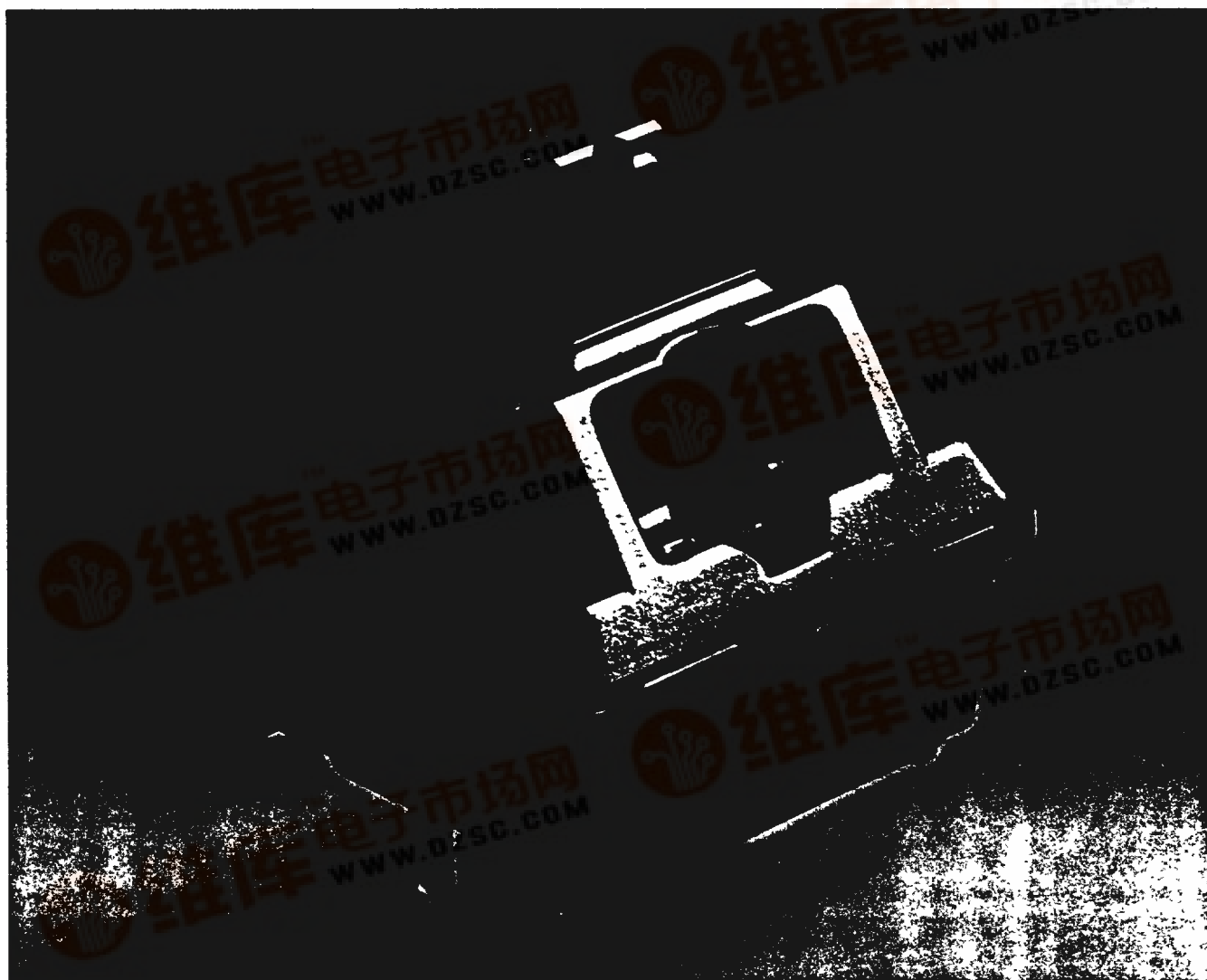
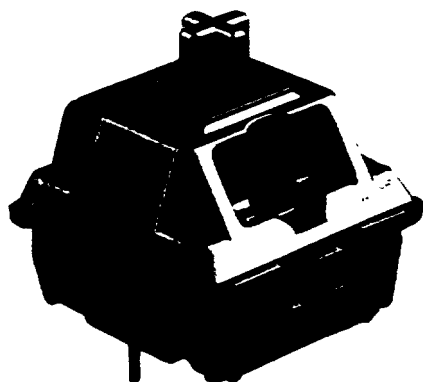


# Keymodule MX.

Modern Technology  
for ergonomic Keyboards.





### 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-recog.-comp.  
– contacts \_\_\_\_\_ AuAg 10  
– spring \_\_\_\_\_ Stainless steel.

Protection \_\_\_\_\_ DIN 40050 IP 40.

Storage Temperature \_\_\_\_\_  $-40^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$ ) to  $+70^{\circ}\text{C}$  ( $+158^{\circ}\text{F}$ ).

Operating Temperature \_\_\_\_\_  $-10^{\circ}\text{C}$  ( $+14^{\circ}\text{F}$ ) to  $+70^{\circ}\text{C}$  ( $+158^{\circ}\text{F}$ ).

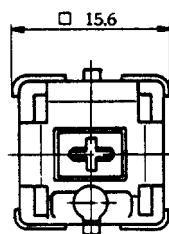
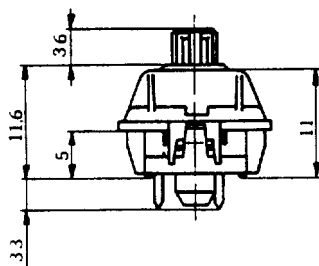
Humidity \_\_\_\_\_ 5% – 95% w/o cond.

Solderability \_\_\_\_\_ applicable for machine soldering 5 sec. at  $260^{\circ}\text{C}$ .

### 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.
- $\text{MCBF} = 1 \times 10^9$

- Standard spacing 19.05 mm (upon request  $\geq 16$  mm).
- Low-profile height from base of keyboard to top of keycaps in homerow using cylindrical keycaps  $< 30$  mm.



## Mechanical Data

|                 | Keyswitch with linear actuation | Keyswitch with soft tactile feel | Keyswitch with click tactile feel | Keyswitch with alternate action |
|-----------------|---------------------------------|----------------------------------|-----------------------------------|---------------------------------|
| Total travel    | 4-0.4 mm                        | 4-0.5 mm                         | 4-0.5 mm                          | 4.2 ± 0.3 mm                    |
| Pretravel       | 2 ± 0.6 mm                      | 2.0 ± 0.6 mm                     | 2.2 ± 0.6 mm                      | 1.4 ± 0.4 mm                    |
| Operating force | 60 ± 20 cN                      | 55 ± 20                          | 50 ± 15 cN                        | 60 ± 20 cN                      |
| Tactile force   | -                               | 65 ± 20                          | 60 ± 15 cN                        | -                               |

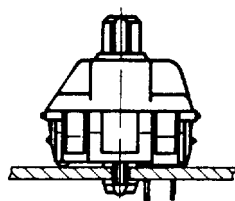
## Electrical Data

Voltage \_\_\_\_\_ 12V max. AC/DC; 2V min. DC  
 Current \_\_\_\_\_ 10mA max. AC/DC; 10 mA min. DC  
 Insulation resistance \_\_\_\_\_ new/ 100 MΩ  
 Capacity at 1 MHz \_\_\_\_\_ ≤ 1pF  
 Bounce time at actuation speed 0.4 m/s \_\_\_\_\_ ≤ 5 ms

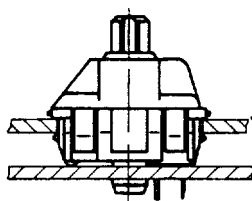
Life cycle w/o electrical load/at 5V, 1mA  
 - MX linear \_\_\_\_\_ 50 × 10<sup>6</sup> operations  
 - MX soft \_\_\_\_\_ 20 × 10<sup>6</sup> operations  
 - MX click \_\_\_\_\_ 20 × 10<sup>6</sup> operations  
 - MX alternate action \_\_\_\_\_ 500 000 alternate operations  
 Initial contact resistance \_\_\_\_\_ 200 mΩ (typ. 25Ω)

## Keyswitch Assembly

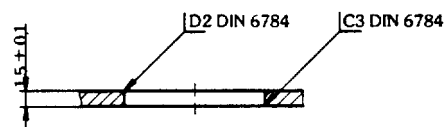
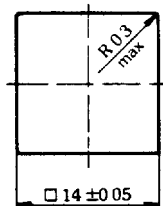
Direct PCB-mounting onto metal frame



with pins



without pins



## Force/Travel Diagram

