

STANDARD Micro Controller Specification

NC41120-0021 Serial/USB Interface Controller Chip

For 5-Wire Resistive Touch Panels

■ FEATURES

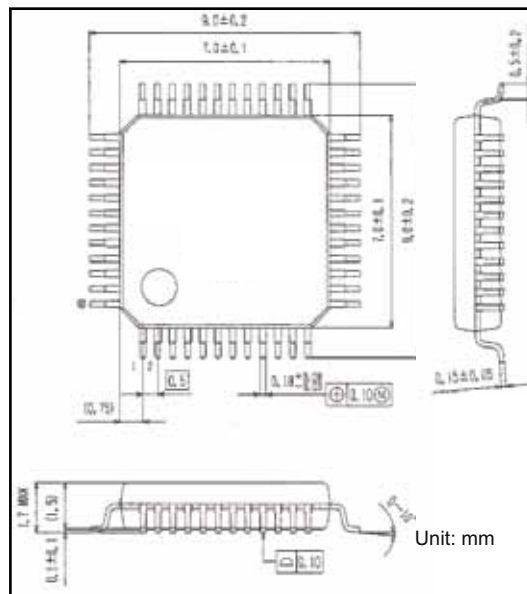
- The control IC and the Fujitsu 5-wire touch panel converts pen or finger pressure on a specific location into coordinate axis values and outputs them as serial data.
- RoHS compliant



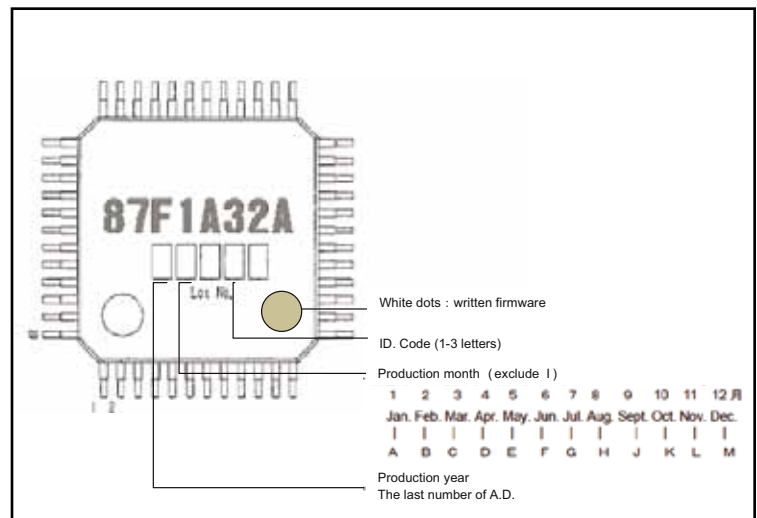
■ FUNCTION OVERVIEW

- The control IC and the Fujitsu 5-wire touch panel converts pen or finger pressure on a specific location into coordinate axis values and outputs them as serial data.
- Interface can be selected from USB or Serial
- This control IC can be operated by the USB host controller as a standard HID device.
- Mouse-mode or digitizer-mode can be selected by terminal setting of PID4, PID3, PID2, PID1.
- If mouse-mode is selected, the control IC transmits 3 button (left, middle, right button) status and the absolute coordinates to the USB host.
- If digitizer-mode is selected, the control IC can be operated as digitizer of HID.
- If serial is chosen the control IC can be switched to PNP or non-PNP with the I/F SEL terminal.
- In addition, the control IC can be selected in coordinates-mode, standard 12bit or expanded 14bit with the MODE SEL terminal.

■ SURFACE DIAGRAM



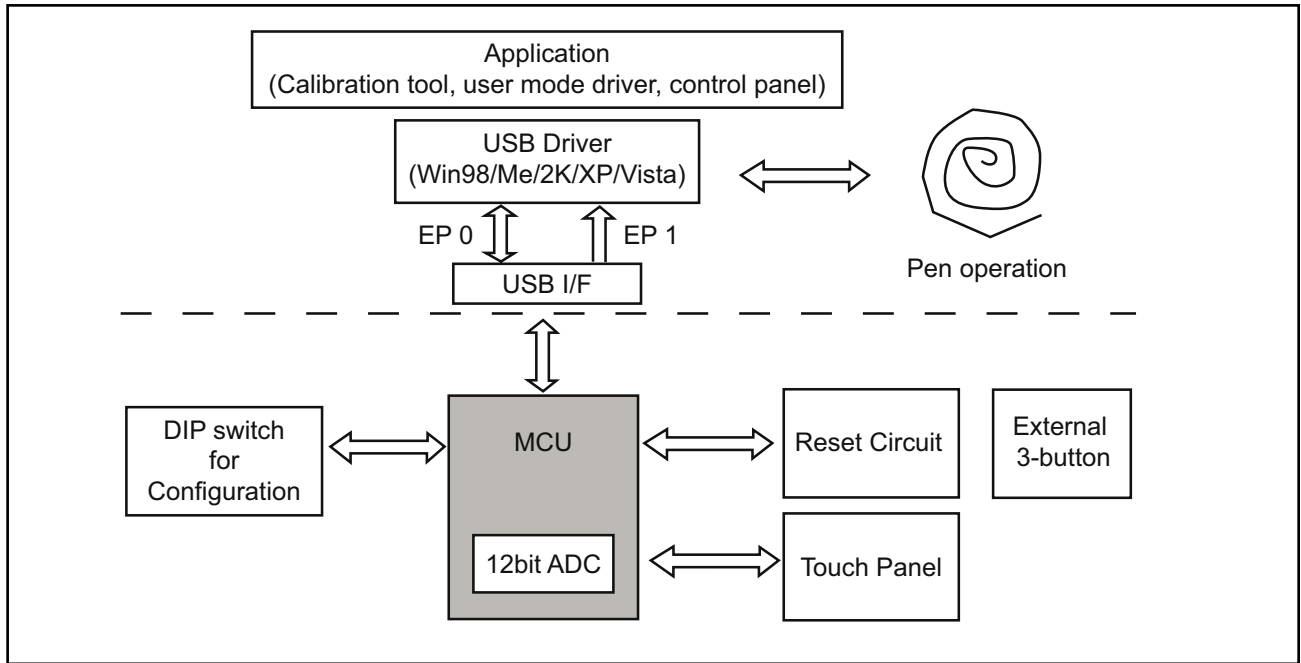
■ SEAL SPECIFICATIONS



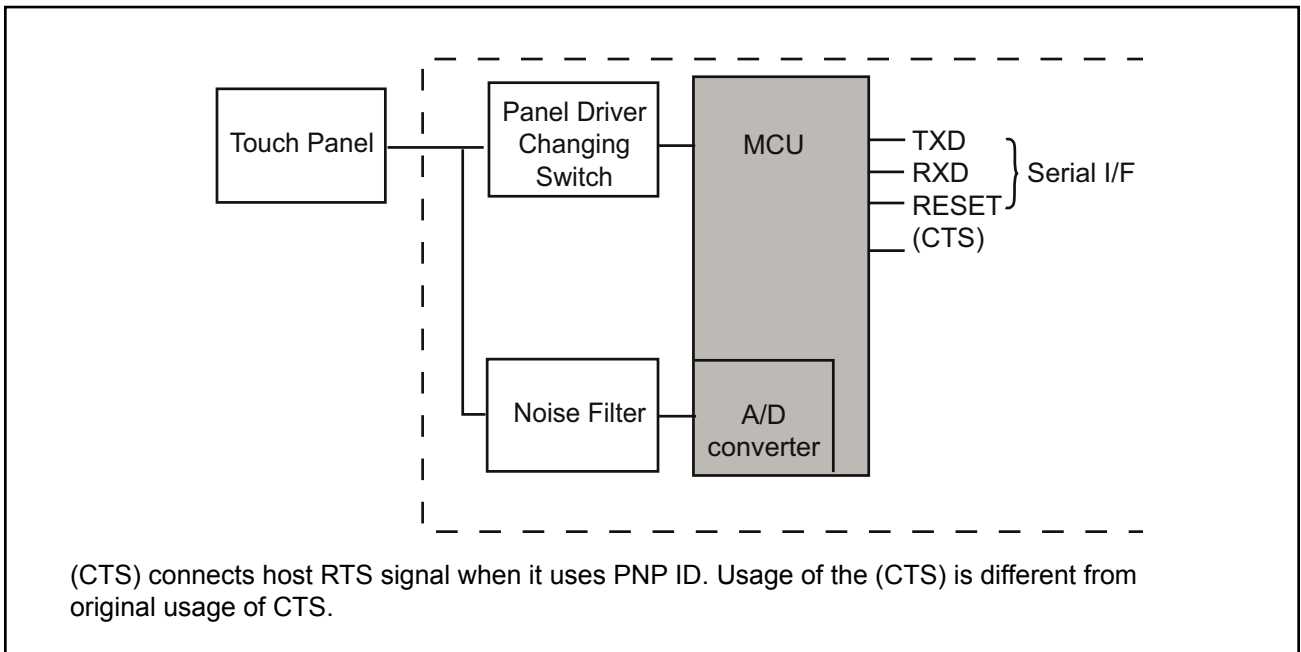
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■ CONSTRUCTION

USB Interface

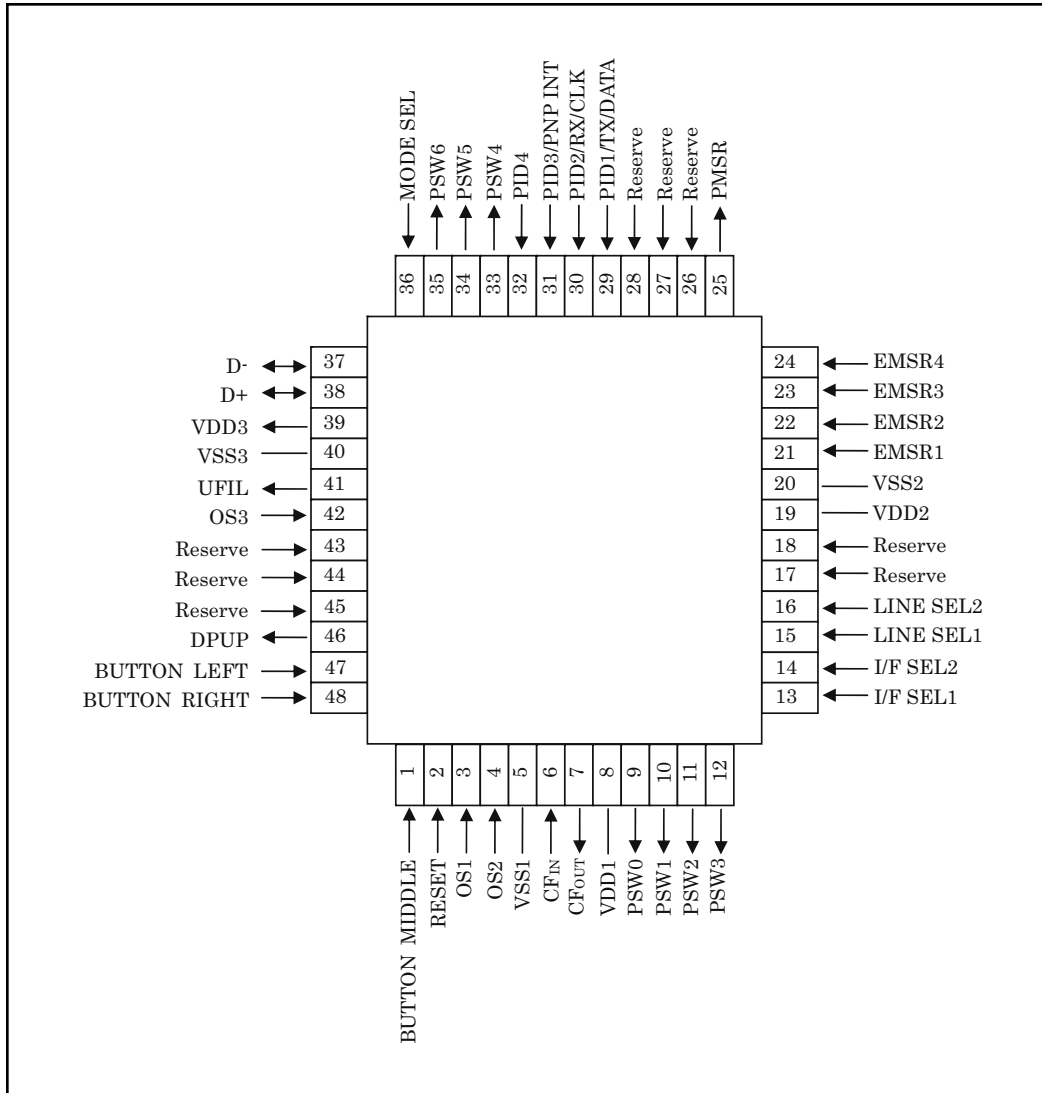


Serial Interface



5-Wire USB / Serial Interface Controller Chip

■ INPUT TERMINAL AND FUNCTIONS



5-Wire USB / Serial Interface Controller Chip

■ USB INTERFACE INPUT/OUTPUT TERMINAL LIST

Pin No	Terminal Name	Function Specification	I/O	Built-in Pull-up
1	BUTTON MIDDLE	Middle button	I	Available
2	RESET	Input pin for reset	I	None
3	OS1	Selecting the origin (X-Y coordinate switch)	I	None
4	OS2	Selecting the origin (X coordinate inversion)	I	None
5	VSS1	Digital power supply (0V)	-	-
6	CF _{IN}	Main clock input terminal (ceramic oscillator)	I	None
7	CF _{OUT}	Main clock output terminal (ceramic oscillator)	O	None
8	VDD1	Pin for digital power supply (5V)	-	-
9	PSW0	Output terminal for panel pull-up switch control	O	None
10	PSW1	Output terminal for panel drive switch control	O	None
11	PSW2	Output terminal for panel drive switch control	O	None
12	PSW3	Output terminal for panel drive switch control	O	None
13	I/F SEL1	I/F select terminal	I	None
14	I/F SEL2	I/F select terminal	I	None
15	LINE SEL1	Wire system select terminal	I	None
16	LINE SEL2	Wire system select terminal	I	None
17	Reserve	Unused (pull-up/pull-down)	I	None
18	Reserve	Unused (pull-up/pull-down)	I	None
19	VDD2	Digital power supply (5V)	-	-
20	VSS2	Digital power supply (0V)	-	-
21	EMSR1	Panel electrode voltage measuring terminal	I	None
22	EMSR2	Panel electrode voltage measuring terminal	I	None
23	EMSR3	Panel electrode voltage measuring terminal	I	None
24	EMSR4	Panel voltage measuring terminal	I	None
25	PMSR	Panel electrode measuring pin	O	None
26	Reserve	Unused (pull-up/pull-down)	I	None
27	Reserve	Unused (pull-up/pull-down)	I	None
28	Reserve	Unused (pull-up/pull-down)	I	None
29	PID1	Pin for selecting PID	I	None
30	PID2	Pin for selecting PID	I	None
31	PID3	Pin for selecting PID	I	None
32	PID4	Pin for selecting PID (USB)	I	None
33	PSW4	Output pin for panel drive switch control	O	None
34	PSW5	Output pin for panel drive switch control	O	None
35	PSW6	Output pin for panel drive switch control	O	None
36	MODE SEL	Coordinate mode select terminal	I	None
37	D-	USB input-output terminal	IO	None
38	D+	USB input-output terminal	IO	None
39	VDD3	Reference voltage output pin for USB	-	-
40	VSS3	Pin for digital power supply (0V)	-	-

5-Wire USB / Serial Interface Controller Chip

■ USB INTERFACE INPUT/OUTPUT TERMINAL LIST

Pin No	Terminal Name	Function Specification	I/O	Built-in Pull-up
41	UFILT	PULL filter circuit connecting terminal for USB	O	Available
42	OS3	Pin for selecting the origin (Y coordinate inversion)	I	Available
43	Reserve	Unused (pull-up/pull-down)	I	Available
44	Reserve	Unused (pull-up/pull-down)	I	Available
45	Reserve	Unused (pull-up/pull-down)	I	Available
46	DPUP	D+ pull-up control pin (USB)	O	Available
47	BUTTON LEFT	Left button	I	Available
48	BUTTON RIGHT	Right button	I	Available

■ SERIAL INTERFACE INPUT/OUTPUT TERMINAL LIST

Pin No	Terminal Name	Function Specification	I/O	Built-in Pull-up
1	Reserve	Unused (pull-up/pull-down)	I	Available
2	RESET	Reset input terminal	I	None
3	OS1	Selecting the origin (X-Y coordinate switch)	I	None
4	OS2	Selecting the origin (X coordinate inversion)	I	None
5	VSS1	Digital power supply (0V)	-	-
6	CF _{IN}	Main clock input terminal (ceramic oscillator)	I	None
7	CF _{OUT}	Main clock output terminal (ceramic oscillator)	O	None
8	VDD1	Digital power supply (5V)	-	-
9	PSW0	Output terminal for panel pull-up switch control	O	None
10	PSW1	Output terminal for panel drive switch control	O	None
11	PSW2	Output terminal for panel drive switch control	O	None
12	PSW3	Output terminal for panel drive switch control	O	None
13	I/F SEL1	I/F select terminal	I	None
14	I/F SEL2	I/F select terminal	I	None
15	LINE SEL1	Wire system selecting terminal	I	None
16	LINE SEL2	Wire system selecting terminal	I	None
17	Reserve	Unused (pull-up/pull-down)	I	None
18	Reserve	Unused (pull-up/pull-down)	I	None
19	VDD2	Digital power supply (5V)	-	-
20	VSS2	Digital power supply (0V)	-	-
21	EMSR1	Panel electrode voltage measuring terminal	I	None
22	EMSR2	Panel electrode voltage measuring terminal	I	None
23	EMSR3	Panel electrode voltage measuring terminal	I	None
24	EMSR4	Panel voltage measuring terminal	I	None
25	PMSR	Panel electrode measuring pin	O	None
26	Reserve	Unused (pull-up/pull-down)	I	None
27	Reserve	Unused (pull-up/pull-down)	I	None
28	Reserve	Unused (pull-up/pull-down)	I	None
29	TX	Serial data output terminal	O	Available

5-Wire USB / Serial Interface Controller Chip

■ SERIAL INTERFACE INPUT/OUTPUT TERMINAL LIST

Pin No	Terminal Name	Function Specification	I/O	Built-in Pull-up
30	RX	Serial data output terminal	I	None
31	PNPINT	PNP ID input terminal	I	None
32	Reserve	Unused (pull-up/pull-down)	I	None
33	PSW4	Output terminal for panel drive switch control	O	None
34	PSW5	Output terminal for panel drive switch control	O	None
35	PSW6	Output terminal for panel drive switch control	O	None
36	MODE SEL	Coordinate mode select terminal	I	None
37	Reserve	Unused (pull-up/pull-down)	IO	None
38	Reserve	Unused (pull-up/pull-down)	IO	None
39	Reserve	Unused (open)	O	Available
40	VSS3	Digital power supply (0V)	-	-
41	Reserve	Unused (open)	O	Available
42	OS3	Selecting the origin (Y-coordinate inversion)	I	Available
43	Reserve	Unused (pull-up/pull-down)	I	Available
44	Reserve	Unused (pull-up/pull-down)	I	Available
45	Reserve	Unused (pull-up/pull-down)	I	Available
46	Reserve	Unused (open)	O	Available
47	Reserve	Unused (pull-up/pull-down)	I	Available
48	Reserve	Unused (pull-up/pull-down)	I	Available

Complete specification document is available on request for customers with whom we have an approved NDA in place.

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