



# **Product Specifications**

## **Resistive Analog Touch Panel**

**TR5-12132205**

Product Version: V6.4



**RoHS Compliance**

**Issue Date: 25th-Jan-2010**

**Document Version: 1.1**





## 1. General Specification:

| Item |                 | Specification                |
|------|-----------------|------------------------------|
| (1)  | Type            | Five-Wire Analog Resistive   |
| (2)  | Size            | 12.1"                        |
| (3)  | Input Mode      | Stylus or Finger             |
| (4)  | Cable           | FFC                          |
| (5)  | Total Thickness | 3.20±0.20 mm                 |
| (6)  | Frame Size      | 275.82±0.50 X 177.90±0.50 mm |
| (7)  | View Area       | 264.12±0.20 X 166.20±0.20 mm |
| (8)  | Active Area     | 261.12±0.20 X 163.20±0.20 mm |
| (9)  | Tail Length     | 205.00±6.00 mm               |
| (10) | ITO Coating     | Anti-Glare, Anti-Newton Ring |

## 2.1 Environmental Characteristics:

| Item |                              | Operation     | Storage       |
|------|------------------------------|---------------|---------------|
| (1)  | Temperature                  | -10°C ~ +70°C | -40°C ~ +80°C |
| (2)  | Humidity<br>(Non Condensing) | 20%RH ~ 80%RH | 10%RH ~ 85%RH |

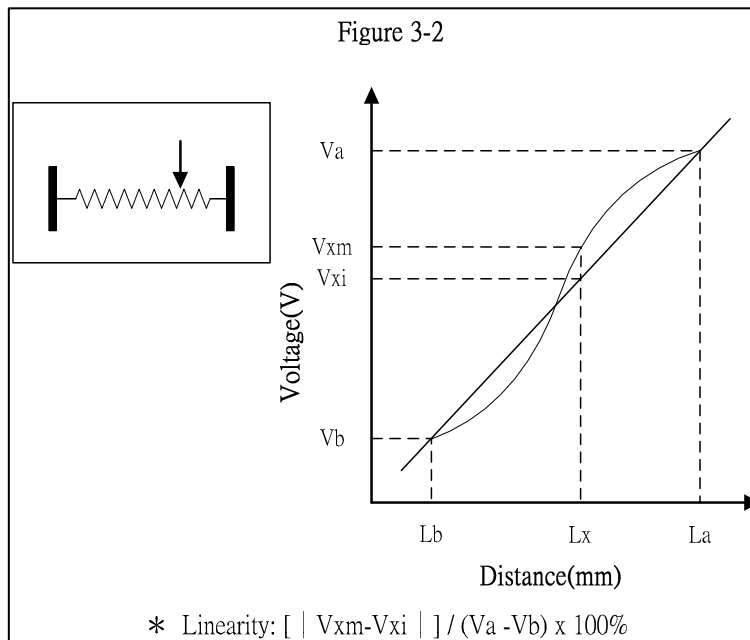
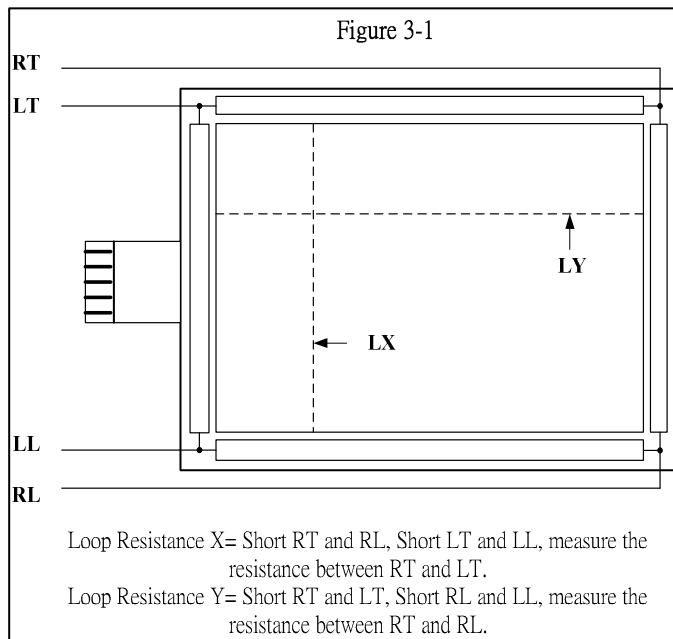
Note: All terms under 1 atmosphere.

## 2.2 Optical Characteristics:

| Item |              | Specification                       |
|------|--------------|-------------------------------------|
| (1)  | Transparence | 80%±3%<br>(Measured by BYK-Gardner) |
| (2)  | Haze         | 8%±3%                               |

## 3. Electrical Characteristics:

| Item |                 | Specification                         |
|------|-----------------|---------------------------------------|
| (1)  | Loop Resistance | X:20-500Ω, Y:20-500Ω (See Figure 3-1) |
| (2)  | Linearity       | X≤1.5%, Y≤1.5% (See Figure 3-2)       |
| (3)  | Chattering      | ≤15ms                                 |
| (4)  | Insulation      | ≥20MΩ/25V(DC)                         |
| (5)  | Endurance       | No acting damage at DC 50V/60sec      |



#### 4. Mechanical Characteristics:

|       | Item            | Specification                                | Condition                                      |
|-------|-----------------|--|--|
| Panel | Operating Force | Stylus=R0.8                                  | $\leq 50g$                                     |
|       | Impact          | 13.0ØDIA. Steel ball/9g, Height= 30cm        | 1 time, no damage[Impact at center area]       |
|       | Static Load     | 500g within 10cm <sup>2</sup> area for 30sec | Satisfy(1) of Item 4 and (1),(2),(4) of Item 3 |
|       | Hardness        | 3H pencil, pressure 1N/45°                   | $\geq 3H$                                      |
| Tail  | Peeling         | 800g/cm by vertical 90°                      | Satisfy(1) of Item 3                           |
|       | Bending         | 135° 10 times left and Right                 | Satisfy(1) of Item 3                           |

## 5. Reliability:

| Item  |                                    | Specification   | Condition  |
|-------|------------------------------------|---|--|
| Panel | <b>High Temperature / Humidity</b> | 70°C/90%RH, 500hrs, then panel is in left in normal environment for 4hrs.                   | Reliability test may cause the film puffed yet the electric characteristics stays intact.<br>(1), (2) of Item 2.2; (1), (4) of Item 3; (2) of Item 3 satisfies $X \leq 2.0\%$ , $Y \leq 2.0\%$ |
|       | <b>High Temperature</b>            | 70°C/500hrs, then panel is in left in normal environment for 4hrs.                          |  |
|       | <b>Low Temperature</b>             | - 40°C/500hrs, then panel is in left in normal environment for 4hrs.                        |  |
|       | <b>Thermal Cycle</b>               | -40°C~70°C, [60min /cycle]*100cycles, then panel is in left in normal environment for 4hrs. |  |

## 6. Durability:

| Item  |                   | Specification    | Condition   |
|-------|-------------------|------------------|---|
| Panel | <b>Knock Test</b> | 35,000,000 times | Satisfy (1), (2) of Item 2.2; (1), (4) of Item 3; (2) of Item 3 satisfies $X \leq 2.0\%$ , $Y \leq 2.0\%$ |

## 7. 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 7-1) (Fig 7-2)

### (2) Specification

Linearity must meet the electrical characteristic specified in Item 3

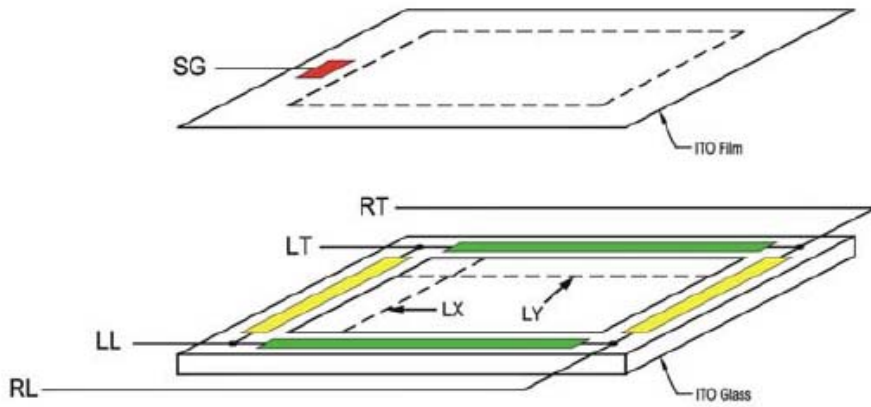


Fig 7-1

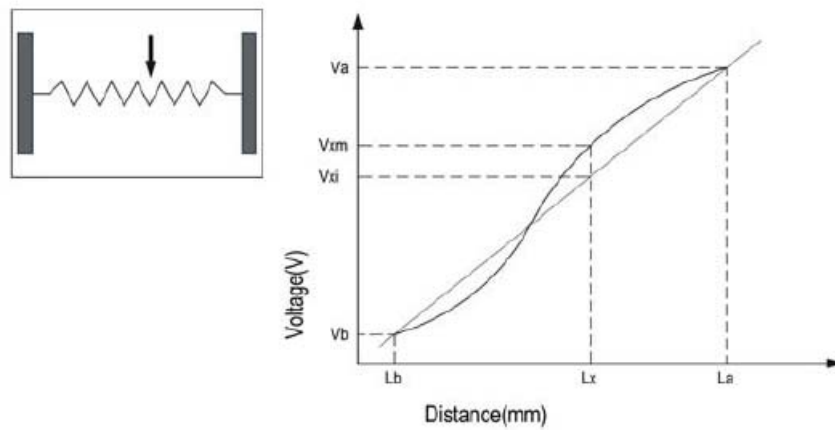


Fig 7-2

\* Linearity:  $\left[ \frac{|V_{xm} - V_{xi}|}{V_a - V_b} \right] \times 100\%$

### 8. Appearance Inspection :

- (1) A 17W fluorescent luminant lamp is used for appearance inspection. Detail settings are shown in (Fig 8-1) and (Fig 8-2).
- (2) Minor impurities outside viewing area are acceptable unless their existence affect electrical functions.

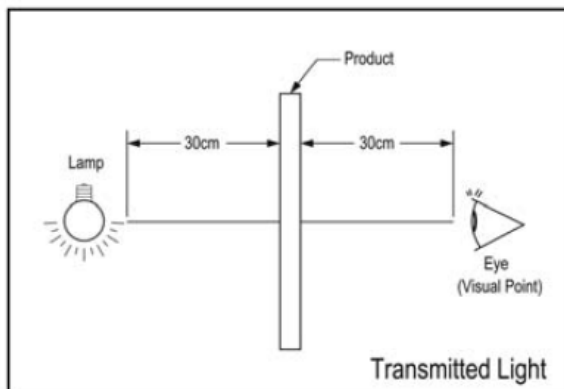


Fig 8-1

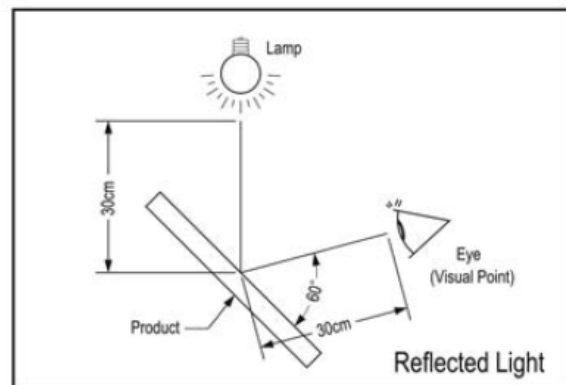
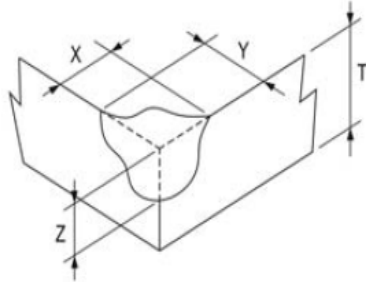
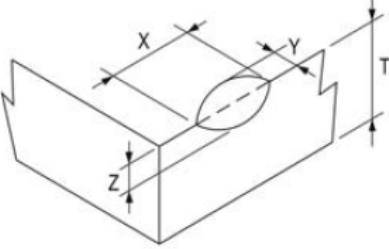
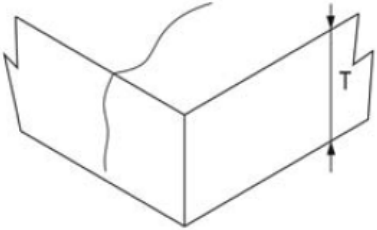


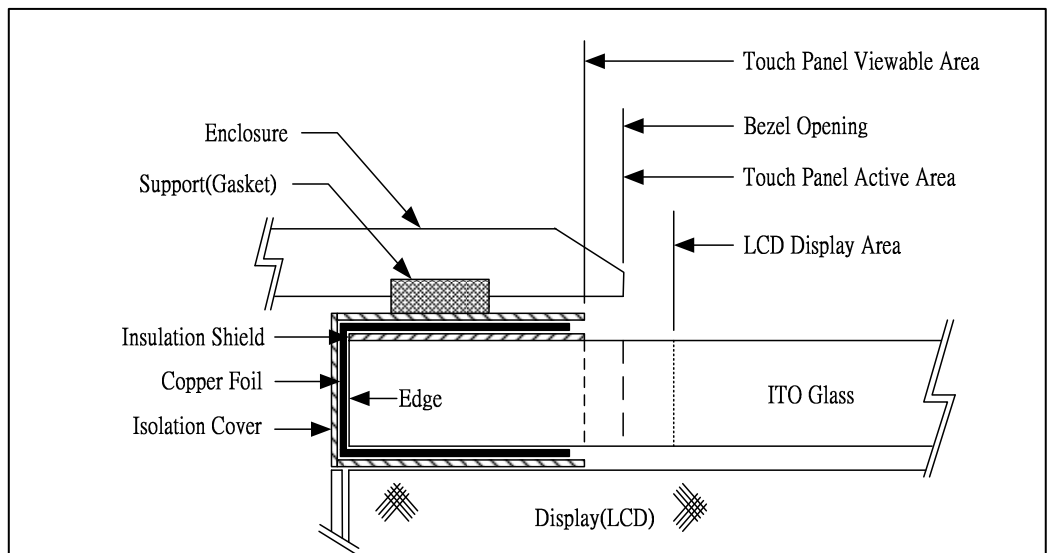
Fig 8-2

(3) Glass Flaw

| Item             | Picture   | Specification  |
|------------------|---|--|
| Corner Flaw      |   | $X \leq 3.0\text{mm}$<br>$Y \leq 3.0\text{mm}$<br>$Z \leq T$ |
| Edge Flaw        |   | $X \leq 3.0\text{mm}$<br>$Y \leq 3.0\text{mm}$<br>$Z \leq T$ |
| Progressive Flaw |  | <b>Not allowed</b>   |

Note: T=Glass thickness

**9. Figure: Touch Screen**



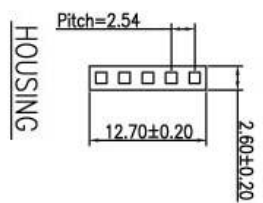
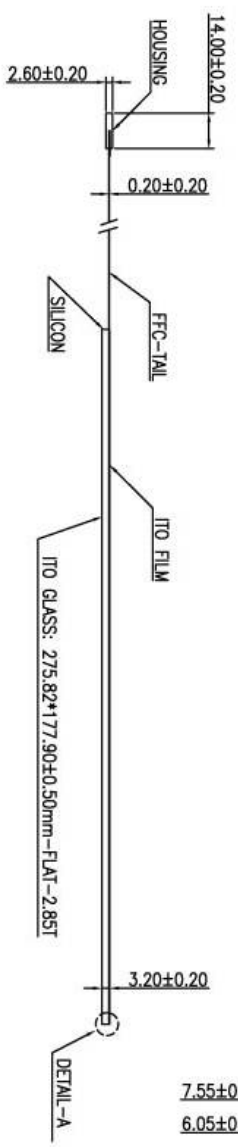
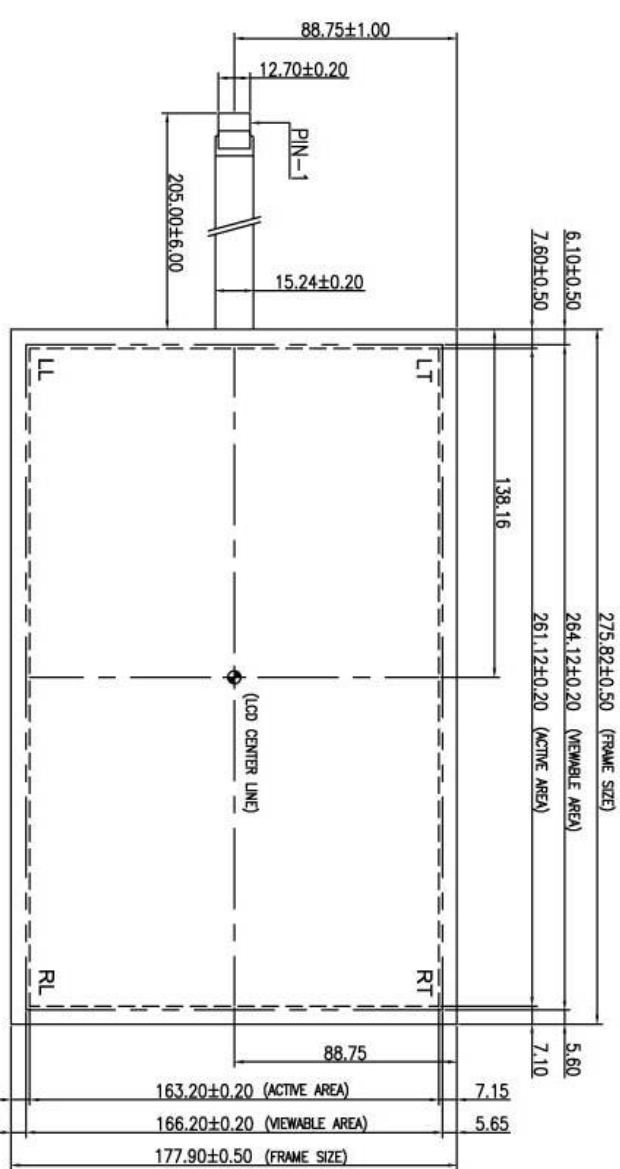
## 10. Caution

- i Cleaning:
  - \* Use the neutral detergent or isopropyl alcohol on a clean soft cloth to clean the panel surface. Chemical solvent, acidic, or alkali liquid are not allowed.
  
- ii Installation:
  - \* Bezel edge must be positioned in the area between the active area and view area. The bezel may press the touch screen and cause activation if the edge touches the active area. A gap of approximately 0.5 mm is needed between the bezel and top electrode. It may cause unexpected activation if the gap is too narrow. There is a tolerance of 0.2 to 0.3 mm for the outside dimensions of the touch panel and tail. A gap must be made to absorb the tolerance in the case and connector.
  
  - \* Do not use adhesive to bond top surface (ITO Film) of touch panel with enclosure.
  
  - \* Gasket or cushion pads around the edge of panel are recommended to segregate water and/or dust contamination.
  
- iii Operating:
  - \* Touch the panel with your finger or stylus only to assure normal operation. Any sharp edged or hard objects are prohibited.
  
  - \* Operate the panel in a steady environment. Abrupt variation on temperature and humidity may caused malfunction of the panel.
  
  - \* Avoid high voltage and/or static charge.

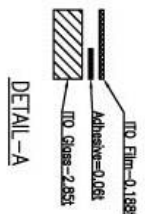
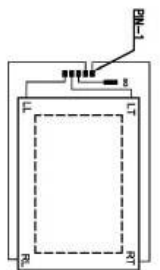
## 11. Warranty

- \* The product is guaranteed for one year after shipping, however, products shall not be guaranteed under the following conditions.
  1. Damages caused by improper handling from clients, including shipping, installation, and integration.
  2. Natural calamity or disaster after receiving the products.
  3. Repaired, modified, disassembled without permission.

| TOUCHSCREEN TABULATION |            |
|------------------------|------------|
| PART NUMBER            | TYPE       |
| SRB025G                | CLEAR      |
| SRB025N                | ANTI GLARE |



| CONNECTOR PINOUT | PIN NO. | DESIGNATION |
|------------------|---------|-------------|
|                  | 1       | RT          |
|                  | 2       | RL          |
|                  | 3       | SG          |
|                  | 4       | LT          |
|                  | 5       | LL          |



| Spectrah Dynamics Inc. |              | DESCRIPTION          | DATE          | APPROVED | Rev. |
|------------------------|--------------|----------------------|---------------|----------|------|
| MODEL                  | TR5-12132205 | Resistive Touch Unit | Apr. 06, 2009 | Evan     | B    |
| PART NO.               |              |                      | SCALE         | DESIGN   | Page |
|                        |              |                      | UNIT          | DRAWING  | of   |
|                        |              |                      | mm.           |          | of   |