Keymodule MX.

Modern Technology for ergonomic Keyboards.
Main Advantages
- The MX is a modern full-travel low-profile keyswitch.
- "Gold Crosspoint" Contacts ensure highest reliability.
- The keyswitch module is designed to meet all current ergonomic standards demanded for word and data processing applications.
- High reliability also during quick actuation.
- Switch options include integrated color LED, de-coupling diode and wire jumper.
- MCBF = 1 x 10⁹

Important Features
- Switch versions include momentary and alternate action as well as linear or tactile feel.
- 4 mm full travel.
- Circuitry S.P.S.T. – N.O.
- Connector pins constructed for machine soldering.
- Switches can be snapped into a frame or mounted directly onto the printed circuit board.
- Low contact resistance.

Technical Data
Material – plastic parts Thermoplastic UL 94V-0 comp. – contacts AuAg 10
– spring Stainless steel.
Protection DIN 40050 IP40.
Storage Temperature -40°C (-40°F) to +70°C (+158°F).
Operating Temperature -10°C (+14°F) to +70°C (+158°F).
Humidity 5%–95% w/o cond.
Solderability applicable for machine soldering 5 sec. at 260°C.
Mechanical Data

<table>
<thead>
<tr>
<th>Keyswitch with linear actuation</th>
<th>Keyswitch with soft tactile feel</th>
<th>Keyswitch with click tactile feel</th>
<th>Keyswitch with alternate action</th>
<th>Keyswitch with tactile feel (ergonomic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total travel</td>
<td>4 - 0.4 mm</td>
<td>4 - 0.5 mm</td>
<td>4.2 ± 0.3 mm</td>
<td>4 - 0.4 mm</td>
</tr>
<tr>
<td>Pretravel</td>
<td>2 ± 0.6 mm</td>
<td>2.0 ± 0.6 mm</td>
<td>2.2 ± 0.6 mm</td>
<td>2 ± 0.6 mm</td>
</tr>
<tr>
<td>Operating force</td>
<td>60 ± 20 cN</td>
<td>55 + 20</td>
<td>50 ± 15 cN</td>
<td>45 ± 20 cN</td>
</tr>
<tr>
<td>Tactile force</td>
<td>-</td>
<td>65 ± 20</td>
<td>60 ± 15 cN</td>
<td>55 ± 20 cN</td>
</tr>
</tbody>
</table>

Electrical Data

Voltage ———— 12 V max. AC/DC; 2 V min. DC
Current ———— 10 mA max. AC/DC; 10 μA min. DC
Insulation resistance ———— new/100 M Ω
Capacity at 1/kHz ———— < 2 pF
Bounce time at actuation speed 0.4 m/s ———— ≤ 5 ms

Life cycle w/o electrical load/1 at 5 V, 1 mA
MX linear ———— 50 x 10⁶ operations
MX soft ———— 20 x 10⁶ operations
MX click ———— 20 x 10⁶ operations
MX alternate action ———— 500 000 alternate operations
MX ergonomic ———— 50 x 10⁶ operations
Initial contact resistance ———— 200 m Ω (typ. 25 m Ω)

Keyswitch Assembly

Direct PCB-Mounting onto metal frame

![Keyswitch Assembly](image)

Force/Travel Diagram

![Force/Travel Diagram](image)
Spacebar Mechanism

with frame

Cutout of frame for keycap sizes
1x3, 1x7, 1x8, 1x9, 1x10

Cutout of frame for keycap sizes
1x2, 1x2.25, 1x2.75

<table>
<thead>
<tr>
<th>Size of keycap</th>
<th>1x7</th>
<th>1x2.75</th>
<th>1x3</th>
<th>1x8</th>
<th>1x9</th>
<th>1x10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of keycap</td>
<td>8mm Cyln.</td>
<td>8mm Cyln.</td>
<td>8mm Cyln.</td>
<td>8mm Cyln.</td>
<td>8mm Cyln.</td>
<td>8mm Cyln.</td>
</tr>
<tr>
<td>'A' (in mm)</td>
<td>23.8</td>
<td>38.1</td>
<td>133.35</td>
<td>114.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part No. w/o frame</td>
<td>G99-0742</td>
<td>G99-0743</td>
<td>G99-0744</td>
<td>G99-0745</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Keycaps

Cylindrical type (7 mm)
- 17.9 Row 3
- 18.7 Row 2
- 18.8 Row 4
- 20.8 Row 1

Standard type (8 mm)
- 17.6
Layout of P.C.B.

Locking Unit

Locking Device for the following Keycaps

<table>
<thead>
<tr>
<th>Part. No.</th>
<th>Cylnt.</th>
<th>8 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>604-0323</td>
<td></td>
<td></td>
</tr>
<tr>
<td>604-0324</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Index System

Errors, omissions and technical modifications excepted. Technical specifications provided herein constitute specifications only, they do not guarantee that actual products do possess these characteristics. Exact figures can only be taken from drawings in connection with product specifications.