User's Manual

(M/N:SKR-3406)

Sejin Electron Inc.

FCC NOTICE

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC FULES.
OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITION:
(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND
(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED,
INCLUDING INTERFERENCE THAT MAY CAUSE UNDERSIRED
OPERATION.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not
occur in a particular installation. If this equipment does cause harmful interference to
radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures :

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit difference from that to which
  the receiver is connected.

- Consult the dealer of an experienced radio/TV technician for help.

NOTE : The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

1. SCOPE

This document provides a specification for the **SEJIN** standard USB keyboard.

2. MECHANICAL PERFORMANCE

2.1 Key switch Operation

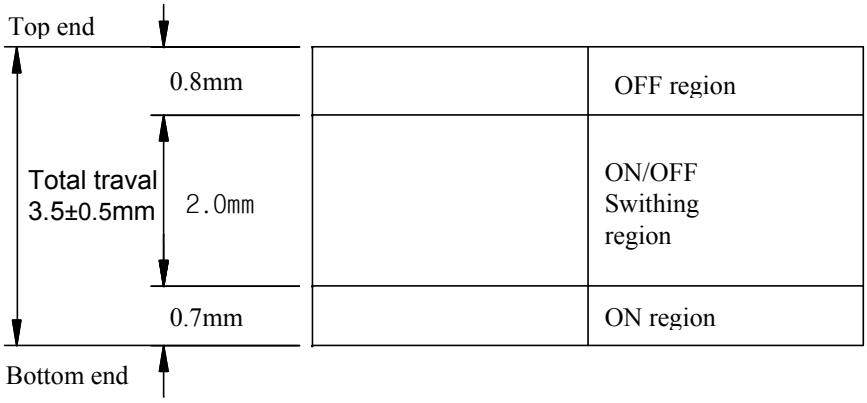
2.1.1 Operating system

Non - lock rubber tactile feeling.

2.1.2 Stroke

3.5±0.5mm with measuring load 200gf applied.

2.1.3 Operating Region



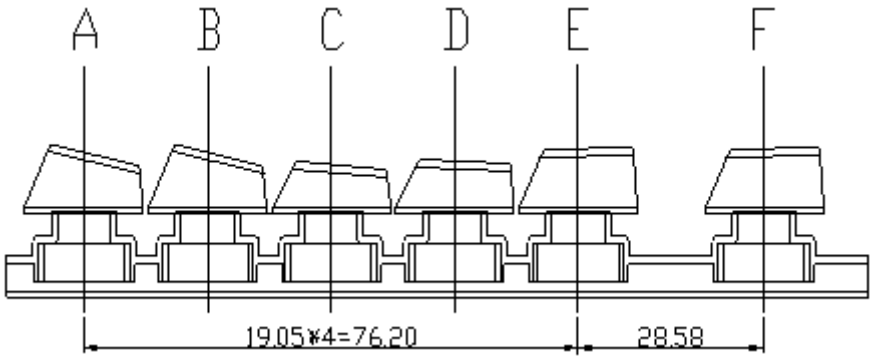
2.1.4 Operating force

The operating curve is defined to the following drawing and the relationship between the operating force and travel is provided. The operating force has a tolerance of 60± 25gf

2.2 Operating feeling

No definite stickiness or other abnormality shall be allowed when force is applied with a finger to keytop center at the rate of 3 times on a second.

2.3 Construction and dimensions



Note: The applied keycap for “F” row is “E” row keycap.

2.4 Key top Height Variation

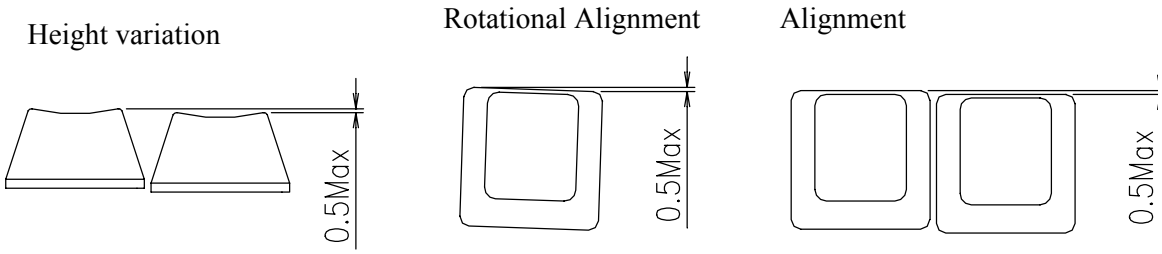
The key top height variation must not greater than 0.5mm when measured between the center to center of keys next to each other. The measurement will be performed with keys in the home positions.

2.5 Keytop Alignment

The key top alignment tolerances must not exceed 0.5mm when keytop measured between the center to center of keys next to each other. The measurement will be performed with keys in the home positions.

2.6 Rotational Alignment

The maximum rotation of key shall be less than 0.5mm as shown below.



2.7 End stroke strength

End stroke should withstand a static load of 500gf applied on the tip of the key stem in the perpendicular direction for 1minute.

2.8 Keytop pulling strength

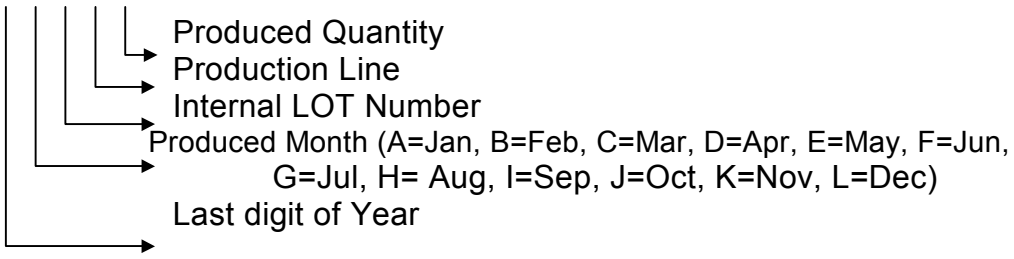
The keytop pull out force shall be 0.5Kg or more at normal temperature during initial conditions.
The keytop shall be not pulled out by an ordinary typing operations.

2.09 Back Label

The label will be squarely aligned and securely adhered with no voids or air bubbles. The materials used and the way of manufacture and installation will be such as to render the label "tamper-proof," that is, the label material and adhesive combination will be such that a label will be damaged, delaminated, or destroyed upon removal or attempted removal. The back label will contain MIC agency symbols, model number, part number, serial number and product of origin.

※ Serial Number Information

1 K A B 000001



3. WORKMANSHIP STANDARDS

3.1 Electrical Criteria

Electrical assemblies and components shall meet the requirements of IPC-A-610 and J-STD-001, Class-1.

3.2 Keycap Cosmetics

The legend of keycap has to be printed with LASER MARKING methodology by SEJIN standard and will have to pass the Sejin abrasion test.

4. ELECTRICAL REQUIREMENTS

4.1 Operating voltage range

DC 5V± 0.25

4.2 Operating current

Max 100mA

4.3 Insulation resistance

More than 100M ohm at 250V DC

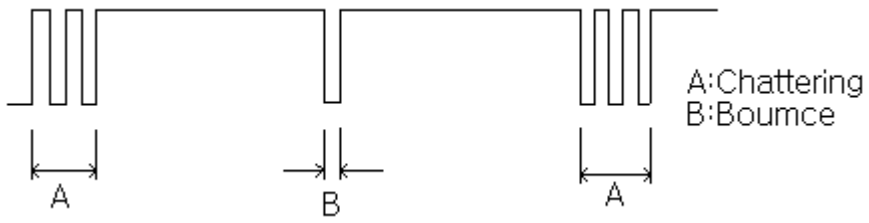
4.4 Contact resistance

2KΩ or less

4.5 Chattering and bounce

Operation force shall be applied according to the normal operating method at 5V DC, 5mA.There shall be no bounce and chattering within 10msec when it is measured using a specially prepared tester or a synchroscope.

※ Chattering and bounce are defined in the following diagram :



5. ENVIRONMENTAL REQUIREMENTS

The following specifications pertain to the keyboard assembly.

5.1 Operational ambient temperature and humidity

Temperature : 0 ~ 50℃
Humidity : 85%RH

5.2 Storage ambient temperature and humidity

Temperature : -20 ~ 60℃
Humidity : 95%RH

5.3 Shock

There shall be no abnormally in operation and appearance of the keyboard

when an impact of 10G has been applied to the package keyboard. The testing method shall be in accordance with 213B of MIL-STD-202E

5.4 Vibration

The keyboard shall not be damaged electrically and mechanically when the following vibration has been applied to the packaged keyboard. The testing method shall be in accordance with 201A of MIL-STD-202E.

Frequency: 10~55Hz
Amplitude: 0.5mm
Direction of vibration: Direction X, Y and Z individually
Time of vibration: 2 hours

5.5 Drop Test (Non-Operating)

Purpose of test: To verify the keyboard's ability to withstand being dropped from lap and desk heights.

Test Parameters/Conditions: 25°C @ 50% R.H.

Standard: After test, If the keyboard is recoverable(able to be re- assembled), it is acceptable.

Packing Condition	Drop surface	Height	Test Description
Non-packing	Hard wood	70Cm	2 drops for each corner
	Carpet	70Cm	1drop for 6 surfaces
Inner box	Concrete	90Cm	1drop for 6 surfaces and 4 corners. (Totally 10drop)
Out box	Concrete	60Cm	1drop for 6 surfaces and 4 corners. (Totally 10drop)

5.6 Key life Test

Standard: a. key-switch life: 10,000,000 cycles
b. Test equipment : Plunger Type.
Actuation speed : 4 times/sec
Press pressure : 200± 50gf

5.7 Low Temperature Test

Check Method: Leave for 96 hours under –25℃.
Standard: The keyboard operates normally after the test.

5.8 High Temperature Test

Check Method: Leave for 96hours under +65℃.
Standard: The keyboard operates normally after the test.

6. CONFIGURATION

The keyboard comprises the key switch section and signal processing circuit.

The keyboard cable connects to the system with a USB connector.
The following table shows the pin configuration and signal assignments.

Contact Number	Signal Name
1	VBUS
2	D-
3	D+
4	GND
Shell	Shield