

TPI 183 Digital Multimeter

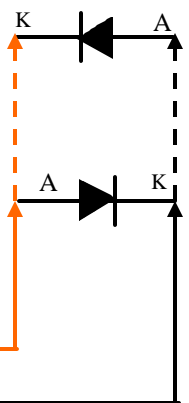


Unlike its predecessor, the Analog Ohmmeter, Digital Ohmmeters require a special Diode Check Function because the current circulated by the normal Ohms Function of a digital meter is too low to adequately check a diode.

In the Diode Check Position, the reading given by a digital meter in the forward bias direction (meter positive to diode anode and meter negative to diode cathode) is actually the voltage required to overcome the internal diode junction potential. For a silicon diode this will be about 0.5 - 0.8 volt; a germanium diode will read slightly lower, about 0.3 - 0.5 volt.

Symbol Notation K (or C) = Cathode, A = Anode.

Select
→|—|←



Reverse Bias - Diode Blocks
Correct reading: TPI Meter will read OUCH (open circuit).

Forward Bias - Diode Conducts
Correct reading: Meter will read about 0.5 - 0.8 volt.

Incorrect readings: If diode reads 0 in both directions, it is shorted. If it reads OUCH (open circuit) both directions, it is open.

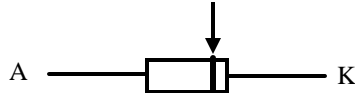
Diode Test Procedure

WARNING! Ohms and Diode Check measurements can be made *only* on *de-energized* circuits! The Ohmmeter battery provides power to make this measurement. You may need to remove the diode from the circuit to get a reliable test. See Note below.

- Plug in the meter leads as shown: Black lead - COM (Common), Red lead - Ω (Ohms).
- Select the →|—|← (Diode Test) function.
- Connect the leads to the Diode-Under-Test as shown in the drawing above and verify the readings are correct for both a forward and reverse bias. (This is sometimes referred to as checking the front-to-back ratio.)

Note: Large Stud-Mounted Diodes are bolted to a heat sink and Hockey Puck Units are compressed between the heat sinks; removing them from the circuit can be time-consuming and may be unnecessary. In these situations, test the entire assembly first, then, if the assembly tests shorted, remove and test the diodes individually. Hockey Puck Diodes must be compressed in a heat sink assembly or test fixture to be tested as they require compression to make-up the internal connections.

Band Identifies Cathode



Typical Axial-Lead Diode



Stud-Mounted Rectifiers may be either Standard Polarity (Stud Cathode - Upper Left Illustration) or Reverse Polarity (Stud Anode - Lower Right).

If unmarked, you can test the diode to determine its polarity. With the meter connected as above, when the meter indicates the diode is conducting (about 0.5 - 0.8 volt) the red lead is connected to the diode anode and the black lead to the cathode.