

EPD Handling and ESD Precaution

2016. 04

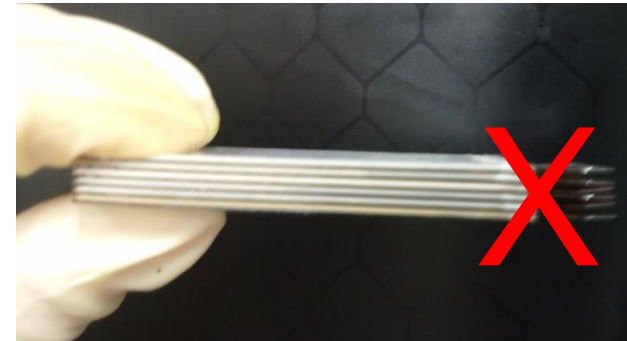
Handling

Handling

- EPD Panel / Module is made by fragile material such as Glass and plastic and would be broken or cracked if dropped it, so Please handle them with care.
- Do Not hit or press on EPD.
- Do Not pull or press on FPC.
- Do Not bend or twist EPD.
- In order to avoid scratch and topple over, Please Do Not Stack the EPD panels / Modules. (Note 1)
- Please Do Not handle stack up EPD. (Note 2)



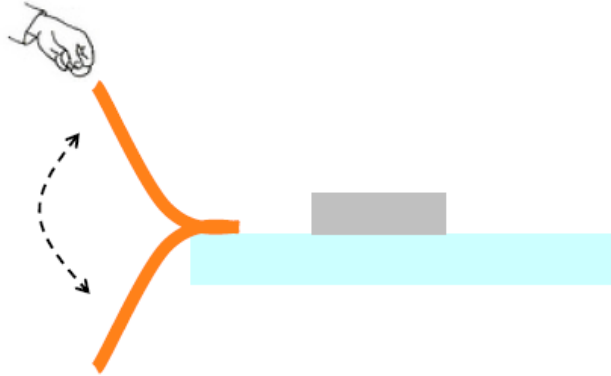
Note 1



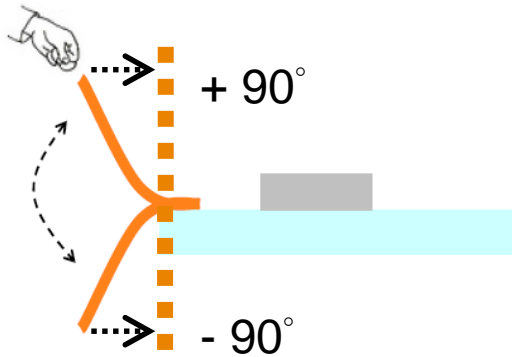
Note 2

Handling - Pull

- **Minimize pull or bend FPC and Do Not use FPC for pick up.**

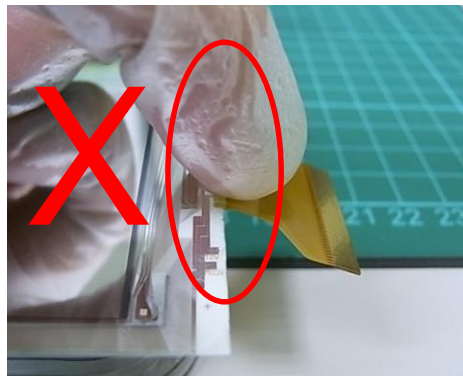


- **Do Not press and pull FPC to + / - 90° bending.**

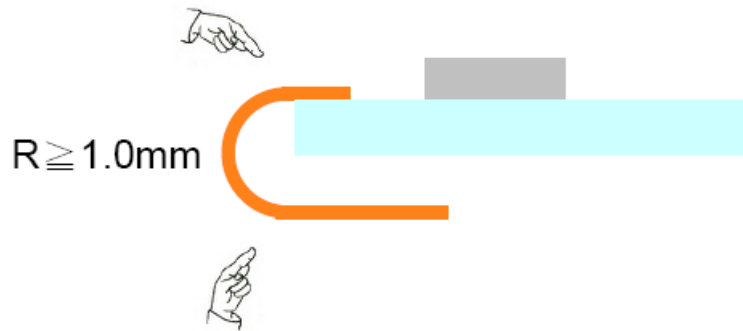


Handling - Pressure

- Do Not touch the FPC Lead Finger and IC area. (To avoid ESD damage)
- Do Not apply pressure or hit to the EPD module, IC, PCBA and FPC to prevent the damage.
- Do Not use stick or sharp object on EPD module.



- Please keep $R \geq 1.0\text{mm}$ when bend for assembly.



Handling - Assembly

➤ **When EPD connected with / bonded on PCBA :**

Note 1. Please Do Not handle PCBA and EPD by twist and handle them carefully.

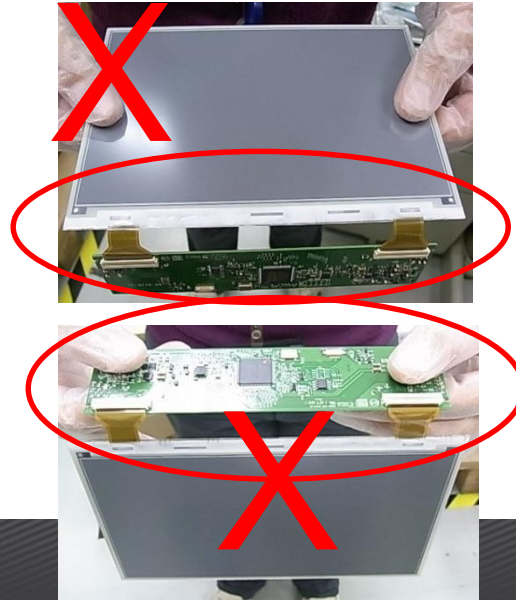
Note 2. Please Do Not handle either one of PCBA or EPD. It may make FPC peeling or FPC lead broken.

Note 3. Please Do Not extrude FPC before and after connected / bonded.

Note 2



Note 1



Note 3

ESD

Operation for ESD Protection - Environment

Operation Environment :

- Temperature : $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$
- Humidity : 50~60%RH

Operation area :

- Operators should use ionizer fan to reduce the ESD energy.
- Working table should be connected to ground, the resistance between people and working table should be less than 5Ω .
- When handle the panel, operators should wear PVC glove or anti-electrostatic glove.



Ionizer fan



PVC glove



Anti-electrostatic glove

Operation for ESD Protection - Human

Human anti-electricity action :

- When operator works in operation area, operators should wear grounding wrist ring. (Sometimes, wear on foot.)
- When operation at working table, operators should wear the grounding wrist ring and make sure grounding is fine. The wrist ring should touch on human skin.
- Before working in operation area, please ensure wrist ring and suit is fine. It's better to pass conductive test before operation.



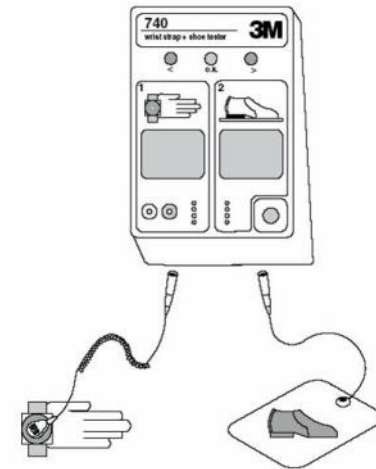
Grounding wrist ring



Grounding



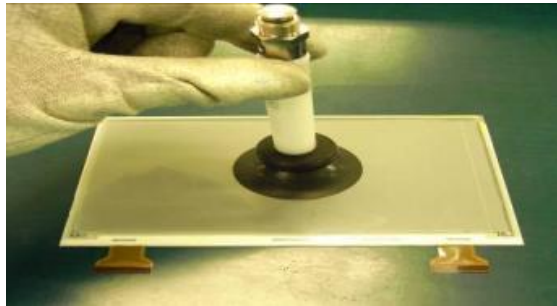
Wrist ring touch on skin



Operation for ESD Protection - Handling

To prevent ESD on EPD panel :

- Note 1. Suggest to use suction pen/ball to pick up EPD panel.
- Note 2. Please Do Not handle or touch IC and FPC Lead Finger area.
- Note 3. Please Do Not handle like the picture of Note 3. And there is a side effect that is to makes silicon peeling.
- Note 4. There is silicon layer on IC area to protect the TFT circuit on IC area. Also PDi has the product which without silicon. Please Do Not use stick or sharp object on silicon layer or TFT glass area, because it would make IC or TFT circuit damage.



Note 1



Note 2



Note 3

To Avoid EOS (Electrical OverStress) in Operation

Operation or Function Test :

- Please DO NOT remove/uninstall EPD from jig/tag when pattern/image is updating/refreshing. (System in operation)
- Please ensure power of jig/tag is off before EPD install into jig/tag.
- Please switch power off after operation or function test, and then, you can uninstall EPD from jig/tag.
- If you don't switch power off during install / uninstall EPD, you may make EOS or short.
- EOS or short would damage IC or TFT.
- Please ensure FPC and connector is connect well (no miss alignment) to avoid short.

Thank You
