

杭州凡诺电子有限公司  
**FANNAL ELECTRONICS CO., LTD**

**Specifications for Touch Panel**

Model NO: FN190A004-V1.0

Revision: V1.0

Approved For Specifications Only

Approved For Specifications And Sample

| FANNAL   |         |          | CUSTOMER |
|----------|---------|----------|----------|
| PREPARED | CHECKED | APPROVED | APPROVED |
|          |         |          |          |

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# 1. Record of Revision

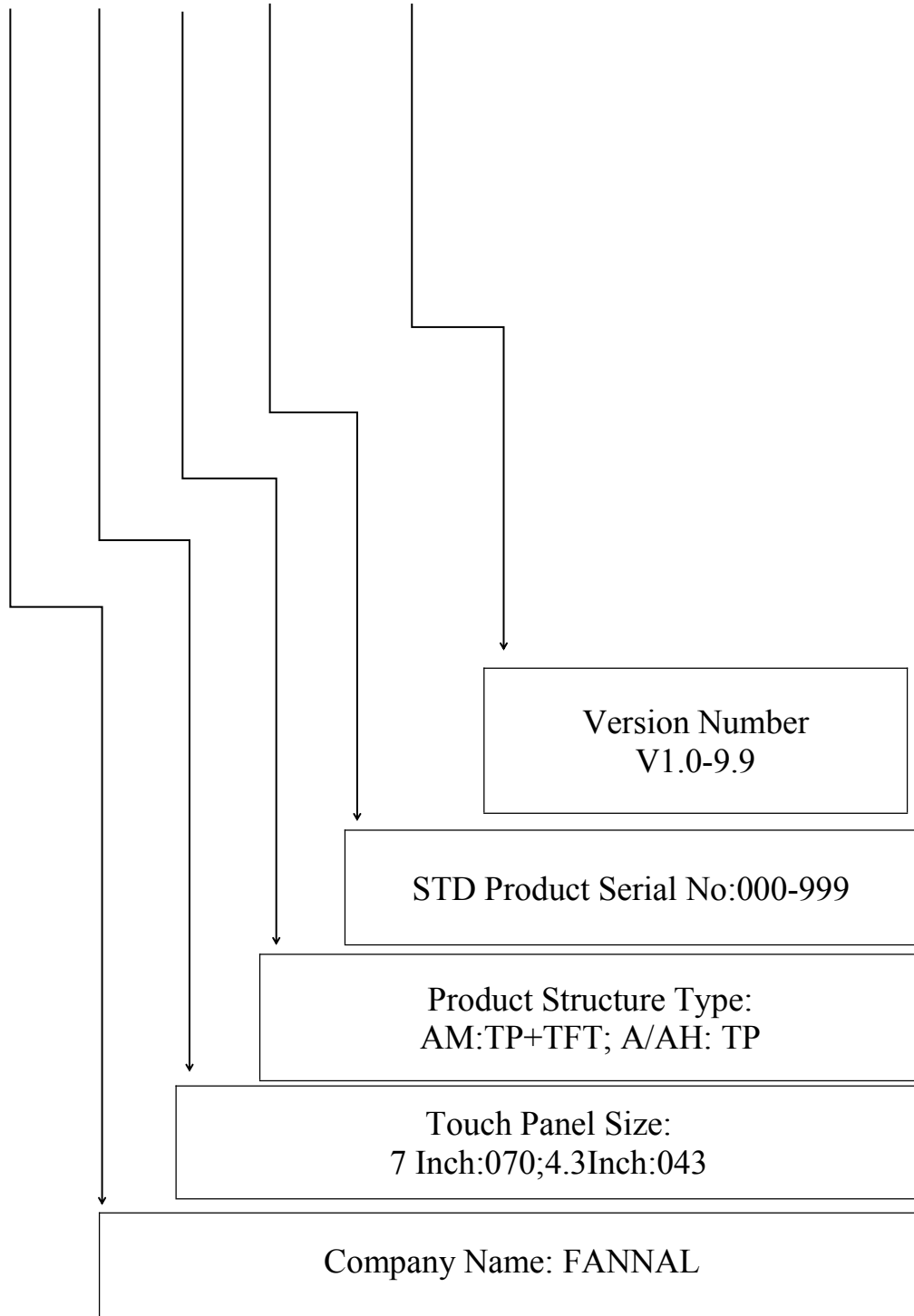
| <b>NO.</b> | <b>Content</b>                             | <b>Page</b> | <b>Date</b> |
|------------|--|-------------|-------------|
| 1          | Preliminary Specification was first issued | 2           | 2017/7/2    |
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## 2. Table of Content

| <b>NO.</b> | <b>Content</b>               | <b>Page</b> |
|------------|------------------------------|-------------|
| 1          | Record of Revision           | 2           |
| 2          | Table of Content             | 3           |
| 3          | Module Numbering System      | 4           |
| 4          | Application                  | 5           |
| 5          | Feature                      | 5           |
| 6          | General Specifications       | 5           |
| 7          | Environmental Characteristic | 5           |
| 8          | Optical Characteristic       | 6           |
| 9          | IC Specification             | 6           |
| 10         | Pin Assignment               | 7           |
| 11         | Mechanical Characteristic    | 8           |
| 12         | Reliability Test             | 9           |
| 13         | Function Test                | 9           |
| 14         | Appearance Inspection        | 10          |
| 15         | Appearance Specification     | 11          |
| 16         | Mechanical Drawing           | 12          |
| 17         | Packaging                    | 13          |
|            |                              |             |
|            |                              |             |
|            |                              |             |
|            |                              |             |

### 3. Module Numbering System

**FN 190 A 004 - V1.0**



## 4. Application

This improved projected capacitive touch panel module is applied to industrial applications which required touch input.

Industrial control, medical devices and automation industries (transportation, military, smart home, and others)

## 5. Feature

| NO. | Item       | Specifications             |
|-----|------------|----------------------------|
| 1   | Type       | Projected Capacitive       |
| 2   | Input Mode | Finger                     |
| 3   | Connector  | COB (FPC+Controller Board) |

## 6. General Specification

| NO. | Item              | Specifications             | Unit |
|-----|-------------------|----------------------------|------|
| 1   | Touch Panel Size  | 19.0(Diagonal)             | inch |
| 2   | Structure         | G+G                        |      |
| 3   | View Area         | 377.32(H)x302.06(V)        | mm   |
| 4   | Outline Dimension | 421.00(H)x346.00(V)x2.9(D) | mm   |

## 7. Environmental Characteristic

| NO. | Item      | Specifications |                              |
|-----|-----------|----------------|------------------------------|
|     |           | Temperature    | Humidity<br>(Non-Condensing) |
| 1   | Operation | -20~70 °C      | 45%-90%RH                    |
| 2   | Storage   | -30~80 °C      | 5%-95%RH                     |

Note: Testing environment is under normal atmospheric pressure. When the ambient temperature is above 65°C, the humidity is allowed to be below 50%RH

## 8. Optical Characteristic

| NO. | Item         | Specifications |
|-----|--------------|----------------|
| 1   | Transparency | 85%±5%         |
| 2   | Haze         | >3%            |

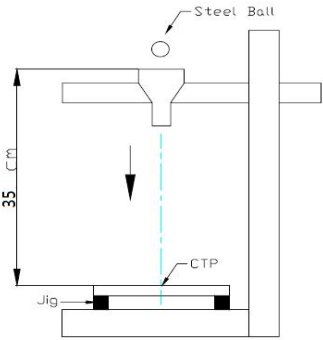
## 9. IC Specification

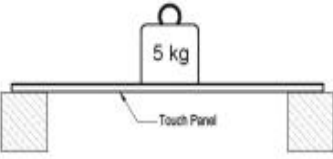
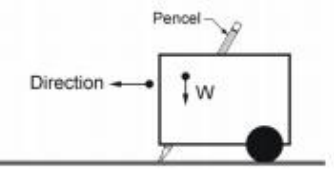
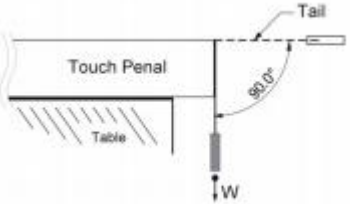
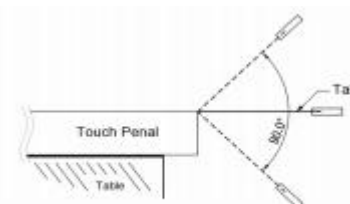
| NO. | Item          | Specifications |
|-----|---------------|----------------|
| 1   | Driver IC     | ILI2302        |
| 2   | Detect Points | 10 touch       |
| 3   | Interface     | USB            |
| 4   | Power Supply  | 5.0V           |

## 10. Pin Assignment

| Pin No. | Symbol | I/O | Description   |
|---------|--------|-----|---------------|
| 1       | GND    | --- | System ground |
| 2       | D+     | I/O | Data +        |
| 3       | D-     | I/O | Data -        |
| 4       | VDD    | --- | Power supply  |

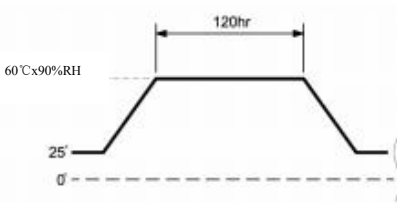
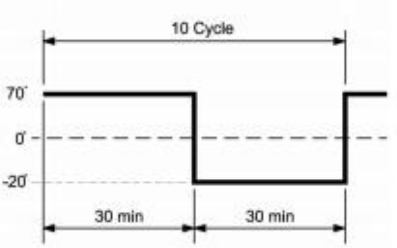
## 11. Mechanical Characteristic

| NO. | Item            | Condition   | Specifications  |
|-----|-----------------|---|---|
| 1   | Operating Force | Finger $\leq$ 10g   |   |
| 2   | Impact          | 30.0 $\Phi$ DIA.Steel Ball/132g/Height=35cm/1 time, Impact at center area           | <p>Satisfy-</p> <ol style="list-style-type: none"> <li>1.Optical Characteristics</li> <li>2.Electrical Characteristics</li> </ol> <p>Appearance-</p> <ol style="list-style-type: none"> <li>1.Ignore test area</li> <li>2.No mechanical damage</li> </ol> |
|     |                 |  |   |

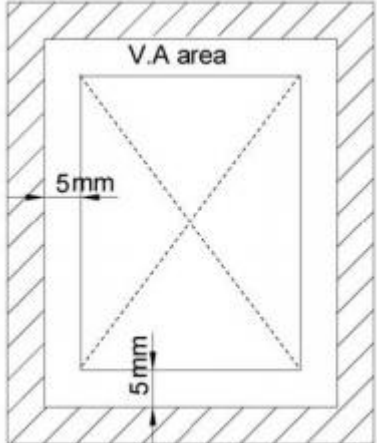
| NO. | Item         | Condition  | Specifications   |
|-----|--------------|--|--|
| 3   | Static Load  | 5000g within 10cmΦ area for 30sec<br>   | Satisfy-<br>1. Optical Characteristics<br>2. Electrical Characteristics<br><br>Appearance-<br>1. Ignore test area<br>2. No mechanical damage |
| 4   | Hardness     | 6H pencil, pressure 500g/45°<br>        |  |
| 5   | Tail Peeling | 500g/cm by vertical 90° for 30sec<br> |  |
| 6   | Tail Bending | 90° 10times left & right<br>          |  |



## 12. Reliability Test

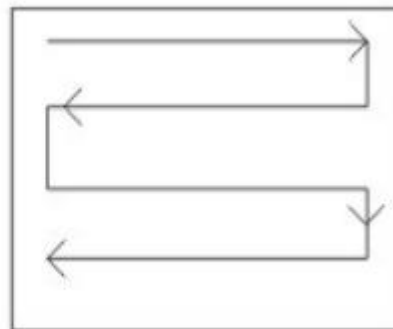
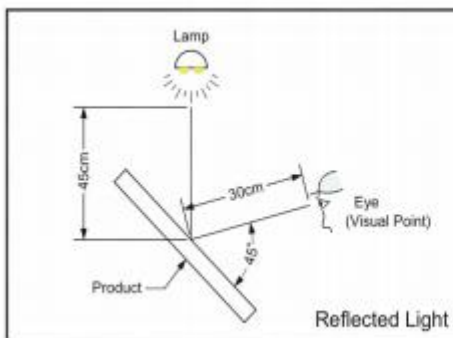
| NO. | Item                          | Condition  | Specifications                                      |
|-----|-------------------------------|--|---|
| 1   | Constant Temperature/Humidity | <p>60°C X 90%RH, 120hrs and normalized for 24hrs</p>                     | <p>Satisfy-</p> <p>1、Electrical Characteristics</p> |
| 2   | Heat Cycle                    | 80°C/120hrs and normalized for 24hrs   |   |
| 3   | Cold Cycle                    | -30°C/120hrs and normalized for 24hrs  |   |
| 4   | Thermal Cycle                 | <p>-20°C~70°C<br/>[30min/cycle]*10cycles and normalized for 24hrs</p>  |   |

### 13. Function test

|                      |   |   |
|----------------------|---|---|
| <p>Function Test</p> | <p>Test Method:<br/>Use <math>\Phi 8</math> copper stick to draw the square diagonal line.</p> <p>Test Area:<br/>5mm inward view area.</p> <p>Disapproval Criteria:<br/>It is NG when we see the off-liner or jumping out spec shift.</p> |  |
|----------------------|---|---|

### 14. Appearance Inspection

The inspection is to be performed with 20W(1200 LUX)fluorescent lamp lighting from the back or side.The panel is to be placed 30cm away from eyes.(Figure 13-1)



## 15. Appearance Specification

| NO. | Item   | Specifications   | PASS CRITERIA                                |
|-----|--|--|--|
| 1   | 线状不良<br>Linear Defects<br>(刮伤/擦痕/线状/杂质)<br>(Scratch/Scrub/Fiber)             | $W \leq 0.2\text{mm}$  | Ignore                                       |
|     |  | $0.2\text{mm} < W \leq 0.3\text{mm}, L \leq 10\text{mm}$       | $N \leq 3, \text{Distance} \geq 30\text{mm}$ |
|     |  | $W > 0.3\text{mm}$   | Not Allowed                                  |
| 2   | 点状不良<br>Dot Defects<br>(气泡/杂质/白点/黑点/凹洞)<br>(Bubble/Fiber/Particle/Spot/Dent) | $D \leq 0.3\text{mm}$  | Ignore                                       |
|     |  | $0.3\text{mm} < D \leq 0.8\text{mm}$                           | $N \leq 5, \text{Distance} \geq 30\text{mm}$ |
|     |  | $D > 0.8\text{mm}$   | Not Allowed                                  |
| 3   | 印刷不良<br>Printing Defects   | 针孔<br>Pine Hole<br>$D \leq 0.35\text{mm}$                      | Ignore                                       |
|     |  | 漏光<br>Light Leakage<br>$\text{Peak to Peak} \leq 0.3\text{mm}$ | Border Area Acceptable                       |
|     |  | $\text{Peak to Peak} \leq 0.2\text{mm}$                        | Logo/icon Area Acceptable                    |

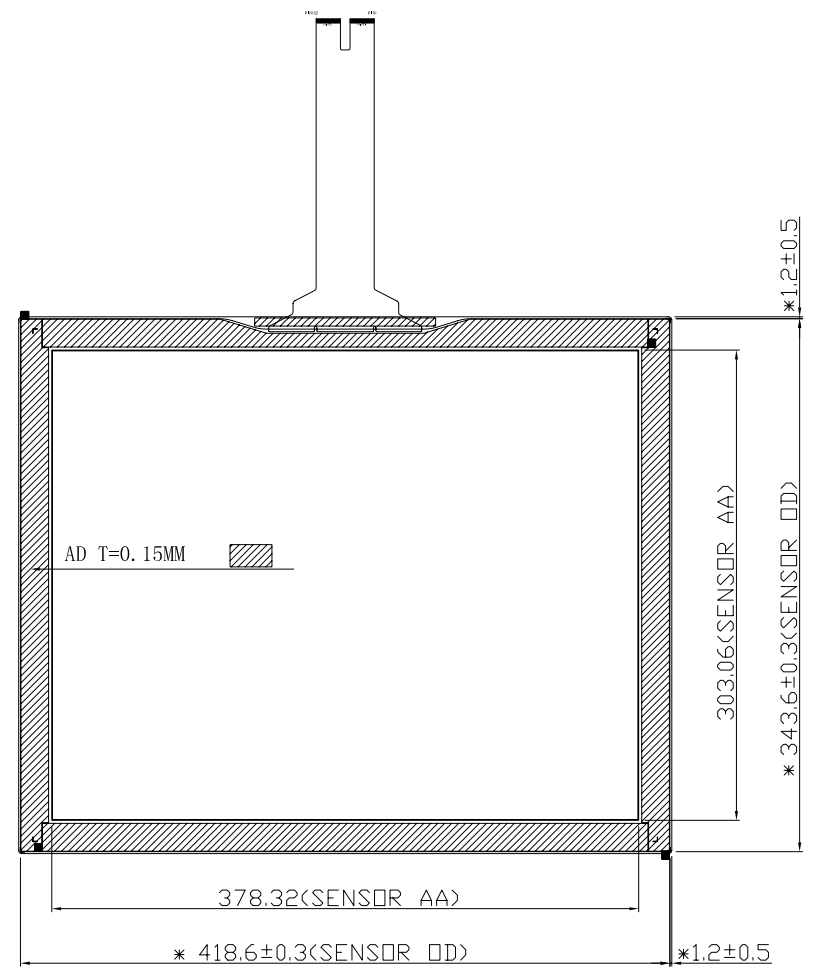
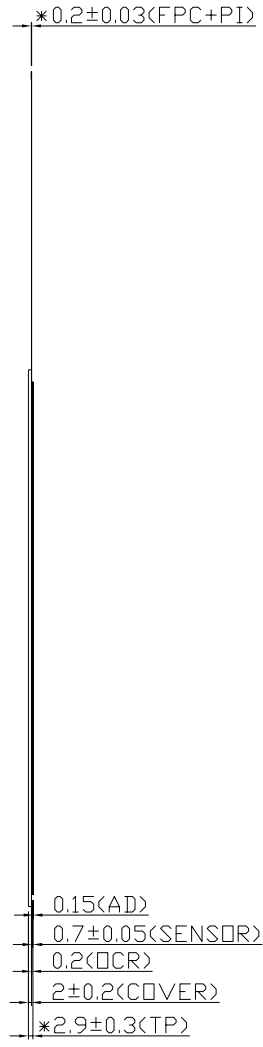
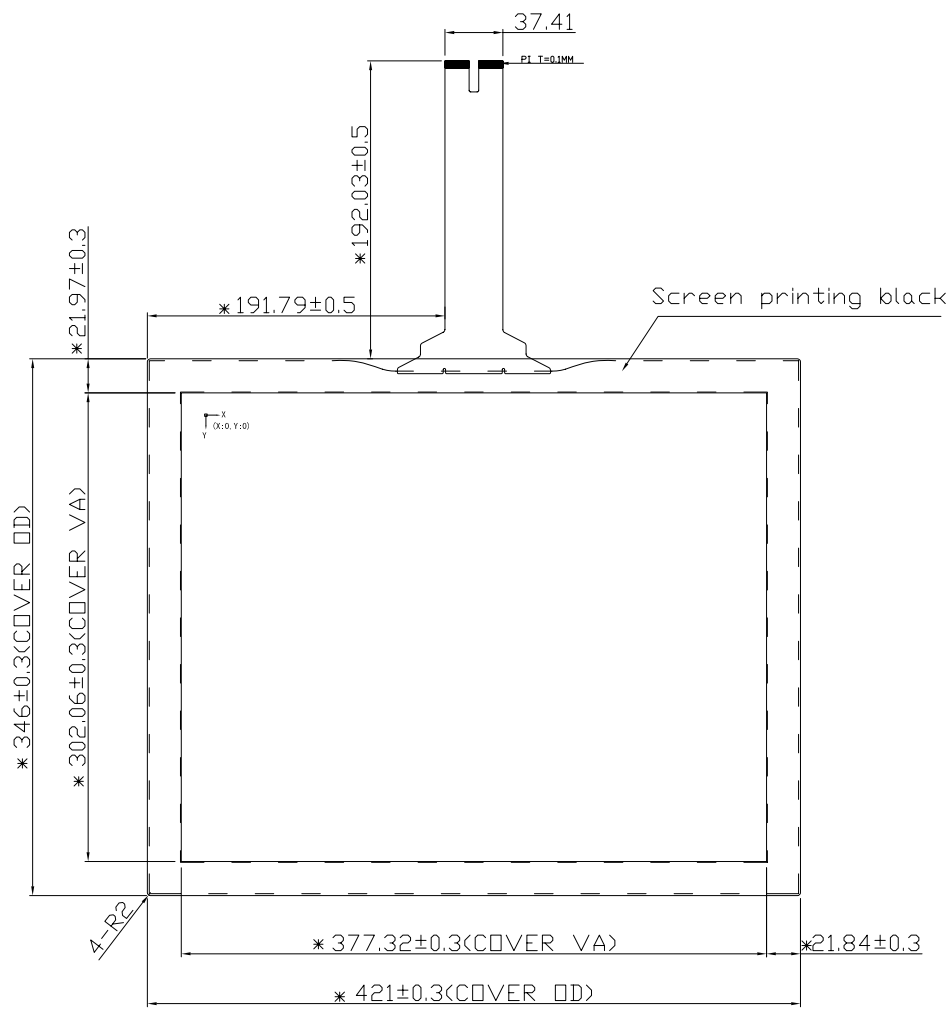
<Endorse>

1. All cosmetic defects are not accounted if found outside Active Area.  
(except for glass breakage, corner flaw, edge flaw, crack, etc. Please follow Appearance Inspection criteria upon inspection)
2. D=Diameter / W=Width / L=Length
3. Tail: Slight bend mark is allowed on the tail; crack or tear is not allowed.
4. Particle Spots: Flaws found coating if transparent, please follow Particle Spots specification.

## 16. Mechanical Drawing

THE DRAWING ON THIS PRINT AND INFORMATION THEREWITH ARE PROPRIETARY TO FANNAL AND SHALL NOT BE USED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION OF FANNAL

| Rev  | Revision note | Date     |
|------|---------------|----------|
| V1.0 | First Release | 2017-6-2 |

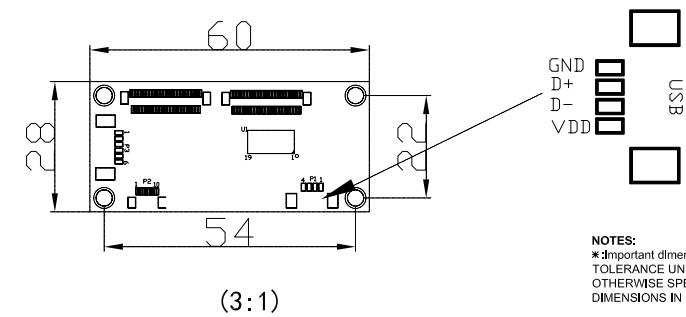


Front view

Side view

Back view

| TECHNOLOGY CHARACTERISTICS CTP |             |
|--------------------------------|-------------|
| PROPERTY                       | Requirement |
| IC Controller                  | ILI2302M    |
| NO OF TOUCH                    | 10          |
| COVER GLASS Thickness          | 2.0mm       |
| ITO GLASS Thickness            | 0.7mm       |
| Surface Hardness               | ≥6H         |
| Light Transmittance            | 85%±5%      |
| Operating Temperature          | -20~70°C    |
| Storage Temperature            | -30~80°C    |
| Operating Humidity             | 45~90%RH    |
| Storage Humidity               | 5~95%RH     |



| TP USB-PIN : |    |    |     |
|--------------|----|----|-----|
| 1            | 2  | 3  | 4   |
| GND          | D+ | D- | VDD |

NOTES:  
 \*Important dimensions  
 TOLERANCE UNLESS: x.xx ±0.5  
 OTHERWISE SPECIFIED: x.xx ±0.3  
 DIMENSIONS IN MM; ANGULAR: ±1°

**RoHS**

**FANNAL ELECTRONICS CO., LTD**

|                                 |      |      |          |
|---------------------------------|------|------|----------|
| <b>MODEL NO: FN190A004-V1.0</b> |      |      |          |
| THIRD ANGLE PROJECTION          |      |      |          |
|                                 | NAME | SIGN | DATE     |
| DRAWN:                          | Hong |      | 2017-6-2 |
| CHECKED:                        |      |      |          |
| APPROVED:                       |      |      |          |
| PROJECT NO:                     |      |      |          |
| CUSTOMER NO:                    |      |      |          |
| FILE NO:                        |      |      |          |
| SHEET                           | 1    | OF   | 1        |

## 17. Packaging

TBD