

Axiom Electronics PCBA Design for Manufacturability Guidelines

Section: 11.6

Revision: B

Revision Date: 10/15/2023

DFM Subject: Land Pattern Design; BTC and Thermal Lands

DFM Requirement:

- IPC-7351 and IPC-7352 Requirements for Surface Mount Design and Land Pattern Standard should be used as a guide for land pattern design. This section also contains some basic guidance for land pattern design, which is based on industry and Axiom best practice.
- Reference IPC-7093 Design and Assembly Process Implementation for Bottom Termination Components (BTC).
- The most common BTC component is a QFN; these devices contain leadless contacts and a thermal area on the bottom of the component. Large SOT components usually have a ground or thermal area on the bottom of the component.

DFM Impact:

Land pattern design is critical to solder joint workmanship (IPC-610) and solder joint reliability. If a land is too small there may not be enough solder to form a reliable solder joint. If the land is too big it will tend to act as a solder thief; during reflow soldering it will pull solder away from the lead and form a solder joint with insufficient solder.

DFM Details: Grounding or Thermal land design guidance

Grounding or thermal land pattern design recommendations:

- Land size should be equal to the solderable area on the bottom of the component
- Grounding or thermal lands shall not be smaller than the solderable area on the component
- Use IPC-7351 and IPC-7352 as a reference for remaining land pattern dimensions

