

Membrane Switch Design Checklist

A practical design review sheet for custom membrane switch stack-up, materials and production readiness.

Use this checklist during design review before tooling, sampling or supplier transfer.



Membrane switch stack-up decisions should be reviewed before tooling.

Engineering source notes

- Industry design guides separate the user interface, switch stack-up, equipment interface and quotation information because each area creates different failure risks.
- Film, adhesive, tail routing and connector decisions should be reviewed before tooling; changing them after samples often forces artwork/circuit revision.
- Material data from adhesive and film suppliers should be used as typical guidance, then validated on the real housing and customer use condition.

Design reference

Project / model

Drawing revision

Artwork revision

Circuit revision

Target application

Reviewer/date

Overlay and user interface

- [] Overlay material is selected: polyester, polycarbonate, acrylic, glass or other specified panel.
- [] Surface finish is defined: gloss, matte, velvet, hard coat, anti-glare or textured.
- [] Colors are specified with Pantone, RAL, CMYK values or approved sample reference.
- [] Windows, display areas, LED windows and dead-front icons are dimensioned.
- [] Embossing, rim emboss, pillow emboss or flat key areas are marked.
- [] Legends are checked for spelling, language, orientation and safe margin from cuts/keys.

Switch stack-up and circuit

- Tactile, non-tactile or mixed zones are identified.
- Metal dome size, force and life expectation are chosen or left for JASPER recommendation.
- Spacer openings support reliable actuation and prevent shorting.
- Circuit routing avoids sharp corners, narrow weak bridges and high-stress tail bends.
- Tail reinforcement, bend direction, exit position and connector interface are defined.
- Back adhesive is matched to the housing material, texture and cleaning exposure.

Assembly, sealing and validation

- Housing flatness, mounting pressure and adhesive land area are reviewed.
- Sealing target is stated if water, dust, oil, cleaning or outdoor exposure is expected.
- LED, backlight, shielding, venting or display integration details are marked.
- Operating and storage temperature range are known.
- Expected actuation life and inspection requirements are stated.
- Packaging protects overlay surface, tail and connector during shipping and assembly.

Design release package

- Final mechanical drawing with tolerances.
- Final vector artwork with color references and revision.
- Circuit drawing, schematic or Gerber files.
- Stack-up requirement or approved reference sample.
- Connector / pinout confirmation.
- Written approval for sample, color, force, surface finish and adhesive fit.

Release decision

Approved for quotation

Hold for drawing update

Hold for connector confirmation

Approved for prototype tooling

Hold for material confirmation

Notes

Technical references reviewed

- 3M 467MP / 468MP adhesive technical data sheets:
<https://multimedia.3m.com/mws/media/2366204O/3m-adhesive-transfer-tape-467mp.pdf>
- MacDermid Alpha Autotex hardcoated polyester films: <https://www.macdermidalpha.com/products/film-smart-surface-solutions/>
- JASPER factory engineering review practice and public product/resource pages: <https://www.jasperele.com/>

Send drawings and requirements to JASPER

- sales@jasperele.com | +86-769-87002271 | www.jasperle.com