



PRODUCT AND MATERIAL
DEFINITION

Silicone Rubber Keypad Specification Framework

Public framework for controlling keypad material, tactile, electrical, graphic and validation requirements.

Assembly Molded keymat, contacts, PCB, housing and optional caps	Material Silicone compound, hardness, color and functional additives
Response Force curve, travel, return and key stability	Control Approved drawing, material declaration and sample evidence

The legacy numeric sheet was retired because temperature, resistivity and dielectric fields were damaged or unsupported.

1. Material Specification

Material item	Definition required
Silicone compound	Approved material family and project-specific grade
Hardness	Scale, target, tolerance and measurement method
Color	Controlled reference, viewing condition and acceptable variation
Conductive element	Contact system, geometry and material definition
Coating / finish	Wear zone, texture, gloss and chemical exposure
Compliance	Project-required material declarations and restrictions

2. Mechanical Drawing

Drawing group	Required content
Key geometry	Key top, web, travel, spacing and housing clearance
Datums	Locating features, contact centers and PCB relationship
Assembly	Supports, fasteners, compression and sealing features
Graphics	Legends, color breaks, laser areas and lighting masks
Critical dimensions	Measurable characteristics and tolerance basis



TACTILE AND ELECTRICAL

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3. Tactile Requirements

Characteristic	Definition required
Actuation force	Probe, speed, press location, support and target
Contact force	Force present at electrical closure
Tactile drop	Complete force-displacement curve and calculation method
Travel	Contact point and any permitted over-travel
Return	Minimum return behavior under assembly tolerance and conditioning
Consistency	Allowed variation by key family, location and life state

4. Electrical Contact

Contact item	Definition required
Contact type	Conductive element or coating and geometry
PCB pattern	Contact shape, finish, flatness and contamination controls
Resistance	Circuit, applied force, threshold and conditioning
Life	Load, rate, environment, cycle profile and failure criteria

Electrical contact performance is validated with the intended PCB finish and support.



GRAPHICS AND VALIDATION

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5. Appearance and Lighting

Topic	Specification content
Printed legends	Artwork, color, location, print side and protection
Laser legends	On-state and off-state appearance and edge quality
Backlighting	Light source, color, uniformity, leakage and mask definition
Cosmetics	Visible zones, lighting, angle, distance and limit samples
Hard caps	Material, retention, orientation, gap and assembly

6. Validation Evidence

Validation group	Evidence
Dimensional	First-article report tied to the drawing revision
Tactile	Force-displacement curves and approved comparison samples
Electrical	Contact and functional results using the intended PCB
Environmental	Project-specific conditioning and post-test acceptance
Durability	Production-intent assembly and defined life profile

7. Release Check

- All starred notes and footnotes are defined or removed.
- Units and value types are complete and consistent.
- The keypad, PCB and housing are approved as one assembly.
- Material or process changes follow project change control.

Only validated construction-specific values belong in the released specification.