead to** MT2 = DMM READING SHOWS OL or 1
- **Positive test-lead** to Gate = 0.1272V.

STEP-3.

- Connect **Positive test-lead** to MT1
- **Negative test-lead** to MT2 = DMM READING SHOWS OL or 1
- Connect **Negative test-lead** to MT1
- **Positive test-lead** to MT2 = DMM READING SHOWS OL or 1

Verification: If the DMM above reading shows the condition is GOOD.

Triac-BT136-



Check your Triac with simple circuit Verification: If you get reading as 0000 or or any low value that device can be **FAULTY** and needs replacement.

Remove the Main Power from the circuit and Release Pulses from the Firing Card

check the Firing Pulse at Gate of Thyristor with CRO.

If the Pulses are absent check pulses before Pulse Transformer.

If the Pulse transformer and other circuit is OK then thyristor is defective.

If the amplitude of the pulse is more than Gate cathode resistance is weakening.

The above procedure is just check the device without removing from the equipment.

TRIAC TESTING WITH CIRCUIT: -

For Proper Fool Proof method of checking, Thyristor modules are to be removed separately and can be tested using a simple kit involving a 9v battery, a LED in series with 470E parallel of below connection. Press switch-1 connected with (9v) power supply. The result is LED goes to ON.