



萬達光電科技股份有限公司

HIGGSTEC INC.

PRODUCT SPECIFICATIONS

Customer : _____
Model : T216S-5RB001N-0A28R0-200FH
Mode : Five-wire Analog Resistive
Date : MAY 14, 2010
Version : 6.08.01

Customer Approval

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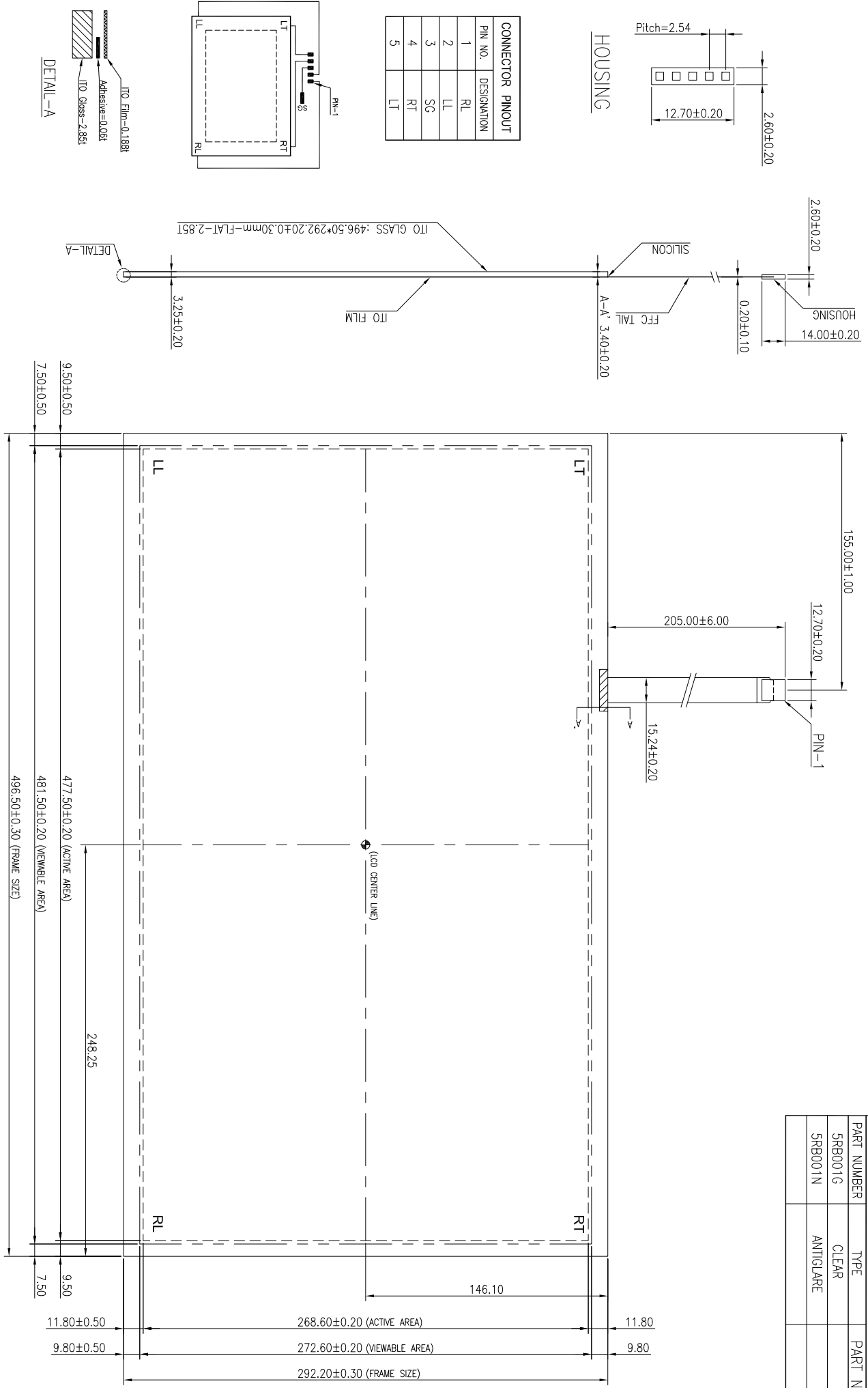
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<i>Jason</i> 5/14-10	<i>Dean</i> 5/14	<i>Rinda</i> 5/14

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TOUCHSCREEN TABULATION		
PART NUMBER	TYPE	PART NO.
5RB001G	CLEAR	
5RB001N	ANTIGLARE	



CONNECTOR PINOUT	DESIGNATION
1	RL
2	LL
3	SG
4	RT
5	LT

HIGGSTEC INC.

DESCRIPTION	WD-TR5-0311	DATE	MAR.24, 2009	APPROVED	<i>shady</i>	Rev.	A
MODEL	T216S-5RB001X-0A28R0-200FH	SCALE	-/-	DESIGN	<i>Eric</i>	Page	of
PART NO.		UNIT	mm.	DRAWING	<i>Emma</i>	B-Page	of

01. Scope

The specification is for Five-Wire Analog Resistive touch panel.

02. Features

Item		Specifications
(1)	Type	Five-Wire Analog Resistive
(2)	Input Mode	Stylus or Finger
(3)	Cable	FFC

03. General Specification

Item		Specifications
(1)	Frame Size	496.50±0.30 X 292.20±0.30 mm
(2)	View Area	481.50±0.20 X 272.60±0.20 mm
(3)	Active Area	477.50±0.20 X 268.60±0.20 mm
(4)	Total Thickness	3.25±0.20 mm
(5)	Tail Length	205.00±6.00 mm

04. Environmental Characteristics

Item		Specifications	
		Temperature	Humidity (Non Condensing)
(1)	Operation	-10°C ~ +70°C	20%RH ~ 80%RH
(2)	Storage	-40°C ~ +80°C	20%RH ~ 90%RH
Note: All terms under 1 atmosphere.			

05. Optical Characteristics

Item		Specifications
(1)	Transparency	80% ± 3% (Measured by BYK-Gardner)
(2)	Haze	8% ± 3% (Measured by BYK-Gardner)

06. Electrical Characteristics

Item		Specifications
(1)	Loop Resistance	X:20~500Ω, Y:20~500Ω (See Figure 6-1)
(2)	Linearity	$X \leq 1.5\%$, $Y \leq 1.5\%$ (See Figure 10-2)
(3)	Chattering	$\leq 15\text{ms}$
(4)	Insulation	$\geq 20\text{M}\Omega/25\text{V}(\text{DC})$
(5)	Endurance	No acting damage at DC50V/60sec.

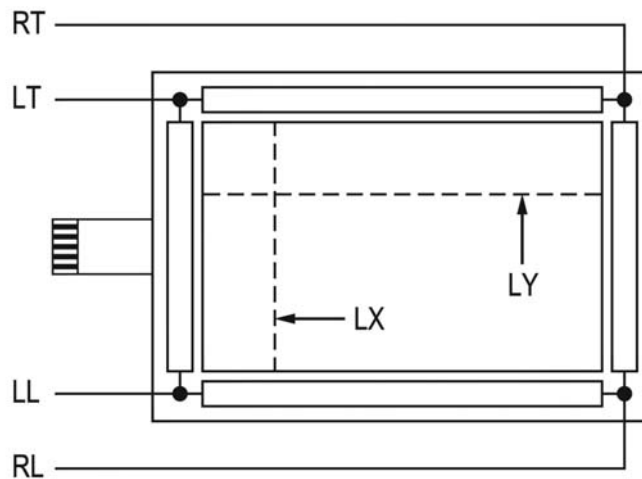


Figure 6-1

Loop Resistance X = short RT and RL , short LT and LL , measure the resistance between RT and LT
 Loop Resistance Y = short RT and LT , short RL and LL ,measure the resistance between RT and RL

07. Mechanical Characteristics

Item	Specification	Condition
Operating Force	Stylus= R0.8	≤ 50g
Impact	25.0 φ DIA. Steel Ball/67g Height=50cm	1 time, no damage [Impact at center area]
Static Load	5000g within 10cm ² area for 30sec	Satisfy(1) of Item 7 and (1), (2),(4) of Item 6
Hardness	3H pencil, pressure 750g/45°	≥ 3H
Peeling	800g by vertical 90°	Satisfy (1) of Item 6
Bending	90° 10 times up & down	Satisfy (1) of Item 6

08. Reliability

Item	Specification	Condition
High Temperature /Humidity	70°C /90%RH, 240 hrs, allow panel stays in normal environment for 4 hrs	Reliability test may cause the film puffed yet the electric characteristic; (1), (4) of Item 6; (2) of item 6 satisfies X ≤ 2.5%, Y ≤ 2.5%; Actuation force must not exceed 200g after reliability test.
High temperature	70°C /240 hrs allow panel stays in normal environment for 4 hrs	
Low temperature	-40°C /240 hrs allow panel stays in normal environment for 4 hrs	
Thermal Cycle	-40°C ~70°C [60 min./cycle] *50 cycles allow panel stays in normal environment for 4 hrs	

09. Durability

Item	Specification	Condition
Knock Test	10,000,000 times	(1), (4) of Item 6; (2) of item 6 satisfies X ≤ 2.5%, Y ≤ 2.5%; Actuation force must not exceed 200g after durability test.

10. Inspection

Methods :

(1) Linearity Condition

Step 1: short RT and RL(or short RL and LL).

Step 2: apply voltage DC 5V.

Step 3: short LT and LL (or short RT and LT).

Step 4: apply grounding.

Step 5: draw points along LX and LY at 5.0mm intervals within pattern area and detect the voltage at SG.

Step 6: measure the voltage differences between RT and LT (or RT and RL) (Fig 10-1) (Fig 10-2)

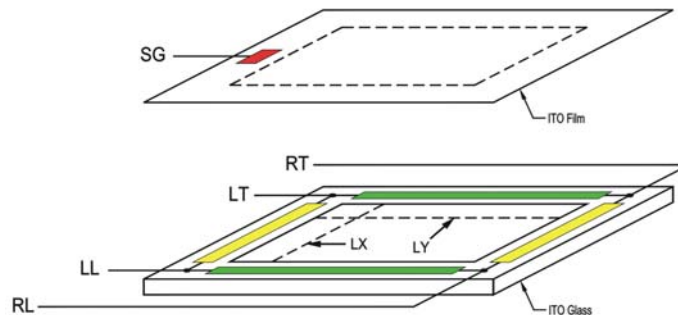


Figure 10-1

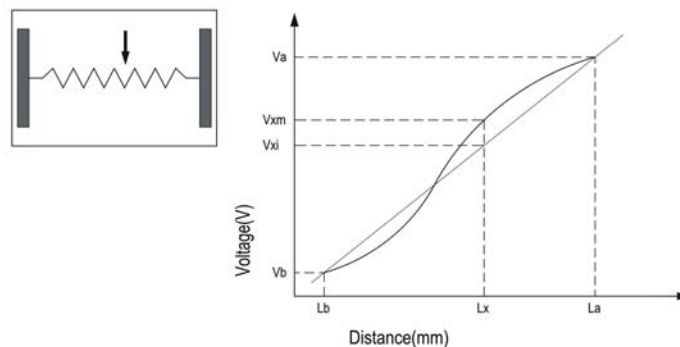


Figure 10-2

$$\text{※ Linearity: } [| V_{xm} - V_{xi} |] / (V_a - V_b) \times 100\%$$

(2) Specification Linearity must meet the electrical characteristic specified in Item 6

11. Appearance Inspection

(1) 18W(1000±500Lux) fluorescent luminant lamp is used for appearance inspection. Detail settings are shown in (Fig 11-1) and (Fig 11-2).

(2) Minor impurities outside active area are acceptable unless their existence affect electrical functions.

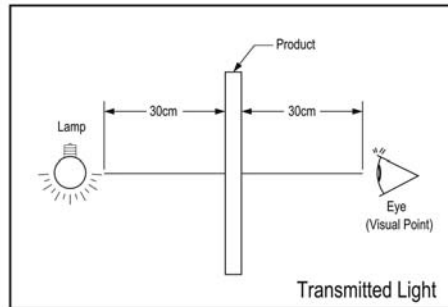


Figure 11-1

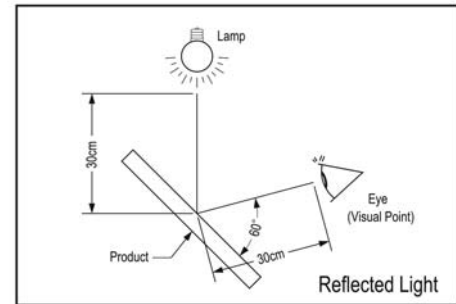


Figure 11-2

(3) Glass Flaw

Item	Picture	Specification
Corner Flaw		$X \leq 3.0\text{mm}$ $Y \leq 3.0\text{mm}$ $Z \leq T$
Edge Flaw		$X \leq 3.0\text{mm}$ $Y \leq 3.0\text{mm}$ $Z \leq T$
Progressive Flaw		Not allowed

Note: T=Glass thickness

(4) Please refer to Appendix I : Appearance Specification.

12. Attention of Mounting Condition

- (1) The gasket support of touch panel must allocate outside of Viewable Area. Reserve enough clearance between panel surface and enclosure for normal panel operation.

To avoid pressing error, please retain enough space between surface panel and Bezel.

- (2) Bezel opening must not touch Viewable Area, Bezel opening must be designed between Viewable Area and Active Area.

- (3) We recommend elastic material support.

- (4) Due to the conductive characteristic of the panel backside, prevent metal contact after mounting.

- (5) Do not use adhesive to bond top surface (ITO Film) of touch panel with enclosure.

- (6) Proper grounding of controller at all times assure normal operation.

- (7) During assembly. Please take into consideration the variance in the different module designs, whether it would cause physical, cosmetic or functional damages to the touch panel, when completing the assembly.

- (8) After installation , please perform 4 point and 25-point calibration.

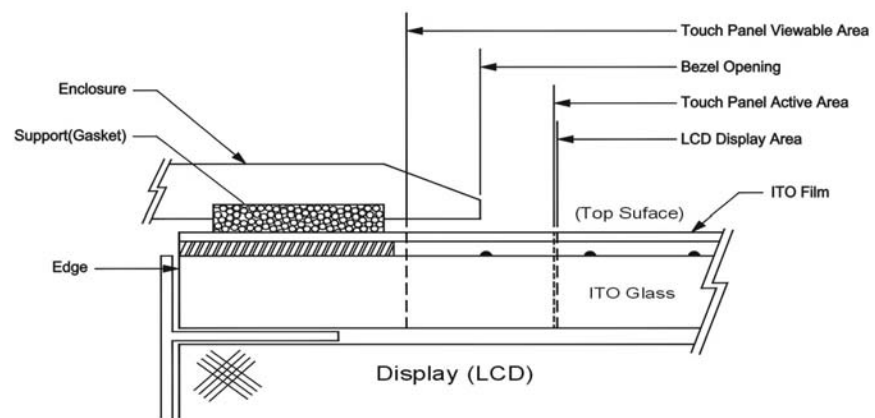


Figure 12-1

13. Warranty

HIGGSTEC comes with a 2-year guaranty on all HIGGSTEC products. HIGGSTEC guaranty provide for repair and replacement without any charge during this period.

HIGGSTEC reserves the right in its sole discretion to determine the defects received, and will take the responsibility if there is any defect or damages.

Limited warranty does not cover the following situations:

Notice: HIGGSTEC is not responsible for following situation:

1. Damages caused by improper handling from clients, including shipping, installation and integration.
2. Damages caused by either natural or human factors after receiving the products.
3. Damage caused by self-repairs, modifications or disassembling of the product.
4. Damage caused by user error ; failing to follow normal operation procedures or using paper tools.

14. Appendix

Item	Content	Page number
Appendix I	Appearance Specification	1 page

15. Caution

Storage	<p>Store panel under the temperature and humidity range pre-specified. Direct sunlight exposure or piling should be avoided.</p> <p>Ship Method (1) must use legal couriers to transport products. (2) fragile products : beware of vibration and dropping during transit.</p> <p>Stacking method (1) based on standard air/ocean freight regulation (2) pallet use recommended for stacking (3) monitor stack weight and height to prevent damage to bottom stack</p>
Unpack	<p>Unpack the box with the printed red arrow pointing up.</p>
Handling	<p>(1) Use clean sacks or glove to prevent fingerprints and/or stains left on the panel. Extra attention and carefulness should be taken while handling the glass edge.</p> <p>(2) Avoid touching the viewing area before installation/integration.</p> <p>(3) Holding the panel instead of the tail at all time.</p>
Cleaning	<p>(1) Use neutral detergent or isopropyl alcohol on a clean soft cloth to clean the panel surface.</p> <p>(2) Prevent using any kind of chemical solvent, acidic or alkali solution.</p> <p>(3) foreign objects and prints that can be wiped off are not regulated under the specification , can be ignored.</p>

<p>Installing and Assembling</p>	<p>(1) Excessive force or strain to the panel or tail is prohibited.</p> <p>(2) Gasket or cushion pads around the edge of the panel may segregate water and/or dust contamination.</p> <p>(3) Maintain a minimal 5R when bending tail to prevent dead fold or fold mark.</p> <p>(4) Flaws in customer module design may cause functionality issues after assembly.</p>
<p>Operating</p>	<p>(1) Touch the panel with your finger or stylus only to assure normal operation. Any sharp edged or hard objects are prohibited.</p> <p>(2) Operate the panel in a steady environment. Abrupt variation on temperature and humidity may cause malfunction of the panel.</p> <p>(3) Avoid applying excessive activation force or sudden impact on the panel surface.</p>
<p>Others</p>	<p>(1) Keep the panel surface clean. Prevent any kind of adhesive applied on the surface.</p> <p>(2) Avoid high voltage and/or static charge.</p> <p>(3) HIGGSTEC has the right to change the materials and/or specifications.</p>

Appearance Specification

【Appendix I】

Item	Specification Unit: mm
Particle	(1) $D \leq 0.25 \rightarrow \text{OK}$ (2) $0.25 < D \leq 0.4$ (each area contains ≤ 3 , total ≤ 5) $\rightarrow \text{OK}$ (3) $D > 0.4 \rightarrow \text{NG}$
Linear Object	(1) $W \leq 0.05 \rightarrow \text{OK}$ (2) $0.05 < W \leq 0.1$ and $L \leq 5.0$, total $\leq 3 \rightarrow \text{OK}$ (3) $W > 0.1 \rightarrow \text{NG}$ Remark: the particle will be ignored when it is cleanable.
Scratch	(1) $W \leq 0.025 \rightarrow \text{OK}$ (2) $0.025 < W \leq 0.05$ and $L \leq 12.0$, total $\leq 5 \rightarrow \text{OK}$ (3) $0.05 < W \leq 0.1$ and $L \leq 6$, total $\leq 5 \rightarrow \text{OK}$ (4) $W > 0.1 \rightarrow \text{NG}$

<Endorse>

1. All appearance flaws outside AA are acceptable. **【except glass flaws , corner flaws , edge flaws , progressive flaws and scratches must follow appearance inspection】**
2. D=Diameter
3. W=Width
4. L=Length

