

How to improve contact failure by setting the PCB pad above the height of the solder mask

Fig.1 shows general PCB specifications.
Normally, the height of PCB pad is about 15 to 35 μm lower than that of the solder mask.

Fig 1. General PCB specifications

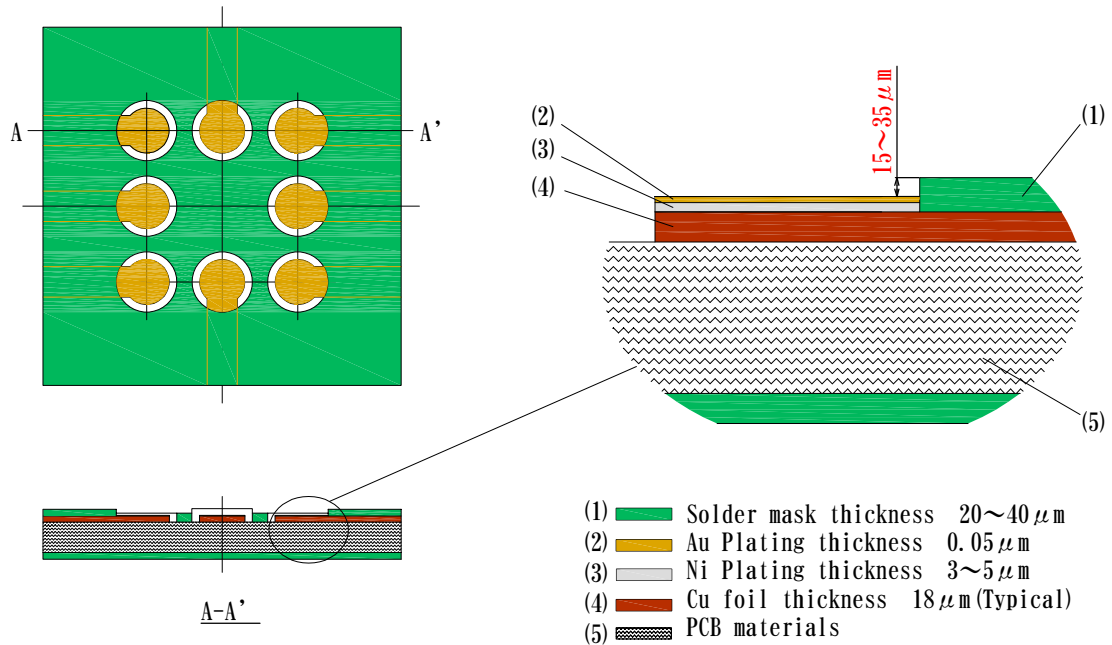
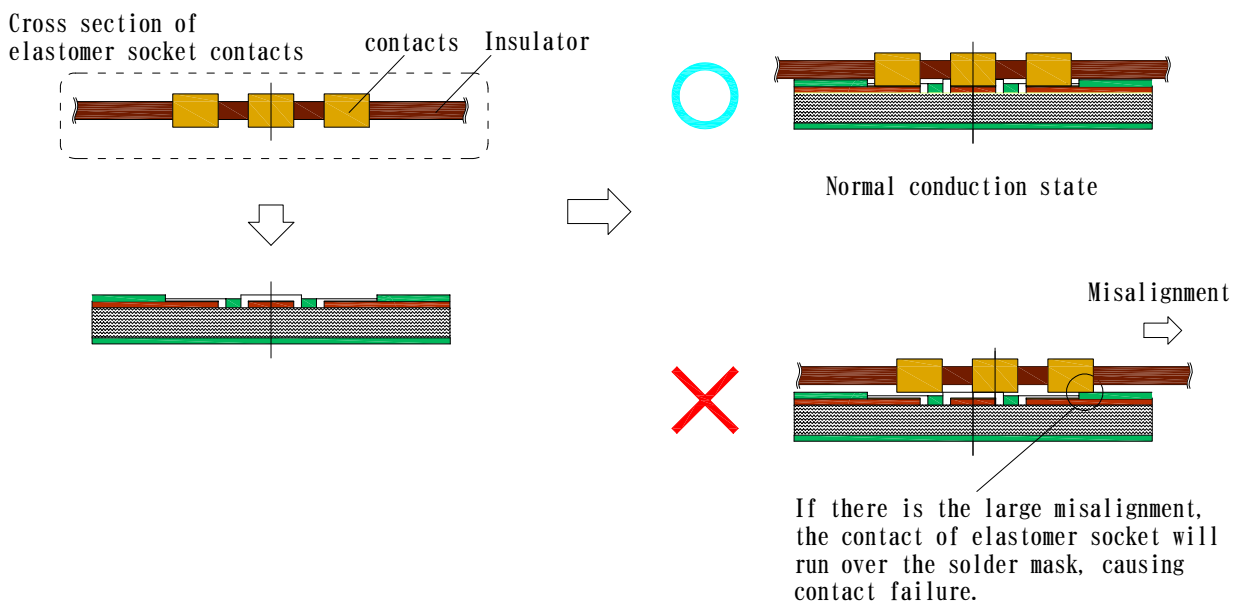


Fig. 2 shows the cross section of PCB in Figure 1 and contacts of elastomer socket.
Contacts of elastomer socket is a flat land type, and it conducts by pressurizing the contact from above and below.
By using this contact method, the PCB pad is connected to pad of device or solder ball.
However, when the PCB pad is lower than solder mask, the contact of the elastomer socket runs onto the solder mask, and causing contact failure.
To prevent this phenomenon, the PCB pad should be above the height of the solder mask.

Fig. 2 Contact failure due to misalignment between the PCB and elastomer socket



Therefore, as shown in Fig. 3, it is necessary to set the PCB pad above the height of the solder mask by using via in pad.

It is possible to set the PCB pad higher than solder mask by about 3 to 5 μm in calculation by dropping all the wiring to the inner layer of the PCB with via in pad instead of pulling it out directly from the PCB pad.

Fig. 3 How to set the PCB pad above the height of the solder mask with via in pad

