Pointing Stick Controller Family   Data Sheet

SK8702 – FlexPoint™ 3 Axis PS/2 Pointing Stick Module   **Sprintek Corporation**

FEATURES

- Low cost and space saving mouse solution
- 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), 2.1 mA (operation)
- 3.2V to 5.25V operating voltage
- Temperature range: -40°C to +85°C

APPLICATION

- Notebooks/Laptops
- Handhelds
- Keyboards
- Instrumentation

ORDEING INFORMATION

SK8702-01 (4.5V to 5.25V) Pb-Free, RoHS
SK8702-02 (3.2V to 5.25V) Pb-Free, RoHS

DESCRIPTION

The SK8702 FlexPoint™ pointing stick module is a cost-effective, space-saving PS/2 mouse device deploying a Sprintek SK7102 pointing stick controller.

Typically, consuming 650uA in idle state, the SK8702 is ideal for battery-operated systems.

Deploying CellMute™ technology and patent-pending signal conditioning circuit to filter the wireless EMI noise from cellular phones and wireless networks, the SK8702 modules can work quietly in wireless environment.
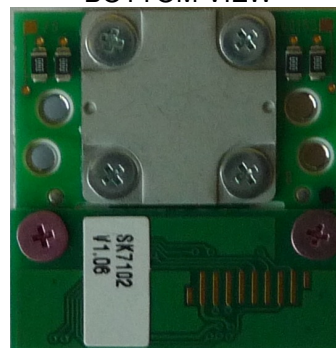
The SK8702 FlexPoint™ module partially implements the Lenovo TrackPoint® extended command protocol and can work with Lenovo TrackPoint® device drivers directly.

MODULE PICTURES

TOP VIEW
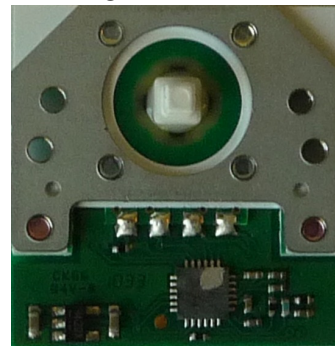
BOTTOM VIEW

CONNECTION DEFINITION

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

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

APPLICATION NOTES

Power Supply

When SK8702-02 is powered by 3.6V and above, the PS/2 data and clock lines shall be pulled up with 3.6V or lower to prevent unwanted current from these lines to the module.

Connector

The SK8702 doesn't come with a connector. It's designed for FPC application; but you may assembly a connector at your side. The recommended connector is 196418-08021-3 from P-TWO Industries Inc.

Plastic Cap and Rubber Caps

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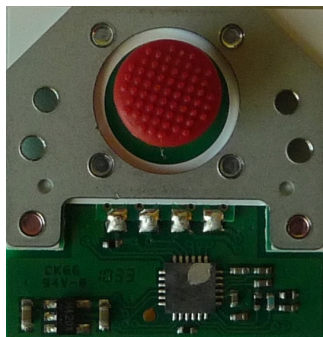
ELECTRONICS SPECIFICATIOIN

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

Symbol	Description	Min	Typ	Max	Units	Notes
VDD	Supply Voltage	3.2	-	+5.25	V	Min 3.2V for SK8702-02 Min 4.5V for SK8702-01
IOP	Supply Current when module is in operation mode		2.09		mA	Default setting for SK8702-02
IIDLEZ	Supply Current when module is in idle mode with Z-Tap enabled		1.44		mA	Default setting for SK8702-02
IIDLE	Supply Current when module is in idle mode with Z-Tap disabled		650		uA	Default setting for SK8702-02
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	

Power Consumption

The SK8702 has flexible power management. The power settings can be changed via command and manufacturer settings.

IOP: Current when the pointing stick sensor is operated
INOT: Current when the pointing stick sensor is not operated
IIDLE3: Current when the device enters idle state (The sleep setting is 3-cycle)
IIDLE10: Current when the device enters idle state (The sleep setting is 10-cycle)
ISD: Current after execute power command

The following measurements are reference only. They might be changed at different version firmware.

Power Consumption SK8702-01 (mA)

Report Rate	IOP	INOT	IIDLE3	IIDLE10	ISD
0x14	2.07	1.59	0.72	0.41	0.032
0x28	2.26	1.59	0.72	0.41	0.032
0x50	2.57	1.59	0.72	0.41	0.032
0x3C	2.76	1.94	0.89	0.50	0.032
0x64	2.76	1.94	0.89	0.50	0.032
0xC8	3.21	1.94	0.89	0.50	0.032

Power Consumption SK8702-02 (mA)

Report Rate	IOP	INOT	IIDLE3	IIDLE10	ISD
0x14	1.54	1.16	0.53	0.32	0.04
0x28	1.68	1.16	0.53	0.32	0.04
0x50	1.96	1.16	0.53	0.32	0.04
0x3C	2.09	1.44	0.65	0.37	0.04
0x64	2.09	1.44	0.65	0.37	0.04
0xC8	2.46	1.44	0.65	0.37	0.04

MECHANICAL SPECIFICATIOIN
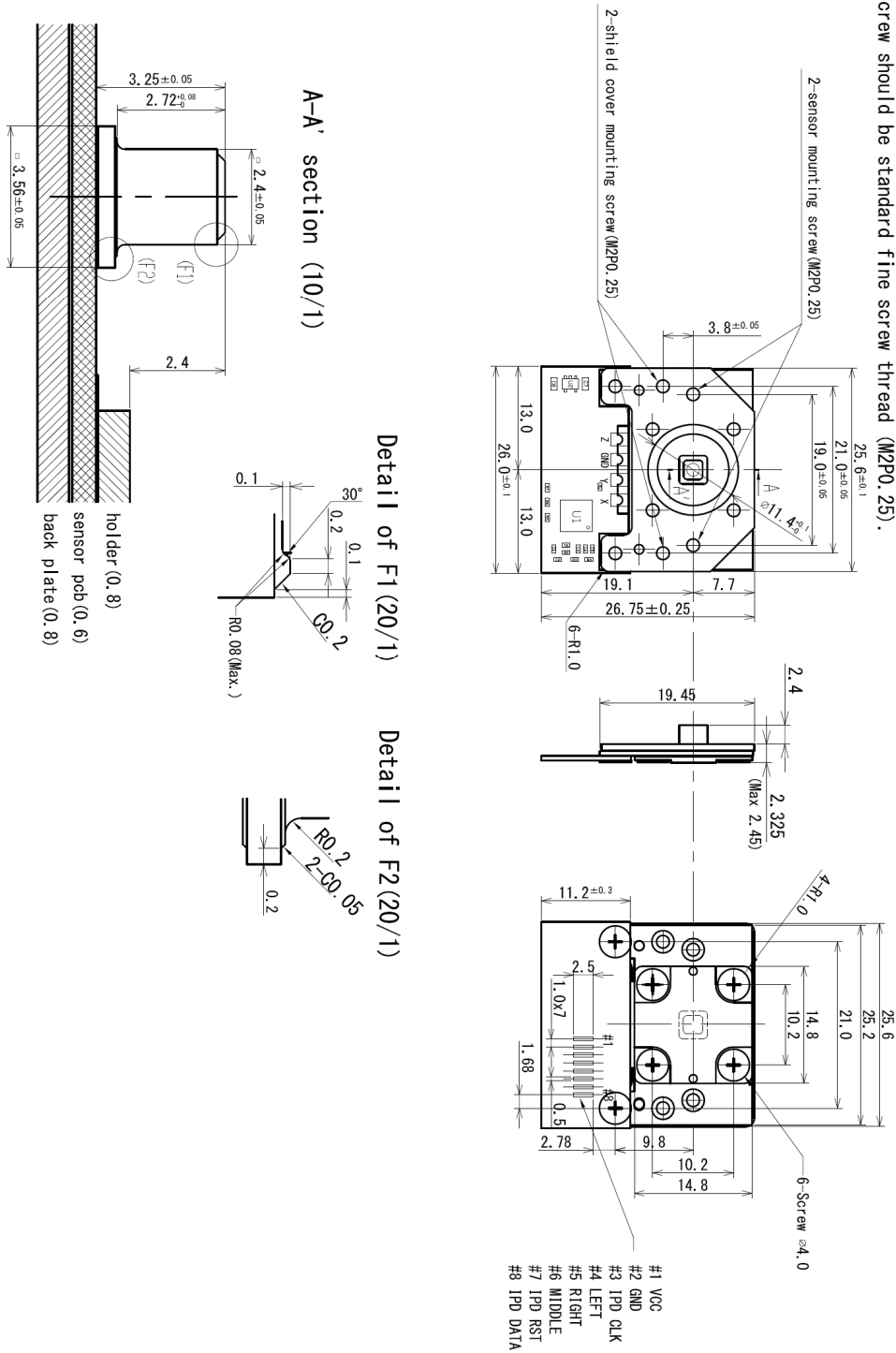
SK8702-XX Mechanical Drawing (Unit in mm)

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
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REVISION HISTORY

Revision	Issue Date	Description
1.00	May 10, 2010	Initial Release
1.01	May 13, 2010	Replaced SK8702-00 with SK8702-01
1.02	April 4, 2011	Added SK8702-02
1.03	September 3, 2011	Added trademark FlexPoint; added power consumption measurements.
1.05	September 8, 2012	Revised mechanical drawing; added application notes section; updated company address.