Keypads

Overlap polymer to copper P-Cu ≥ 0.15 mm
Distance to other electrical potential P-P ≥ 0.5 mm
Solder mask clearance P-LSL ≥ 0.25 mm
Distance between carbon and dielectric P-D ≥ 0.15 mm
Dielectric width D ≥ 0.3 mm
Copper thickness (total) ≤ 50 µm
Contact resistance ≤ 20 Ω

Switches

Overlap polymer to copper P-Cu ≥ 0.15 mm
Distance to other electrical potential P-P ≥ 0.5 mm
Solder mask clearance P-LSL ≥ 0.25 mm
Distance between carbon and dielectric P-D ≥ 0.15 mm
Dielectric width D ≥ 0.3 mm
Copper thickness (total) ≤ 50 µm
Contact resistance ≤ 20 Ω

Basics

- The print is used as a passivation of the copper to prevent from oxidization and to achieve a constant contact resistance during the lifetime.
- The contact resistance is influenced by the contact material and the contact pressure and is normally < 20 Ω.
- Two areas with a different electrical potential are shorted by conductive rubber mats or metal contact springs.
- Switches are used with sliding contacts; two contact areas of different electrical potentials are shorted by the slider.
Resistors Outer Layers

- Resistor length \( L \) \( \geq 2 \text{ mm} \)
- Resistor width \( B \) \( \geq 1.5 \text{ mm} \)
- Overlap silver to copper \( \text{Ag-Cu} \) \( \geq 0.25 \text{ mm} \)
- Overlap resistor to silver \( \text{P-Ag} \) \( \geq 0.15 \text{ mm} \)
- Solder mask clearance \( \text{P-LSL} \) \( \geq 0.25 \text{ mm} \)
- Overlap polymer to copper \( \text{P-Cu} \) \( \geq 0.15 \text{ mm} \)
- Copper thickness (total) \( \leq 50 \text{ µm} \)
- Distance to other electrical potential \( \geq 0.5 \text{ mm} \)
- Resistor values \( 100 \text{ Ω} – 750 \text{ kΩ} \)
- Resistor tolerance \( +/- 30 \% \)
- Dissipation at environmental temperature: \( \leq 40^\circ\text{C} \) \( \leq 50 \text{ mW/mm}^2 \)

* +/-5 % with laser trimming

Basics
- Printed resistors are built by printing a polymer ink with a specific conductivity between to copper pads.
- The thickness of the resistors is 20 µm in standard.
- With an adjustment of the resistors by laser trimming a lower tolerance can be reached.
Special Applications

Potentiometer

Heating Resistor

Surface Finishing

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