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
- Integrated or detached control board
- Typical 2.4mm stem and height-adjustable M2 screw stem
- Two types of metal plate options
- 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

APPLICATION

- Notebooks/Laptops
- Handhelds
- Keyboards
- Instrumentation

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.

The SK8707-01's sensor deploys two types of stems: 2.4x2.4x2.4mm sqare prism stick in SK8707-01-001/002/004 and height-adjustable M2 screw stick in SK8707-01-005. The height of the M2 screw stick in SK8707-01-005 can be adjustable from 11.5mm to 27.5mm using mating standoffs.

The SK8707-01-008 deploys diamond metal plate; and this design is good for tight space applications.

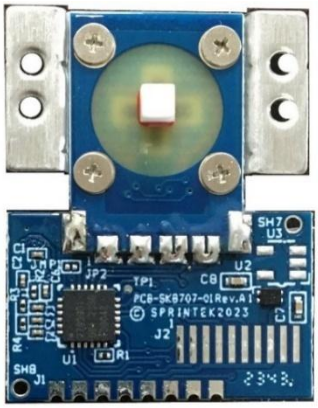
Typically, consuming 650uA in idle state, the SK8707-01 is ideal for battery-operated systems.

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.

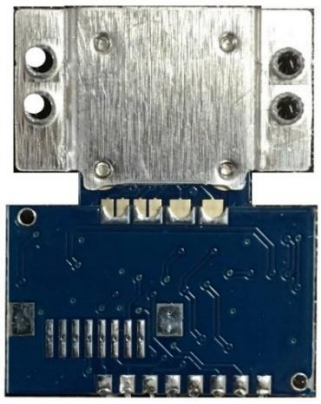
The SK8707-01 FlexPoint™ module partially implements the Lenovo TrackPoint® extended command protocol and can work with Lenovo TrackPoint® device drivers directly.

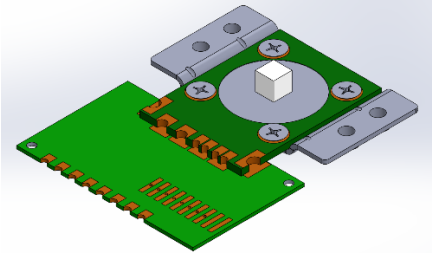
MODULE PICTURES

TOP VIEW

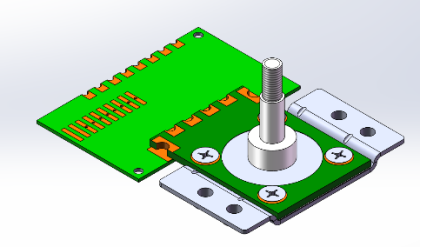


BOTTOM VIEW

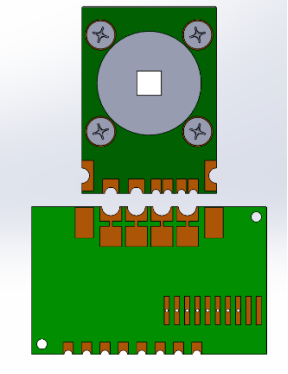




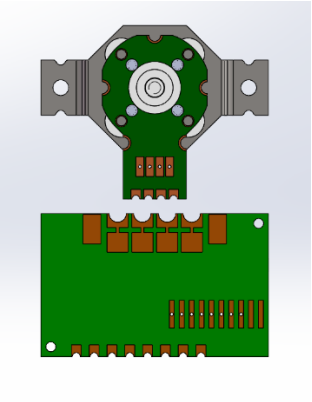
SK8707-01-001 / SK8707-01-002



SK8707-01-005



SK8707-01-004



SK8707-01-008

ORDEING INFORMATION

SK8707-01-001 (5V,2.4x2.4x2.4mm square prism stick, integrated) Pb-Free, RoHS
SK8707-01-002 (3.3V,2.4x2.4x2.4mm square prism stick, integrated) Pb-Free, RoHS
SK8707-01-004 (3.3V,2.4x2.4x2.4mm square prism stick, detached without metal plate) Pb-Free, RoHS
SK8707-01-005 (3.3V,11.5mm M2 screw stick, integrated) Pb-Free, RoHS
SK8707-01-008 (3.3V,9.9mm M2 screw stick, detached with diamond metal plate) Pb-Free, RoHS

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

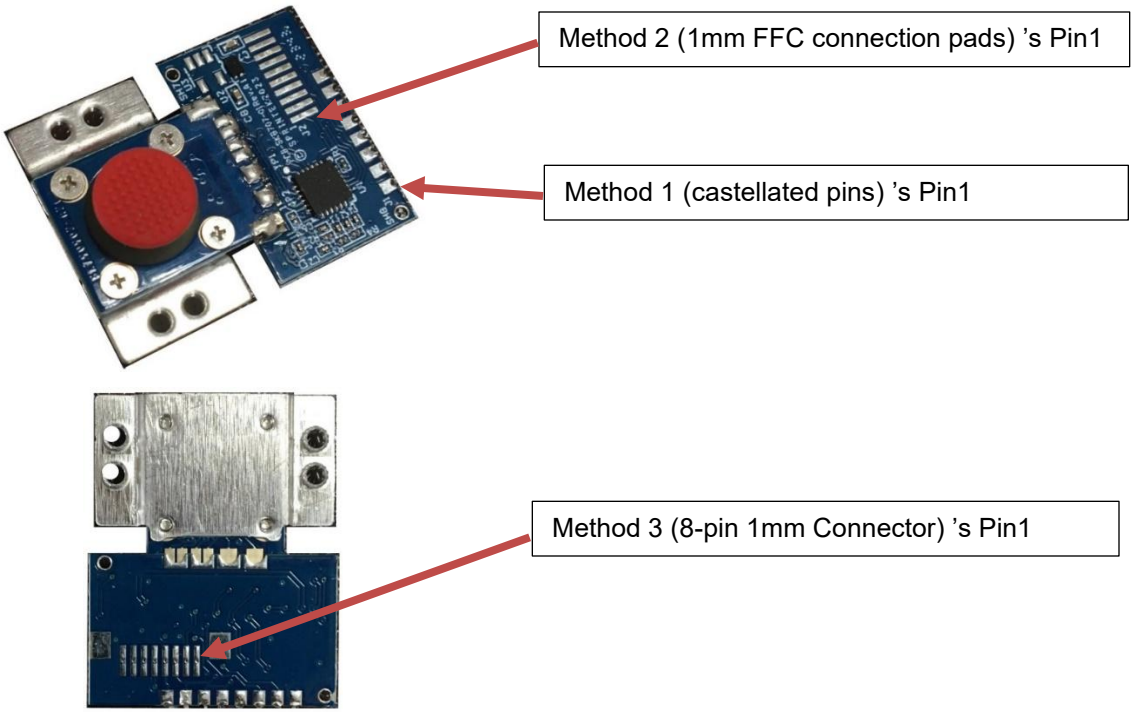
LENGENG P = Power, I = Input, O = Output, IO = Input/Output

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



3 Connection Methods

There are 3 connection methods.

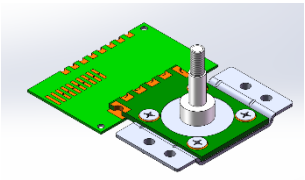
Method 1: Board-to-board castellated pins. The method can be used to solder the module to the host board directly or wire the module to the host board via individual wires or FPC.

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.

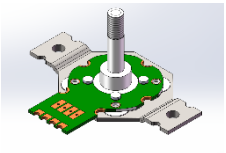
Height-adjustable M2 screw stick of SK8707-01-005

The SK8707-01-005 model deploys a M2 screw stick with 11.5mm height. A 4mm or longer M2 spacer screw standoff can be used to adjust the total height from 11.5mm. Sprintek provides such M2 standoffs fitting with Sprintek rubber caps. If you need height lower than 11.5mm, please contact us.



Height-adjustable M2 screw stick of SK8707-01-008 with diamond metal plate

The SK8707-01-008 model deploys a M2 screw stick with 10mm height. A 3mm or longer M2 spacer screw standoff can be used to adjust the total height from 10mm. Sprintek provides such M2 standoffs fitting with Sprintek rubber caps.



Communication Protocol and Hardware Interface

SK8707-01 simulates standard PS/2 mouse and follows its command protocol. The host needs pull-up resistors on PS/2 DATA and CLK lines. The built-in pullup resistors from the host 4k to 100k are acceptable. Float RESET pin if you don't plan to control the reset timing. A capacitor and a pull-down resistor (typical 0.1uF and 10k) on the RESET line can be used to control the RESET timing.

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	

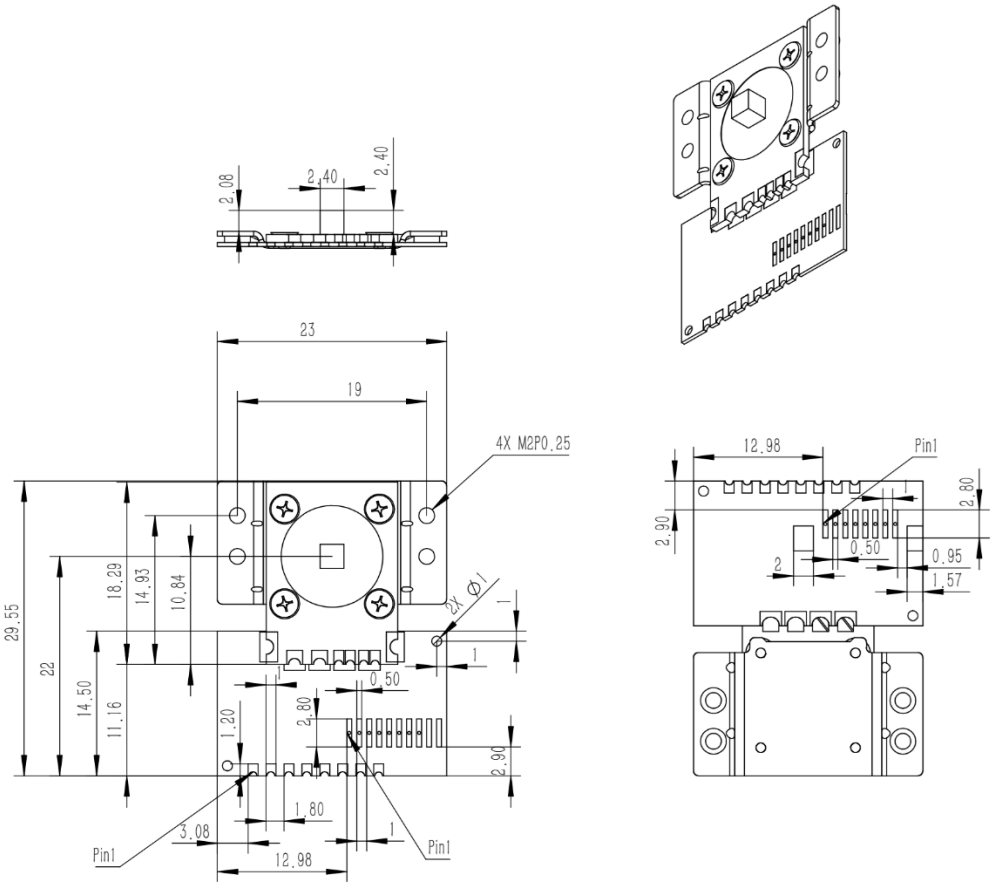
DC Electrical Characteristics （5V）

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	

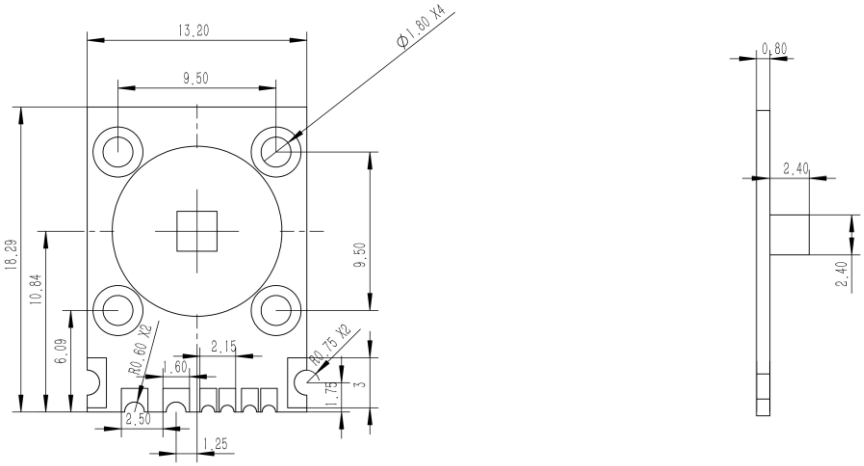
MECHANICAL SPECIFICATIOIN



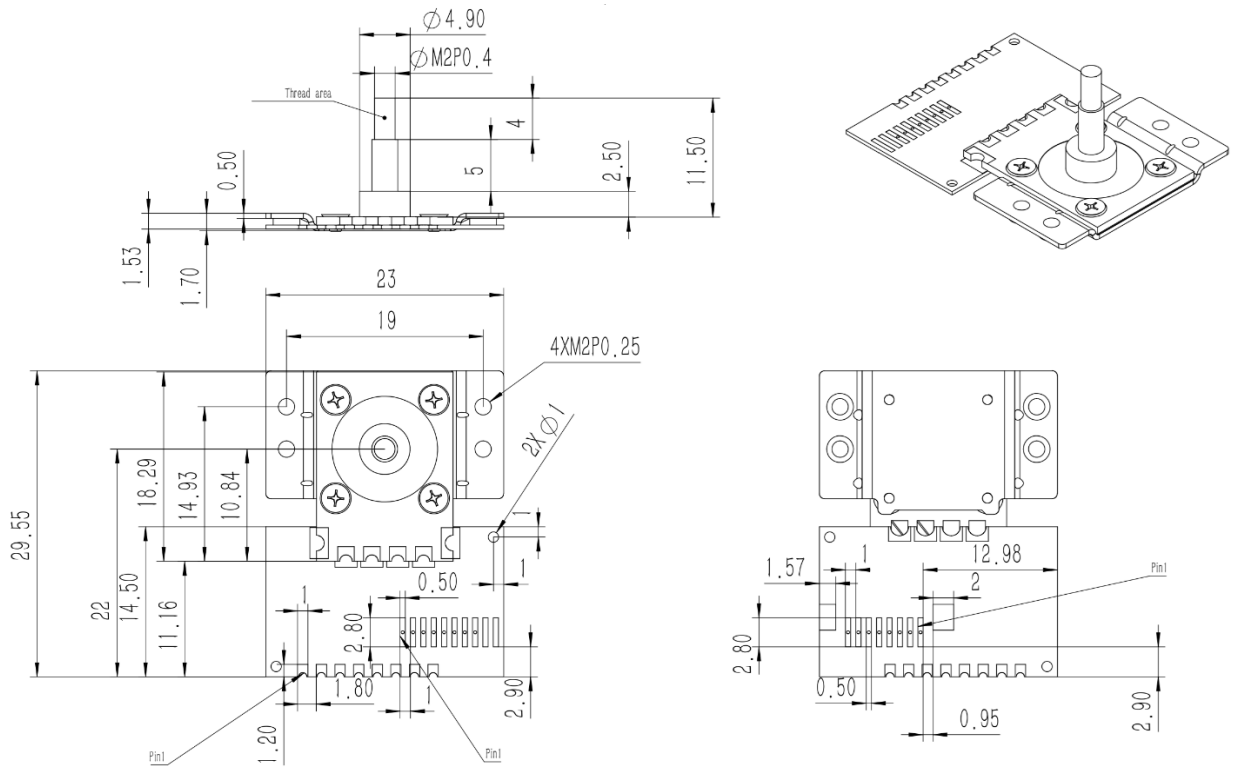
SK8707-01 Module Mechanical Drawing (Unit in mm)

TOP VIEW

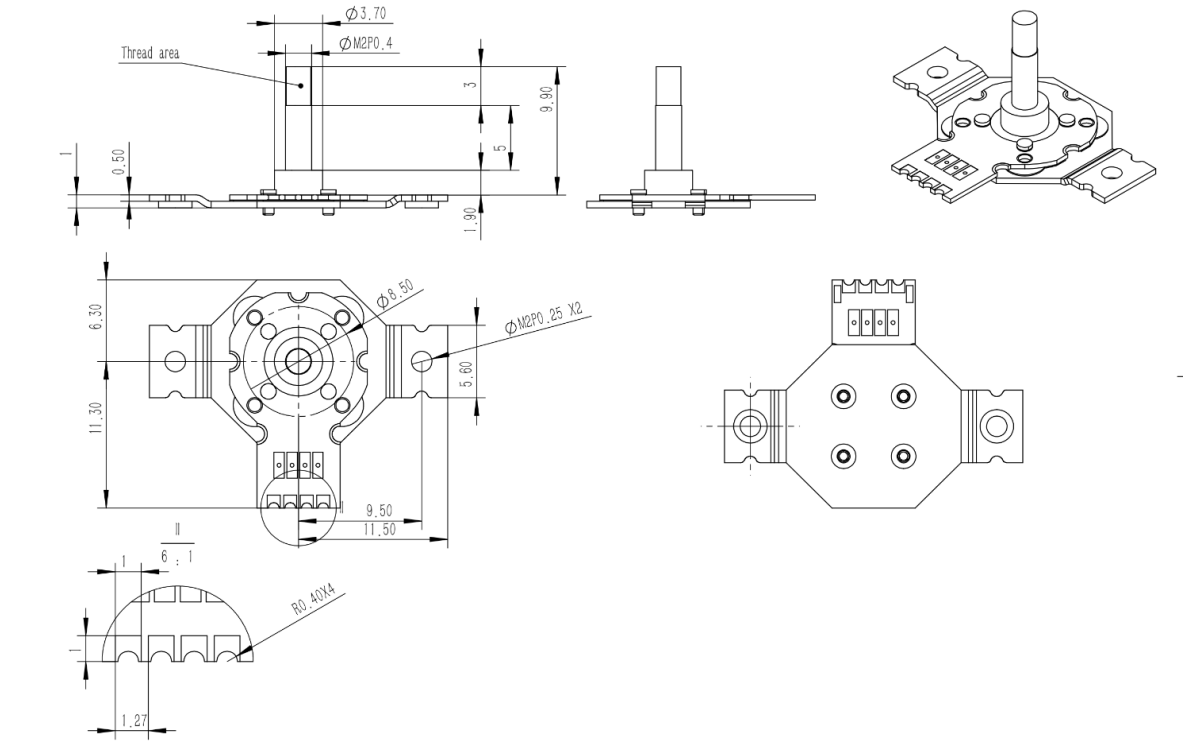
SIDE VIEW



SK8707-01 Sensor PCB Mechanical Drawing (Unit in mm)



SK8707-01-005 Sensor Mechanical Drawing (Unit in mm)



SK8707-01-008 Sensor 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
4969 Corral Street
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.
1.02	January 25, 2025	Updated mechanical drawing
1.03	June 3, 2025	Added SK8707-01-005 (3.3V,11.5mm M2 screw stick, integrated) Added SK8707-01-008 (3.3V,9.9mm M2 screw stick, detached with diamond metal plate)