
Chapter 7

Trouble Shooting

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1 Trouble Shooting

In comparison to standard modules, IPMs have various protection functions (overcurrent, overheating, etc.) built in, so that their devices are not easily destroyed by abnormal conditions. However, destruction may occur depending on the abnormality, so that countermeasures are required once the cause and state of occurrence have been clarified. An analysis diagram indicating the cause of destruction is shown on page 2 and should be used to investigate the causes of destruction.

(For element fault judgment, refer to the Module Application Manual, chapter 4, item 2 "Fault Judgment Method".)

Also, in the case of alarm output from the IPM, use the alarm cause analysis diagrams of Fig. 7-2 to investigate the cause.

2 Fault Analysis Diagrams

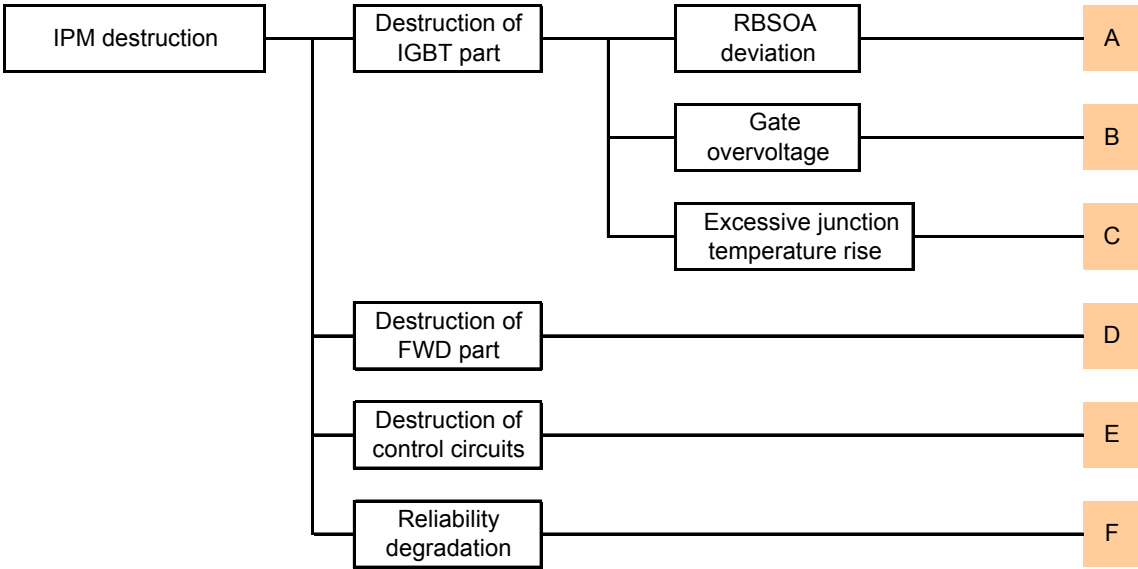


Fig. 7-1 (a.) IPM Fault Analysis Diagram (The letters A to F connect to the following diagrams.)

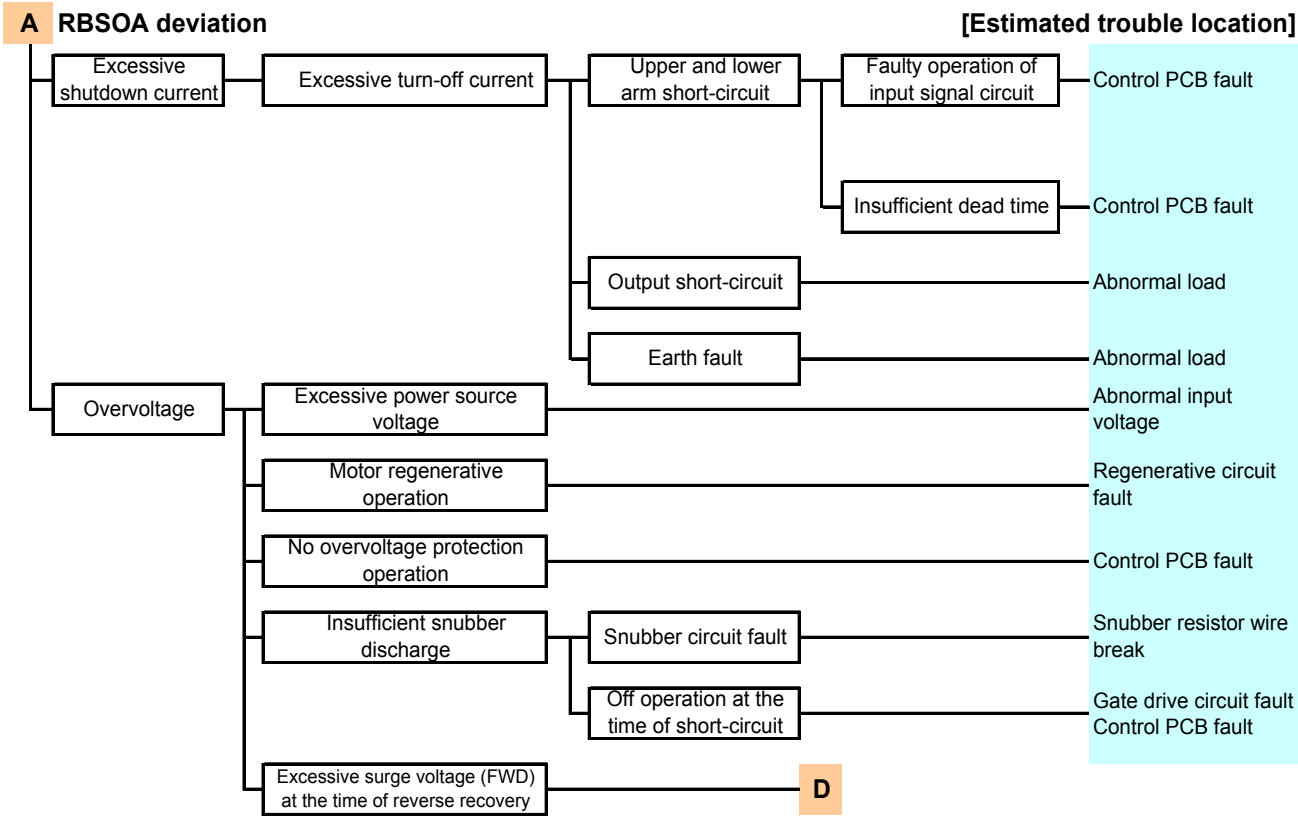


Fig. 7-1 (b) Mode A: RBSOA Deviation

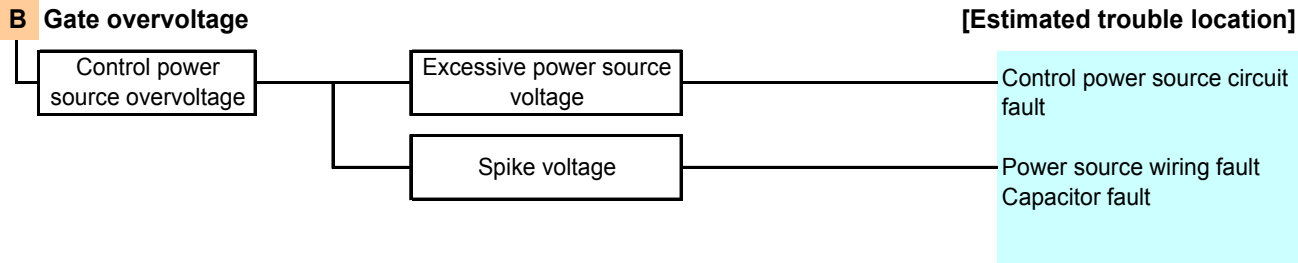


Fig. 7-1 (c) Mode B: Gate Overvoltage

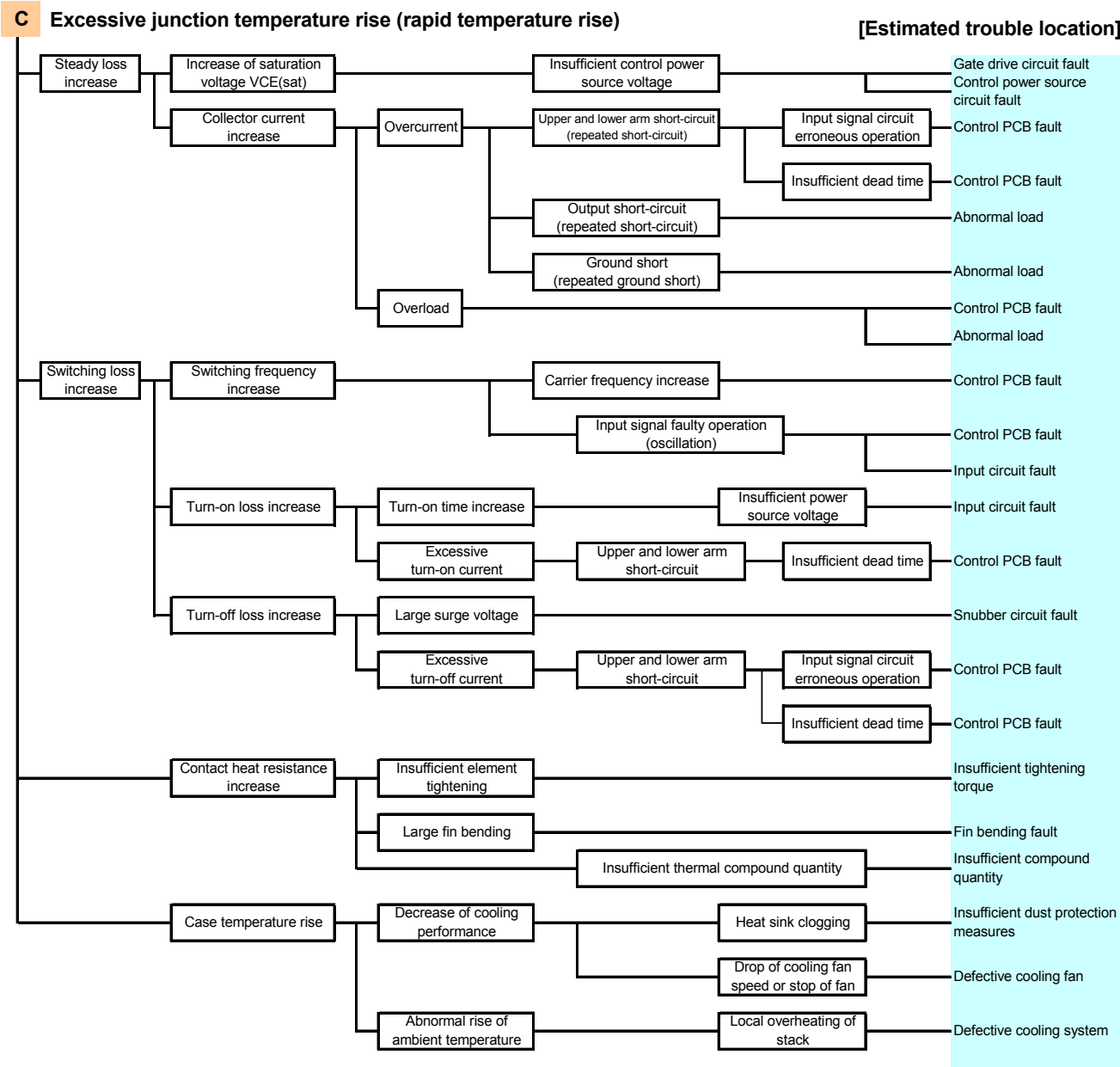


Fig. 7-1 (d) Mode C: Excessive Rise in Junction Temperature

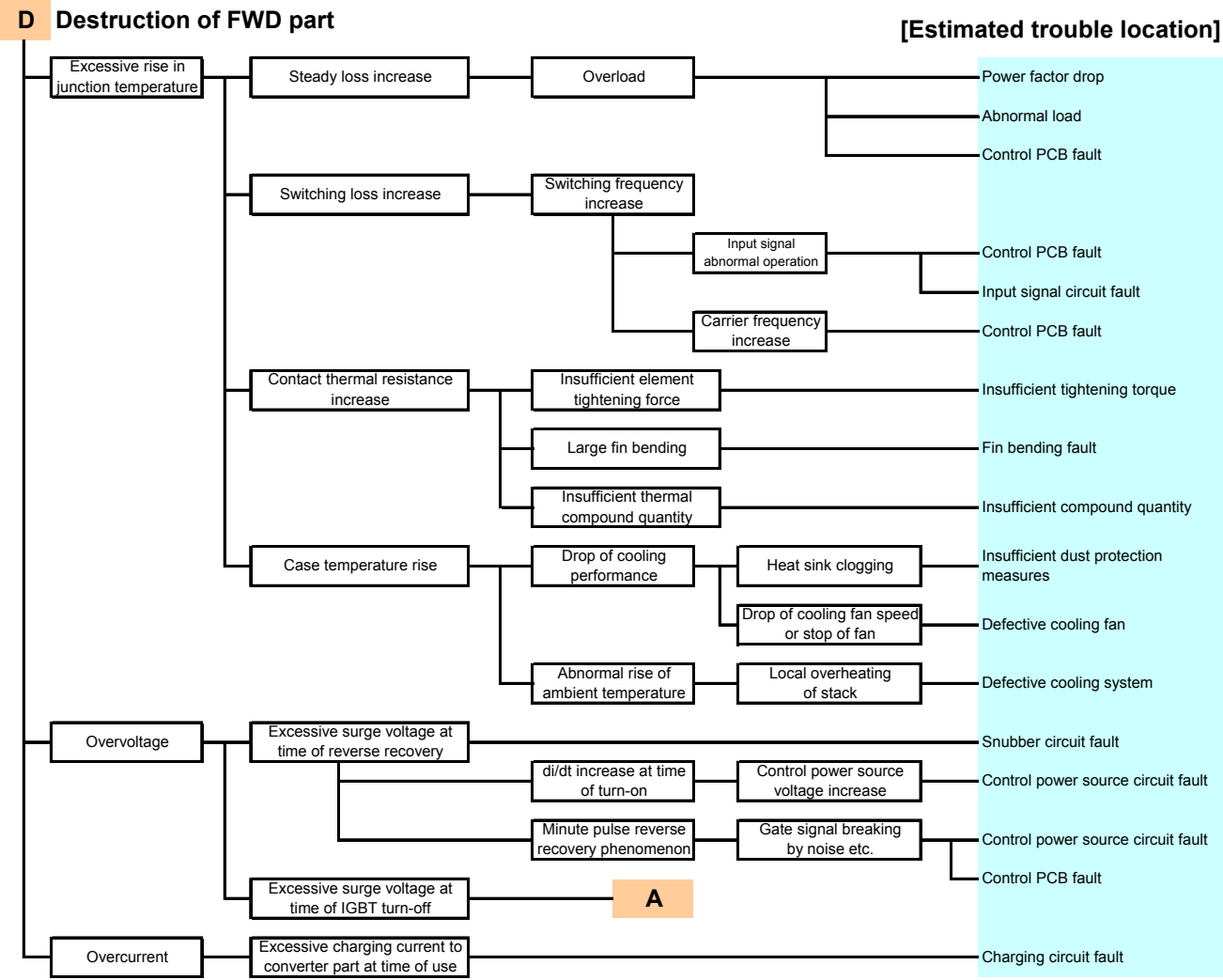


Fig. 7-1 (e) Mode D: Destruction of FWD Part

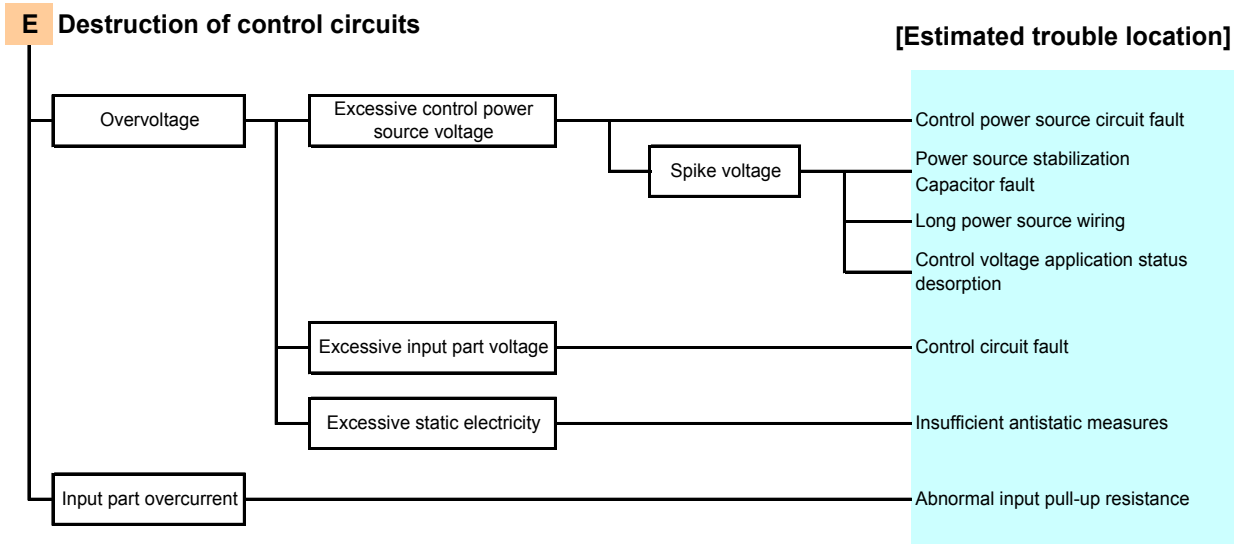


Fig. 7-1 (f) Mode E: Destruction of Control Circuit

F Damage related to reliability and product handling

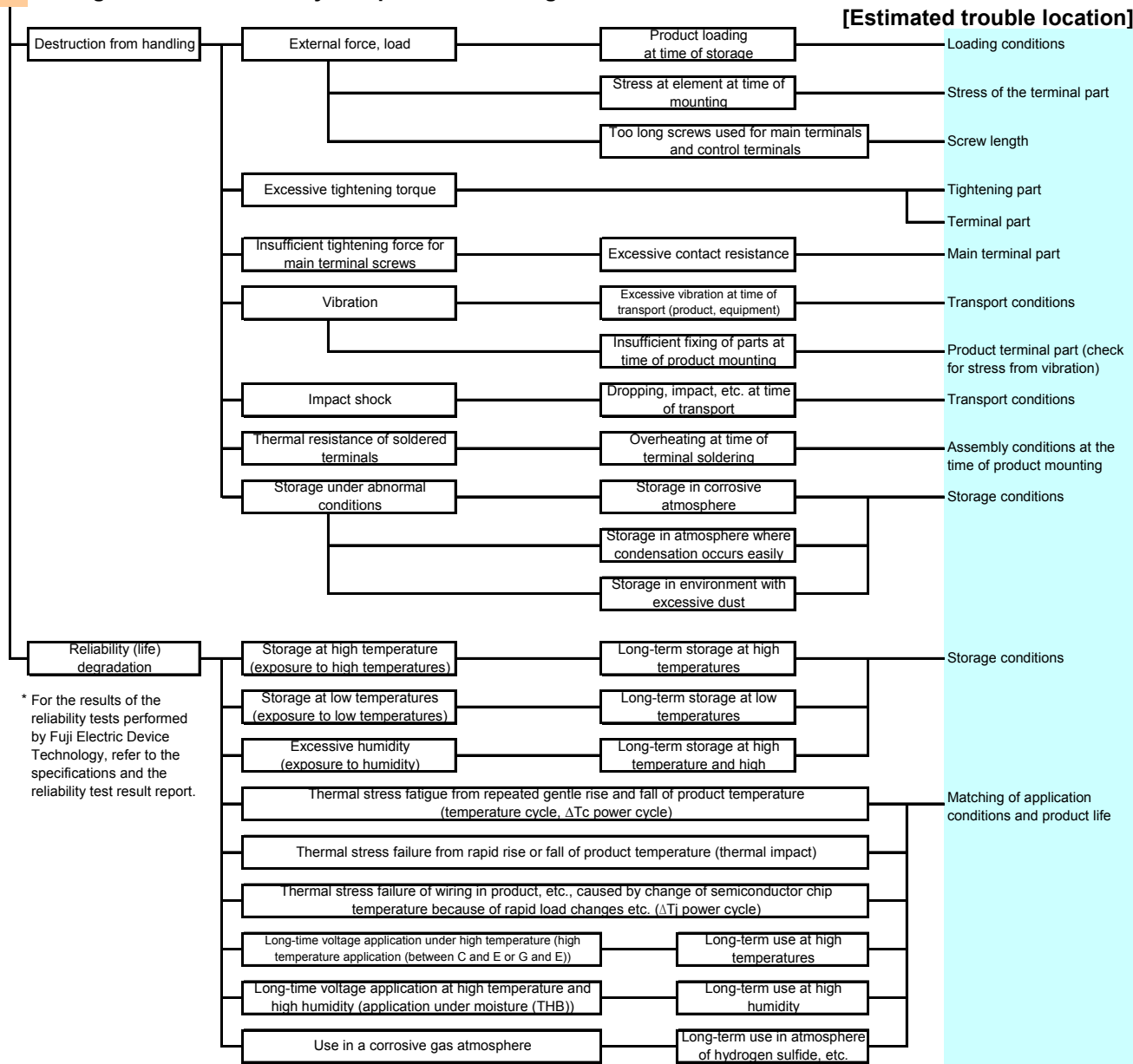


Fig. 7-1 (g) Mode F: Damage Related to Reliability and Product Handling

3 Alarm Cause Analysis Diagram

3.1 Cause analysis in the event an IPM alarm occurs

When an inverter using an IPM comes to an alarm stop, a survey must first be done to find out whether the alarm was output from the IPM or from a device control circuit (other than the IPM).

If the alarm was output by the IPM, determine the cause according to the following cause analysis diagram.

For observation of whether there is an IPM alarm or not via the alarm output voltage, the presence or absence of an alarm output can be confirmed easily by inserting a 1.5 kΩ resistor between the IPM alarm terminal and the cathode of the alarm photodiode and measuring the IPM alarm terminal voltage.

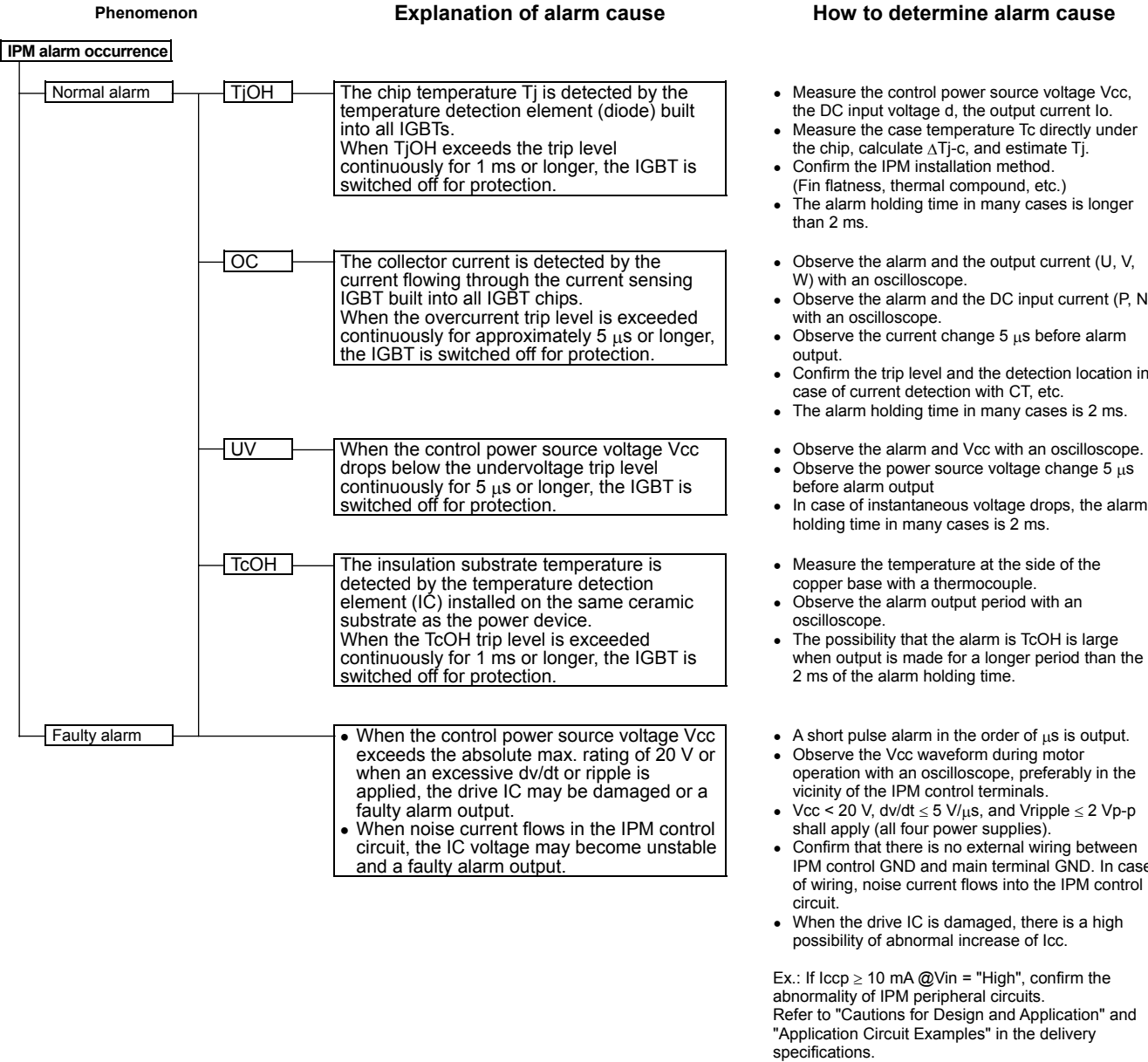


Fig. 7-2 Alarm Cause Analysis Diagram

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