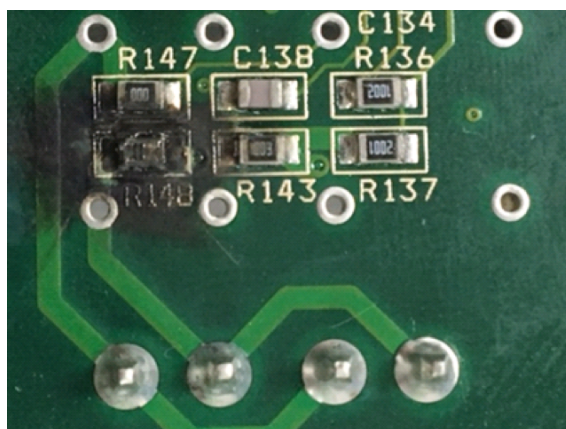


## Protect Your Tester from Line Voltage

Most of today's electrical safety test stations involve a variety of instruments for performing different types of tests. These individual test instruments may be part of a larger "test system" which is usually controlled by a single computer program or some sort of PLC logic. For example, a test system may include a Ground Bond/Continuity tester, Hipot tester, Functional Run tester etc. In most cases the "test system" is designed such that the outputs from individual testers may use a single connection point for the DUT, for example a common receptacle box. This connection point may be used for applying high voltage (Hipot), high current (Ground Bond) and line voltage (Functional Run). It is important to ensure that the return circuit of the hipot testers is protected from line voltage.

Line voltage can cause damage to the feedback and measuring circuits of the hipot testers. An example of such type of damage is shown in figure 1. When line voltage gets applied to the return circuit of the hipot tester it results in a high amount of current (due to the impedance of the circuit) to flow through low power components. This damages the components to the extent that burnt traces are visible on the circuit board.



Such damage as shown in Figure 1 is a clear sign that line voltage has been applied to the hipot tester. This damage is not covered by the instrument warranty and can result in high repair costs. In addition to the high repair costs this damage results in disruption of your production line. This can be avoided by means of including a high degree of redundancy in the design of "test systems". Relay control and protective circuits can be implemented in test systems to prevent live voltage from damaging hipot testers. However, it is most important to make sure test operators are well trained and understand the hazards associated with the use of electrical safety testers.