

## Silicone Keypad Terminology

- **Actuation Force:** The force required to collapse the membrane of a rubber switch (identified as F1 on the force/stroke curve).
- **Air Channel:** Air path(s) on the bottom of rubber keypads and switches that allows for air passage (venting) when switch is actuated. Switches must be vented on a least two sides.
- **Alignment Hole:** Through hole in rubber keypad that is used to position keypad in enclosure when overall keypad size exceeds three inches in either length or width.
- **Base:** Silicone sheet material that joins all keys/switches on a rubber keypad.  
Also known as an *apron*.
- **Bezel:** The faceplate or cover, typically either plastic or metal, used to secure a key pad to a printed circuit board. The bezel also aligns the keypad during the final assembly and protects keypad-base material from contact with human hands.
- **Breakdown Voltage:** Voltage at which an insulator or dielectric ruptures. Also know as dielectric strength.
- **Compression Set:** The measurement of a material's ability to recover its original size and shape after compression under prescribed conditions. It is usually expressed as a recover percentage (fraction) of the compression condition.
- **Conductive Rubber Switch:** Mechanical switch made of silicone rubber, either direct or indirect contact.
- **Contact:** The current-carrying area/surface under each rubber switch (conductive pill or carbon-inked surface) that makes electrical connection with the electrode on a printed circuit board when the switch is actuated.
- **Contact Force:** The force required to maintain rubber-switch contact closure (F2) force/stroke curve) with a printed circuit board.
- **Contact Rating:** The electric power handling capability for rubber contacts under strictly controlled laboratory conditions.
- **Contact Resistance:** Silicone-rubber keypads manufactured using a two-shot molding process and two-material hardnesses.

- **Dual Durometer:** Silicone-rubber keypads manufactured using a two-shot molding process and two-material hardnesses.
- **Electrode:** Contact surface/design on a printed circuit board that conducts current when rubber switch is actuated and switch closure occurs.
- **Key Height:** The measured distance from the bottom of a keypad (base) to the top surface of a key.
- **Legend:** Some type of printed graphic (symbol, letter or number) on the top of the key surface.
- **Life:** The number of switch actuations realized before the switch membrane ruptures or over stresses.
- **Membrane:** The non-conductive hinge that permits a rubber key to flex, and is responsible for the tactile feel realized.
- **Negative-Image Graphics:** Graphics that allow switch color or switch masking color to be seen through top-surface printing on keypad.
- **Overstroke:** Additional travel experienced with a rubber switch after initial switch closure has been realized. Rubber switches with overstroke require a double-cone or double-bell shaped membrane.
- **Positive-Image Graphics:** Single or multi-color printing on top of key surface.
- **Return Force:** Force created by switch membrane as it returns the key to a non-actuated position.
- **Snap Ratio:**  $(F1-F2)$  divided by  $F1$ . The difference between the actuation force ( $F1$ ) and the contact force ( $F2$ ) of a switch divided by the actuation force.
- **Stroke:** Distance from the contact surface on a rubber switch to an electrode pattern on a printed circuit board.