



**12.1" PCAP Solution  
12018290**

Date: 2/12/2019

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## 1 Scope

DATA MODUL's PCAP solution 12018290 consists of a 12.1" capacitive touch screen. Please note that this is only a sub-assembly of the final product. The specification of the final end product might differ from this specification.

## 2 Touch Sensor and Cover Glass

### 2.1 Technical Parameters

Screen size	12.1 inch /30.7 cm
Format	Wide
Composite	SITO with COF
Outline dimensions	273.7 x 175.3 x 1.1 mm (WxHxT)
Active area	264.1 x 165.0 mm (WxH)
Bending radius of tail	R = 2 mm recommended
Transmissivity	90% (min.)
Operating temperature and humidity	-30 to +85°C, < 90% RH
Storage temperature and humidity	-40 to +95°C, < 80 % RH
Tail connector	FPC-Connector (10 pin 0.5mm pitch)

### 2.2 Reliability Tests

Low Temperature Storage Test	-40°C for 480h
High Temperature Storage Test	95°C for 480h
High Temperature / High Humidity Test	85°C, 85% RH for 480h
Cycle test	-40°C(30min), 85°C(30min), 500cycles

### 3 Touch Controller (2952T2 USB/I<sup>2</sup>C)

The touch controller IC is provided as a COF (chip on flex) assembly.

#### 3.1 2952T2 USB

##### 3.1.1 Electrical specification

Power supply	5V ± 5%
Vin ripple	40 mV peak-peak max.
On board voltage	3.3V and 8.5V max. (subject to configuration)
Power consumption	400 mW max. (subject to configuration)

##### 3.1.2 Interface specification

Protocol	USB 2.0 HID specification 1.11 with amendments for multitouch digitizer
Endpoint Address	0x81(Endpoint 1) 0x02(Endpoint 2) 0x83(Endpoint 3)
Touch report	16 fingers simultaneously max.
Resolution	4096 x 4096 (x/y)
vendor ID / product ID	0x03EB (Atmel) / 0x214E (mXT2952T2)
Bus speed	12 Mbps max. (subject to configuration)

##### 3.1.3 Pin Configuration

Pin	Signal	Description
1	VDD	Power Supply
2	-	<i>Pull up to VddIO</i>
3	-	<i>Pull up to VddIO</i>
4	-	<i>Pull up to VDD</i>
5	RES	Reset, active low
6	USBDM	USB data minus
7	USBDP	USB data plus
8	CSEL	Connect to VddIO for USB
9	-	<i>Do not connect</i>
10	GND	Ground

## 3.2 2952T2 I<sup>2</sup>C

### 3.2.1 Electrical specification

Power supply	3.3V ± 5%
Vin ripple	40 mV peak-peak max.
On board voltage	3.3 and 9V max. (subject to configuration)
Power consumption	400 mW max. (subject to configuration)

### 3.2.2 Interface specification

Protocol	I <sup>2</sup> C version 6.0	
Touch report	16 fingers simultaneously max.	
Resolution	4096 x 4096 (x/y)	
I <sup>2</sup> C address	0x4A or 0x4B	
HID-I <sup>2</sup> C vendor ID / product ID	0x03EB (Atmel) / 0x214E (mXT2952T2)	
Required pull-up resistance	Standard mode (100 kHz)	1k to 10k
	Fast mode (400 kHz)	1k to 3k
	Fast+ mode (1 MHz)	0.7k max.
	High-Speed mode (3.4 MHz)	0.5k to 0.75k
Low input logic level	SDA, SCL RES, GPIO	-0.3V to 0.3x VddIO
High input logic level	SDA, SCL RES, GPIO	0.7 x VddIO to VddIO 0.85 VddIO to VddIO
Low output logic level	CHG, GPIO	0V to 0.2 x VddIO
High output logic level	CHG, GPIO	0.8 x VddIO to VddIO

### 3.2.3 Pin Configuration

Pin	Signal	Description
1	VDD	Power Supply
2	CHG	Change Interrupt, active low, need Pull Up
3	SDA	I <sup>2</sup> C Data, need Pull Up
4	SCL	I <sup>2</sup> C Clock, need Pull Up
5	RES	Reset, active low
6	-	<i>Do not connect</i>
7	ADDSEL	<i>Pulled down by 15K Ohm, Pull up for 0x4B leave unconnected for 0x4A</i>
8	CSEL	Connect to Ground for I <sup>2</sup> C
9	I <sup>2</sup> CM	<i>I<sup>2</sup>C mode selection, low to select HID-I<sup>2</sup>C mode, high to select I<sup>2</sup>C mode, floating for automatic mode selection</i>
10	GND	Ground

## 4 Optical Inspection Criteria and Handling Recommendations

### 4.1 Optical Inspection Criteria

For details on the optical inspection criteria, please refer to DATA MODULs Outgoing Spec or ask your local DATA MODUL sales representative.

### 4.2 Handling Recommendations

Precautions for operation

- Do not put a heavy, hard or sharp object on the product
- Do not bend the product in order to assure the reliability
- Do not put one product on the other. Otherwise, it may cause the product to be scratched
- Don't use any organic solvent acid or alkali solution.

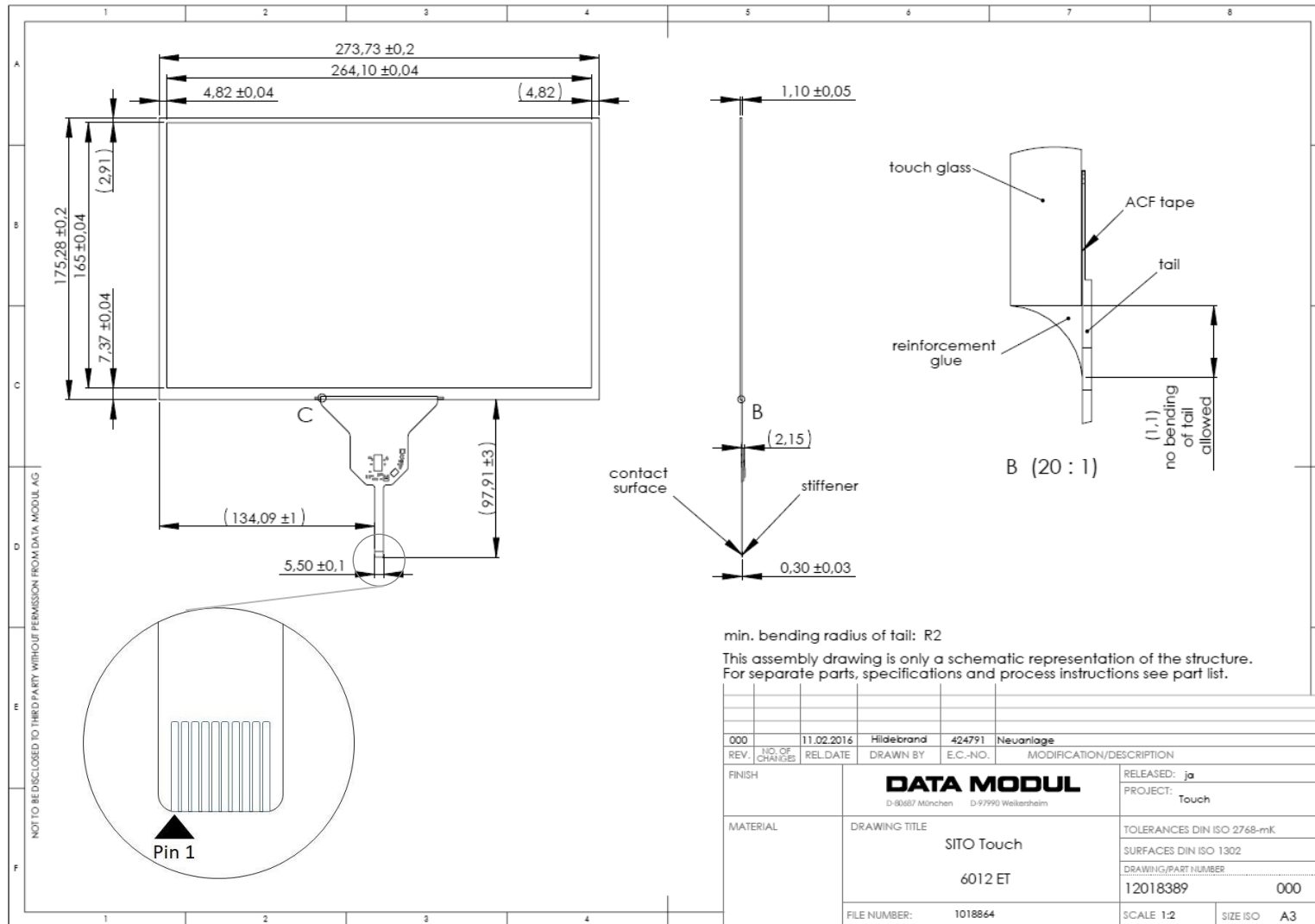
Precautions for mounting

- The panel should be mounted using a configuration that either holds the panel by all four corners or by all four sides
- The bezel edge must be positioned outside the active area. The bezel may cause false activation if the edge overlaps the active area
- Any mounting configuration should ensure that there is no twisting force applied to the panel
- 1mm distance between TFT screen and touch panel is recommended

Precautions for tail

- The flex tail in general can be bent with a min. radius of about 1mm
- In order to avoid damaging and malfunction of the sensor, please don't bend the FPC area next to the panel
- Excess or repeated bending of the FPC connector should also be avoided

## 5 Appendix A: Technical Drawing



## 6 Revision History

Date	Author	Changes
2/12/2019	T. Golling	initial version



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