

TEST OF POWER SILICON DIODES



I.L. 20-500-708

Power silicon diodes are given a complete series of tests at the factory when manufactured to ascertain their capability and are then rated accordingly.

Each type of installation has its own specific service requirements such as overloads, operating temperature, surge voltage, short circuits, etc. The design of a unit for a specific application is derived from the forementioned service requirements, the type of cooling, the type of heat sink, class of diode, etc. that will provide the most reliable and economical operation. Once this design has been established only diodes of at least the class chosen must be used and, as stated previously, the diodes are rated and classified by factory test insuring their reliability.

Power silicon rectifier units employ a current limiting fuse in series connection with each diode. The design is such that in the event a diode should fail, e.g. lose its ability to block reverse voltage, the current in the faulty diode is limited and interrupted before the diode opens. Since a bad diode will fail shorted and not open a simple ohmmeter test provides a reliable and effective means of detecting a failed device. The diode checked by measuring the resistance in both directions. A resistance below 100 ohms in both directions indicates a shorted diode.

Note that whenever a failed current limiting diode fuse is found the associated diode in all probability will also be failed. However, under some abnormal condition, such as a faulty fuse, it is possible for the fuse to open and the diode may still be good. Therefore the diode should be tested with an ohmmeter as described to determine if it is failed prior to replacement.