坤 巨 資 訊 股 份 有 限 公 司

GROOVY TECHNOLOGY CORP.

SPECIFICATIONS OF TOUCH CONTROLLER

觸控面板控制器標準規範書

Date(日期): 2006/11/10

Customer(客戶):

Model(型式): ET-1232ABSP

Mode(種類): Resistive Controller (4/5Wire)

Customer Approval(客戶確認)

Approve(確認)	Checked(審閱)	Preparation(製表)

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CONTENT

1. APPLICATION

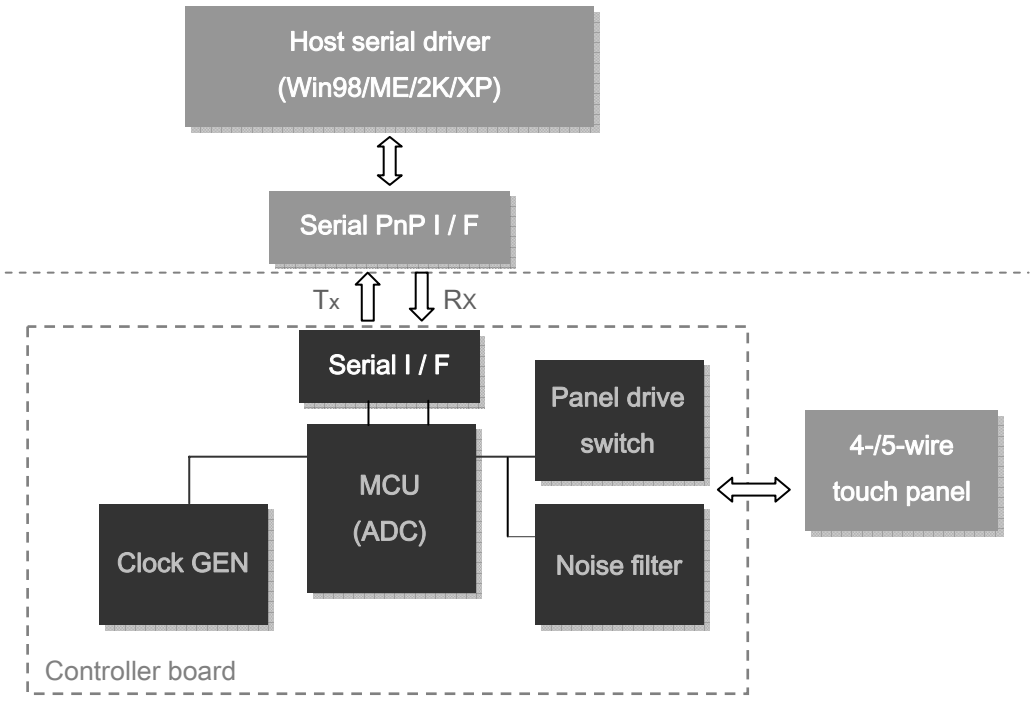
This series products is solution for touch panel application. The controller is desigened for fully integrated pen-touch application. The combo control board support serial interface include PnP. It is for both 4 and 5 wire resistive touch panel. It also provide 12 bit ADC resolution. It is good for pen-touch with low-power application.

2. FUNCTION

2.1. SUMMARY

The combo control board can work with standard mouse driver. It also works with touch driver. Touch driver supports mouse and pen-touch function. This board supports 4-wire and 5-wire analog resistive film touch-panel. MCU mounted on this board does not have the calibration function. If a special device driver is installed, the application of the calibration and other function can be executed

2.2 BLOCK DIAGRAM



2.3 INTERFACE SPECIFICATIONS

2.3.1 Interface for HOST Side

Communication mode：Full duplex communication mode-serial interface.
Transmission speed ：9600 bps.
Data transmission mode ：Asynchronous start-stop synchronization.
Signal level ：Conforming to RS-232-C
Data format：Binary

Pin No.	Signal name	I/O	Specifications	Note
1	TXD	O	Data send signal	Approximately ±12V
2	RXD	I	Data receive signal	Approximately ±12V
3	VCC	I	Power	+5V
4	RTS	I	PnP request signal	Approximately ±12V
5	GND	-	Ground	0V

2.3.2 Interface for Touch Panel Side

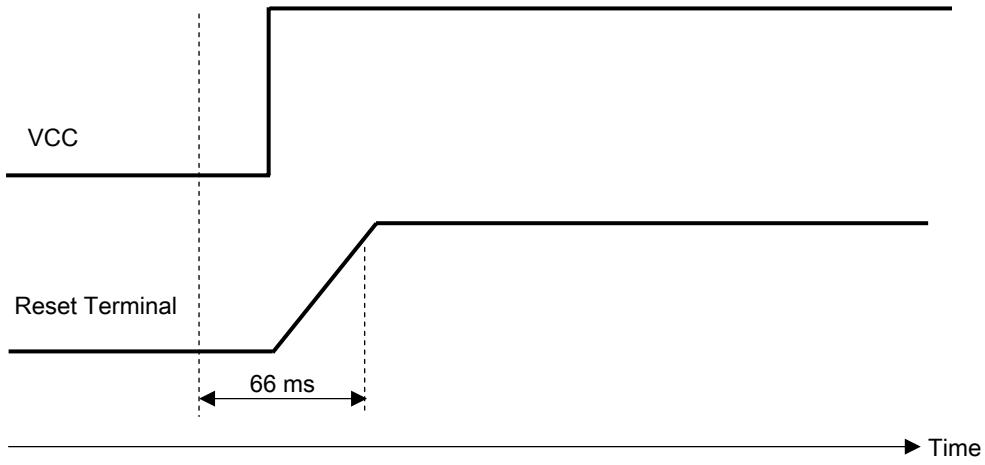
Pin No.	Specifications / Standards
2	Left
4	Right
6	Lower
8	Upper

Pin No.	Specifications / Standards
1	Lower Left
3	Upper Left
5	Top Sheet
7	Lower Right
9	Upper Right

2.4 SIGNAL LINE AND TIMING CHART

2.4.1 Power on Reset

MCU is low level reset for at least 66ms while the oscillator is running in order to reset the entire MCU .



2.5 TOUCH-PANEL FUNCTION

2.5.1 Coordinate Placement

The coordinate for the initial status display the external shape of the panel. The origin is at one corner of the panel and the diagonal corner is the maximum value(X=4096 Y=4096). Accordingly, the minimum value of the input area is larger than 0 and the maximum value is less than 4096.

2.5.2 Output Data

The output data format is as follows

Byte	Definition	Explanation (Bit format)							
Byte 0	Header	1	Flag Bit6	0	0	Flag Bit3	Flag Bit2	Flag Bit1	Flag Bit0
Byte 1	X position HByte	0	X pos Bit13	X pos Bit12	X pos Bit11	X pos Bit10	X pos Bit9	X pos Bit8	X pos Bit7
Byte 2	X position LByte	0	X pos Bit6	X pos Bit5	X pos Bit4	X pos Bit3	X pos Bit2	X pos Bit1	X pos Bit0
Byte 3	Y position HByte	0	Y pos Bit13	Y pos Bit12	Y pos Bit11	Y pos Bit10	Y pos Bit9	Y pos Bit8	Y pos Bit7
Byte 4	Y position HByte	0	Y pos Bit6	Y pos Bit5	Y pos Bit4	Y pos Bit3	Y pos Bit2	Y pos Bit1	Y pos Bit0

Flag Bit6 : 0 UnTouch / 1 Touch

2.6 PLUG AND PLAY (PNP) ID RESPONSE

2.6.1 Forwarding Method

Transfer rate: 1200bps

Data transmission mode: Asynchronous start-stop synchronization

Signal level: Conforming to RS-232-C

2.6.2 PnP ID Response Operation

The operation when PnP ID is transmitted to the host is described as follows:

RTS means host's RTS signal

H means +12V(space)

L means -12V(mark).

When Power on is reset(DTR signal is H),this MCU is executed the PnP ID response. Connect DTR with RTS in the loop back on the PC side when you use the PnP function on windows PC.

3. ELECTRICAL CHARACTERISTICS

3.1 ABSOLUTE MAXIMUM RATING (VSS=0V)

Parameter	Symbol	Rating	Unit
DC Supply Voltage	VDD	<+7.0	V
Input / Output Voltage	Vin	-0.5 ~ VDD+0.5	V
Operating Ambient Temperature	T(opr)	0 ~ 70	℃
Storage Temperature	T(stg)	-50 ~ 150	℃

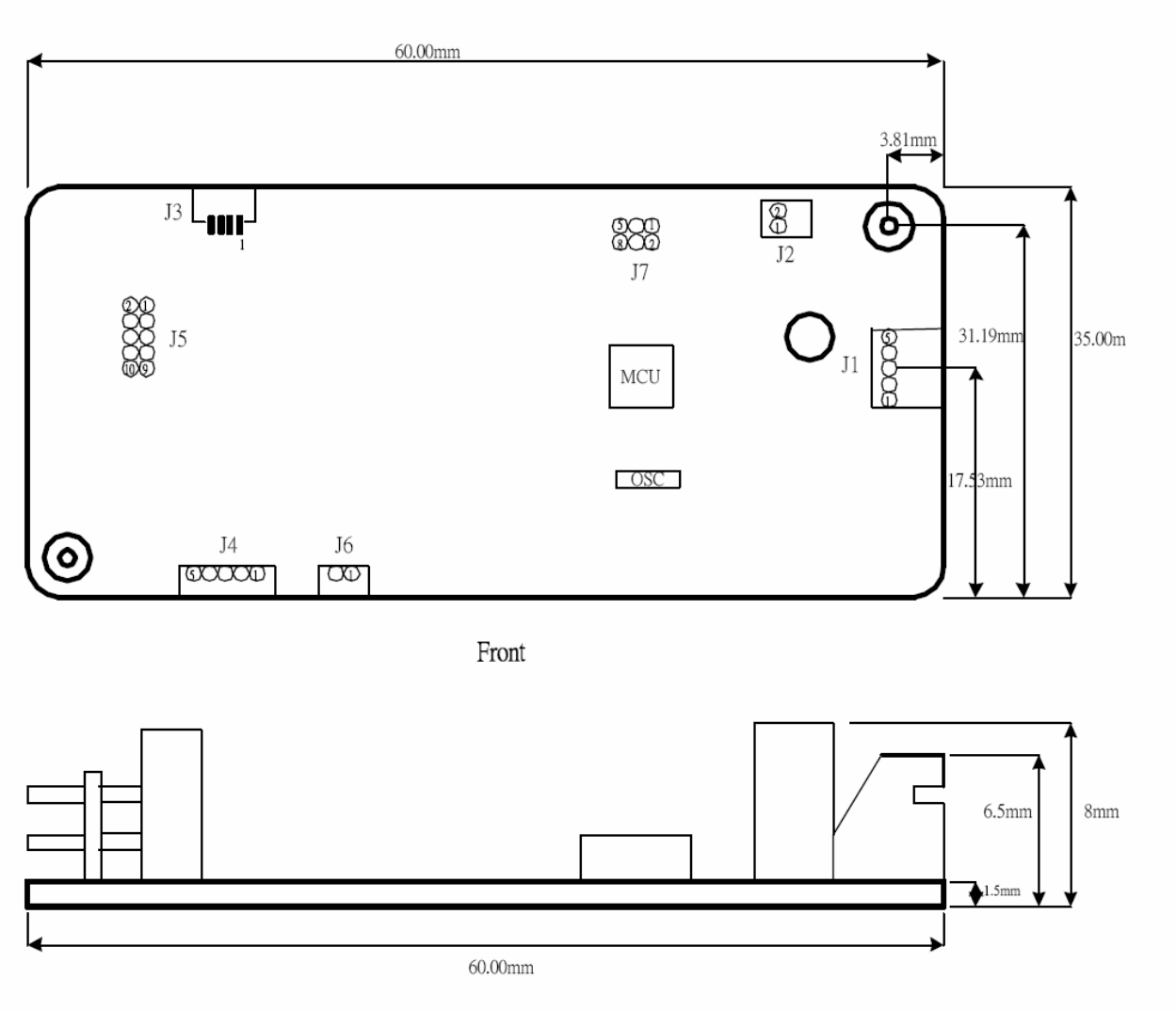
3.2 ELECTRICAL CHARACTERISTICS (VSS=0V,T(OPR)=0~70℃)

Parameter	Symbol	Min	Type	Max	Units	Condition
Operating Voltage	VDD	2.4	-	5.5	V	-
Operating Current	Iop	-	-	2	mA	OSC 4MHz @ 5.0V
Standby Current	Istb	-	-	1.0	mA	VDD=5.0V
OSC Frequency	Fosc	-	-	6	MHz	VDD=5.0v
Intput High Level	Vlh	4.0 / 2.5		-	V	VDD=5.0V/VDD=3.0V
Intput Low Level	VIL	-	-	0.8/0.5	V	VDD=5.0V/VDD=3.0V
CPU Clock	Fcpu	0.03	-	6	MHz	Fcpu=Fosc@5V

Note: reset voltage only valid when serial founction is used

4. MECHANICAL SPECIFICATION

4.1 EXTERNAL SHAPE OF CONTROL BOARD



J1 (Interface for Host side)

Pin No.	Specification
1	TXD
2	RXD
3	DTR
4	RTS
5	GND

J3/J5 (Interface for touch panel side 4W)

J5 Pin No.	J3 Pin No.	Specifications / standards
2	1	Left
4	2	Right
6	3	Lower
8	4	Upper

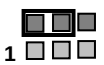
J5 (Interface for touch panel side 5W)

Pin No.	Specifications / standards
1	Lower left
3	Upper left
5	Top sheet
7	Lower right
9	Upper right

J2 (Extra power connector)

Pin No.	Specification
1	VCC
2	GND

J7 (Jump)



5-wire (J7.2 and J7.4 short)

4-wire (J7.4 and J7.6 short)

Compatible driver (J1.1 and J1.3 short)

Touch driver (J1.3 and J1.5 short)

4.2 HEIGHT OF COMPONENT MOUNTING

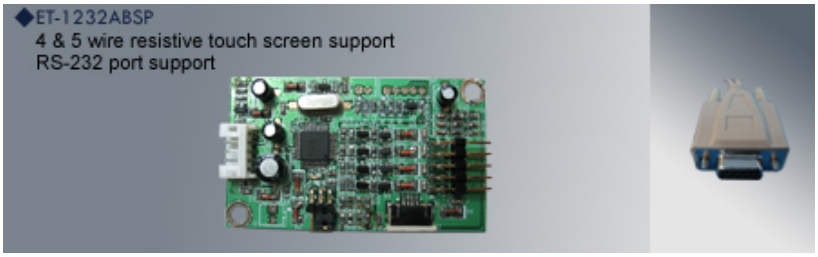
8.0mm Maximum (Height of mounting from solder side)

4.3 WEIGHT

Around 10.5g

4.4 INTERFACE CONNECTOR

Serial Side：Wafer 2.00mm pitch connector
Touch Panel Side：2.54mm Shrouded Header(4- /5-wire)
1.00mm FPC/FFC connector (4-wire) (option)
Extra Power: 2.54mm pin header (option)



5. PACKING METHOD

5.1 ELECTROSTATIC PREVENTION AIR BAG

Each control board will be arranged into electrostatic prevention air bag then several air bags will be arranged into partition of the inner box. (This is buffer material, so that is not shaking while transporting)

5.2 MASTER CARTON

Several partitions of the inner box will be arranged into a master carton. The descriptions showed as following will print in the front of master carton:

shipping mark
carton number
quantity
net and gross weight
measurement
country of manufacture

NOTE

Provider reserves the right to change product or specifications without notice. All trademark is belong to all origin company.