SK8707-01 FlexPoint™ Pointing Stick Mouse Module

Compact, 3 Axis PS/2 Low Power Z-Tap CellMute™ Technology

FEATURES

- Low cost and space saving mouse solution
- 3 connection methods: FFC connector, FFC solder pads, and board-to-board castellated pins
- Advanced motion control algorithm
- Z-Tap algorithm to simulate left button click, double click and drag
- CellMute™ technology filters the wireless EMI noise from cellular phones and wireless networks
- Works with standard Windows® mouse drivers
- Works with Lenovo TrackPoint® drivers
- Low power consumption. 650uA (idle), 2.09 mA (operation) under 3.3V; 890uA (idle), 2.76 mA (operation) under 5V
- 3.05V to 5.25V operating voltage. Other operating voltage is available upon request
- Temperature range: -40°C to +85°C

DESCRIPTION

The SK8707-01 compact FlexPoint™ pointing stick module is a cost-effective, space-saving PS/2 mouse device deploying a Sprintek advanced pointing stick controller.

Typically, consuming 650uA in idle state, the SK8707-01 is ideal for battery-operated systems.

Deploying CellMute™ technology and patented signal conditioning circuit to filter the wireless EMI noise from cellular phones and wireless networks, the SK8707-01 modules can work quietly in wireless environment.

The SK8707-01 FlexPoint™ module partially implements the Lenovo TrackPoint® extended command protocol and can work with Lenovo TrackPoint® device drivers directly.

APPLICATION

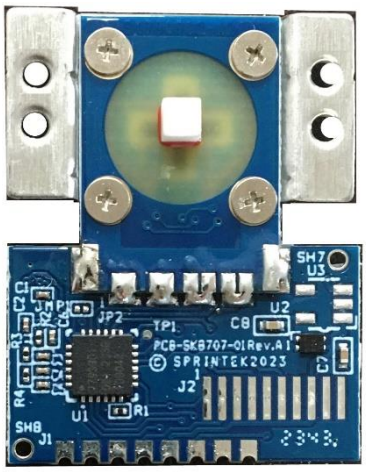
- Notebooks/Laptops
- Handhelds
- Keyboards
- Instrumentation

ORDEING INFORMATION

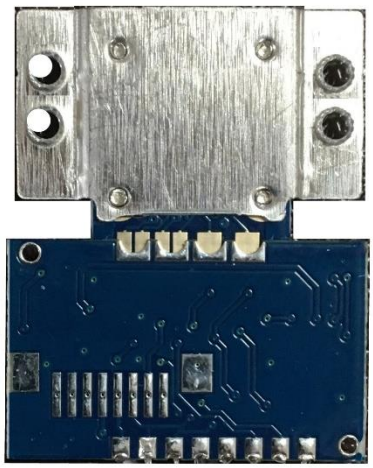
SK8707-01-001 (5V,2.4x2.4x2.4mm square prism stick) Pb-Free, RoHS
SK8707-01-002 (3.3V,2.4x2.4x2.4mm square prism stick) Pb-Free, RoHS

MODULE PICTURES

TOP VIEW



BOTTOM VIEW



CONNECTION DEFINITION

Method 1: Board-to-board Castellated Pins

Pin No	Type	Name	Description
1	P	GND	Ground
2	IO	IPD DATA	PS/2 data line
3	IO	IPD CLK	PS/2 clock line
4	I	IPD RST	Reset. Active high external reset with internal pull down.
5	P	VCC	Power supply
6	IO	LEFT	Left button
7	IO	MIDDLE	Middle button
8	IO	RIGHT	Right button

LENGENG P = Power, I = Input, O = Output, IO = Input/Output

Method 2: 10-pin 1mm Pitch FFC Cable Soldering Pads (Top)

Pin No	Type	Name	Description
1	IO	IPD DATA	PS/2 data line
2	I	IPD RST	Reset. Active high external reset with internal pull down.
3	IO	MIDDLE	Middle button
4	IO	RIGHT	Right button
5	IO	LEFT	Left button
6	IO	IPD CLK	PS/2 clock line
7	P	GND	Ground
8	P	VCC	Power supply
9	IO	N/A	Unused
10	IO	N/A	Unused

LENGENG P = Power, I = Input, O = Output, IO = Input/Output

Method 3: 8-pin 1mm Pitch FFC Connector (Bottom)

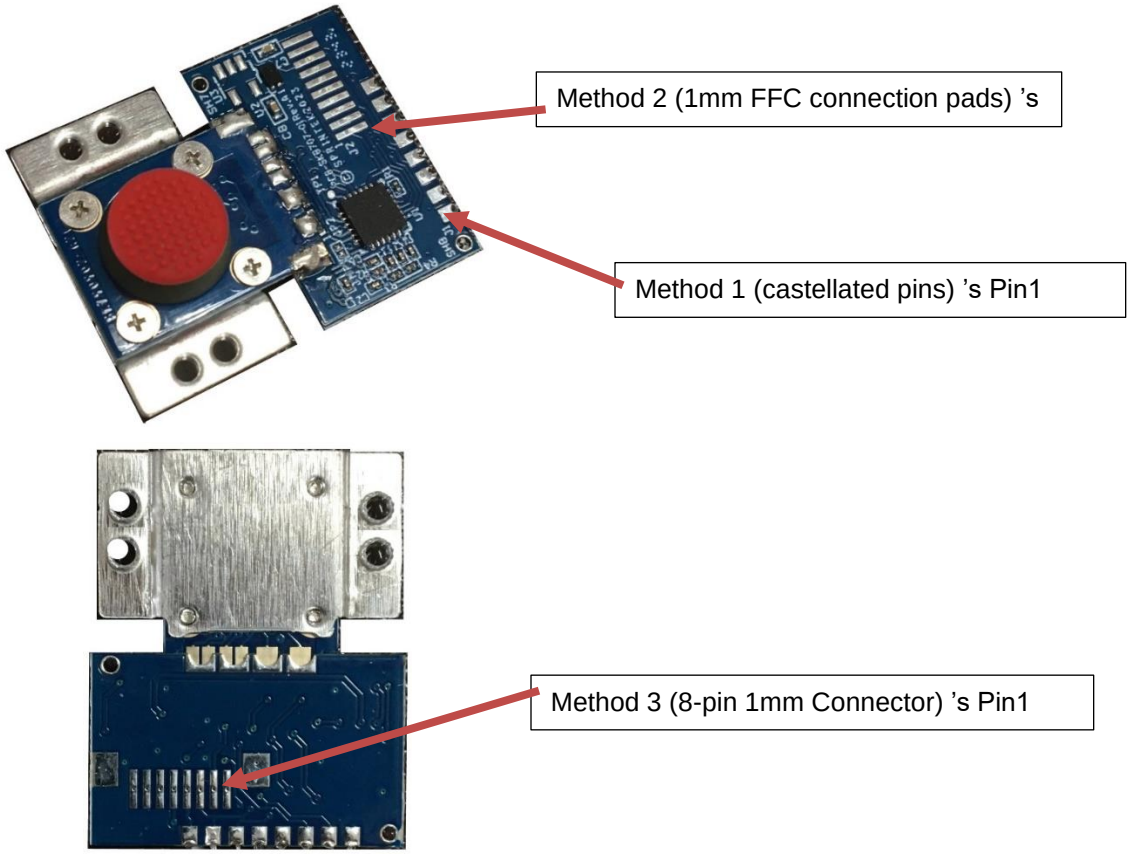
Pin No	Type	Name	Description
1	IO	IPD DATA	PS/2 data line
2	I	IPD RST	Reset. Active high external reset with internal pull down.
3	IO	MIDDLE	Middle button
4	IO	RIGHT	Right button
5	IO	LEFT	Left button
6	IO	IPD CLK	PS/2 clock line
7	P	GND	Ground
8	P	VCC	Power supply

LENGENG P = Power, I = Input, O = Output, IO = Input/Output

APPLICATION NOTES

Rubber Caps and Plastic Cap

Two extra components may be used to be assembled with the module. The plastic cap is used to adjust the stick height to fit with the fixer such as keyboard. The rubber cap is assembled on top of the plastic cap. When a low-profile keyboard is designed, the rubber cap is assembled directly to the module stick.



3 Connection Methods

There are 3 connection methods.

Method 1: Board-to-board castellated pins. The method can be used to solder the module to the host board directly or wire the module to the host board via individual wires or FPC.

Method 2: FFC connection pads at top side. The method can be used to solder FFC/FPC cable directly to the board.

Method 3: 8 pin 1mm FFC connector at bottom side. An 8-pin 1mm pitch connector (not installed) can be used for the footprint. The connector can be installed upon request.

Communication Protocol

SK8707-01 simulates standard PS/2 mouse and follows its command protocol.

ELECTRONICS SPECIFICATIOIN

Absolute Maximum Ratings

Symbol	Description	Min	Typ	Max	Units	Notes
TSTG	Storage Temperature	-55	-	+100	ºC	
VDD	Supply Voltage on Relative to VSS	-0.5	-	+6.0	V	
ESD	Electro Static Discharge Voltage	2000	-	-	V	Human Body Model ESD

Operating Temperature

Symbol	Description	Min	Typ	Max	Units	Notes
TOP	Operating Temperature	-40	-	+85	ºC	

DC Electrical Characteristics （5V）

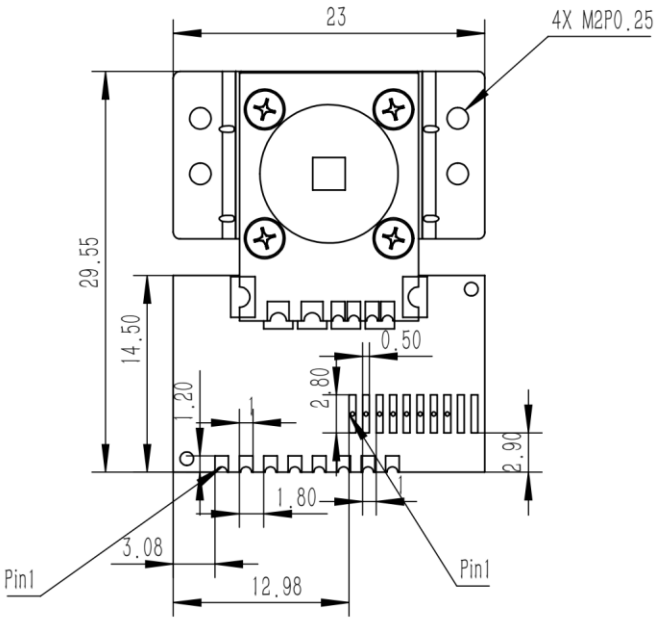
Symbol	Description	Min	Typ	Max	Units	Notes
VDD	Supply Voltage	4.1	-	+5.25	V	
IOP	Supply Current when module is in operation mode		2.76		mA	
IIDLEZ	Supply Current when module is in idle mode with Z-Tap enabled		1.94		mA	
IIDLE	Supply Current when module is in idle mode with Z-Tap disabled		890		uA	
ISD	Supply Current when module is in power down mode		40		uA	
RPU	Pull-up Resistor	4	5.6	8	kΩ	
VPOR	Power on reset voltage		2.92		V	

DC Electrical Characteristics （3.3V）

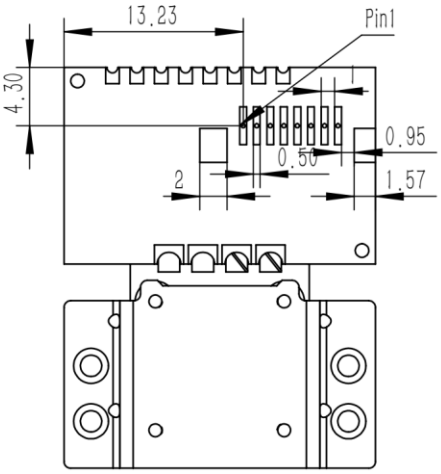
Symbol	Description	Min	Typ	Max	Units	Notes
VDD	Supply Voltage	3.05	-	+5.25	V	
IOP	Supply Current when module is in operation mode		2.09		mA	
IIDLEZ	Supply Current when module is in idle mode with Z-Tap enabled		1.44		mA	
IIDLE	Supply Current when module is in idle mode with Z-Tap disabled		650		uA	
ISD	Supply Current when module is in power down mode		40		uA	
RPU	Pull-up Resistor	4	5.6	8	kΩ	
VPOR	Power on reset voltage		2.92		V	

MECHANICAL SPECIFICATIOIN

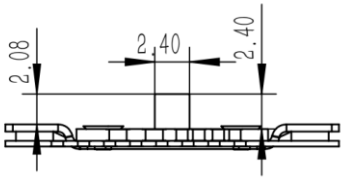
TOP VIEW



BOTTOM VIEW



FRONT VIEW



SK8707-01 Mechanical Drawing (Unit in mm)

SALE AND SERVICE INFORMATION

To obtain information about Sprintek Corporation or pointing stick product sales and technical support, reference the following information.

Sprintek Corporation
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Simi Valley, CA 93063, USA
Web Site: http://www.sprintek.com

REVISION HISTORY

Revision	Issue Date	Description
1.00	March 16, 2021	Initial Release
1.01	November 29, 2023	Updated for new released modules, which added FFC connectors, FFC soldering pads; updated mechanical drawing.