

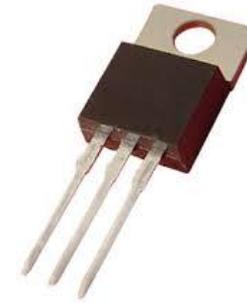
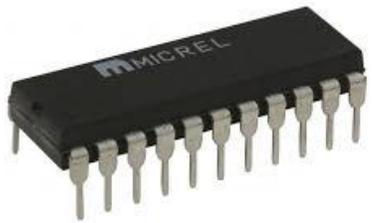


Fictron Industrial Supplies SDN. BHD.

Serving Industrial Needs.

Electronic Equipment/Components Handling

Guide



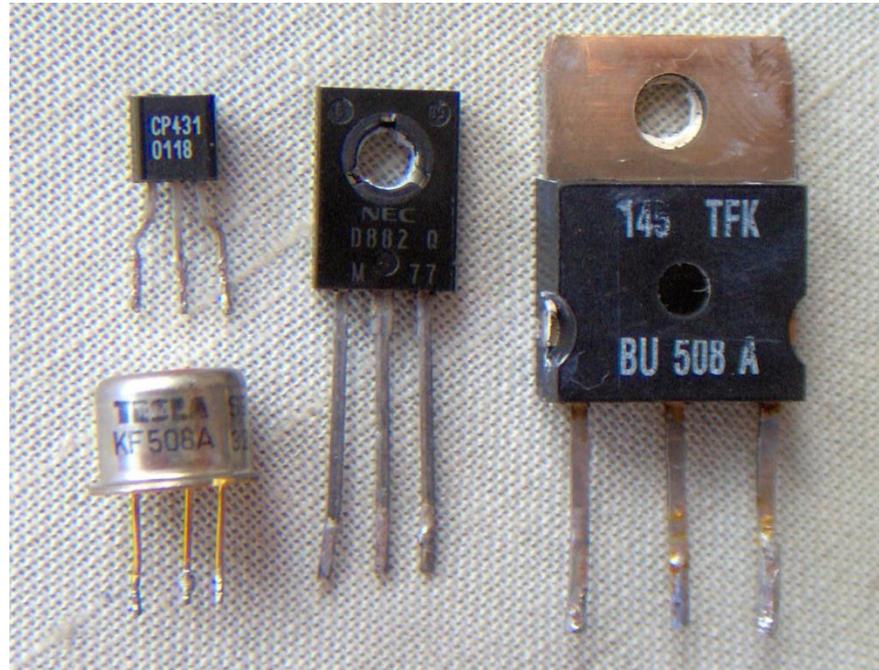


Handling Components:

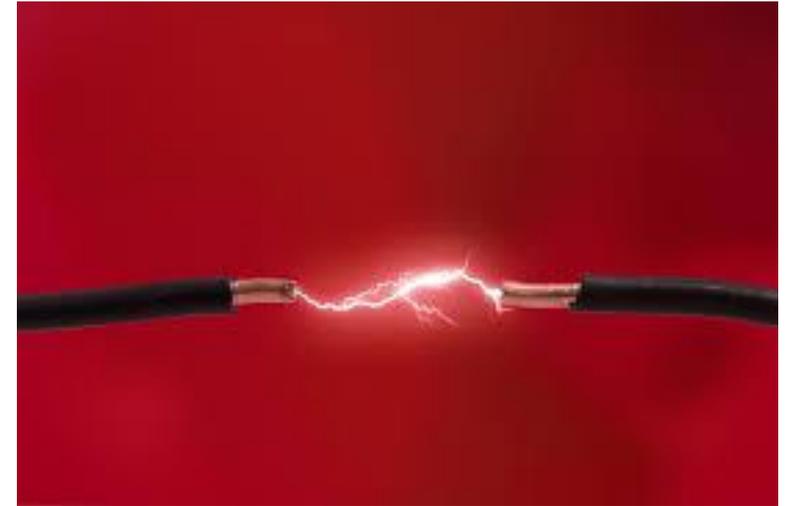
- In which ways can a component receive ESD?



LIGHTENING



TRIBOELECTRIC EFFECT



INTERNAL SPARKLES



Handling Components:

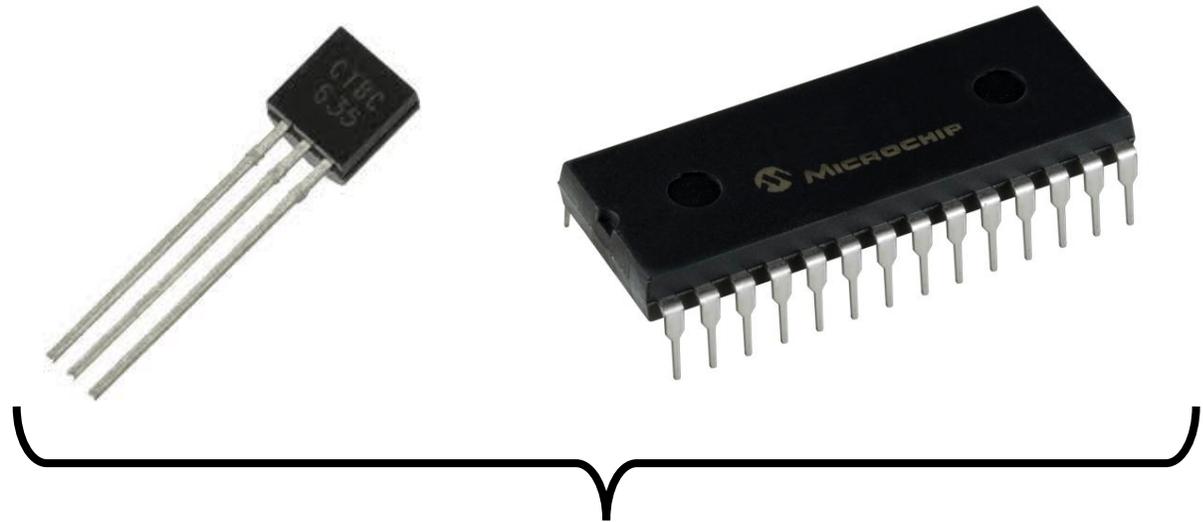
- What is Triboelectric Effect?
- ESD Caused by two surfaces rubbed against each other i.e. Glass and Fur.





Handling Components:

- What components are sensitive the most to ESD?
- CMOS Transistors
- CMOS Ics
- IGBTs
- TTL Chips
- MOSFET Chips

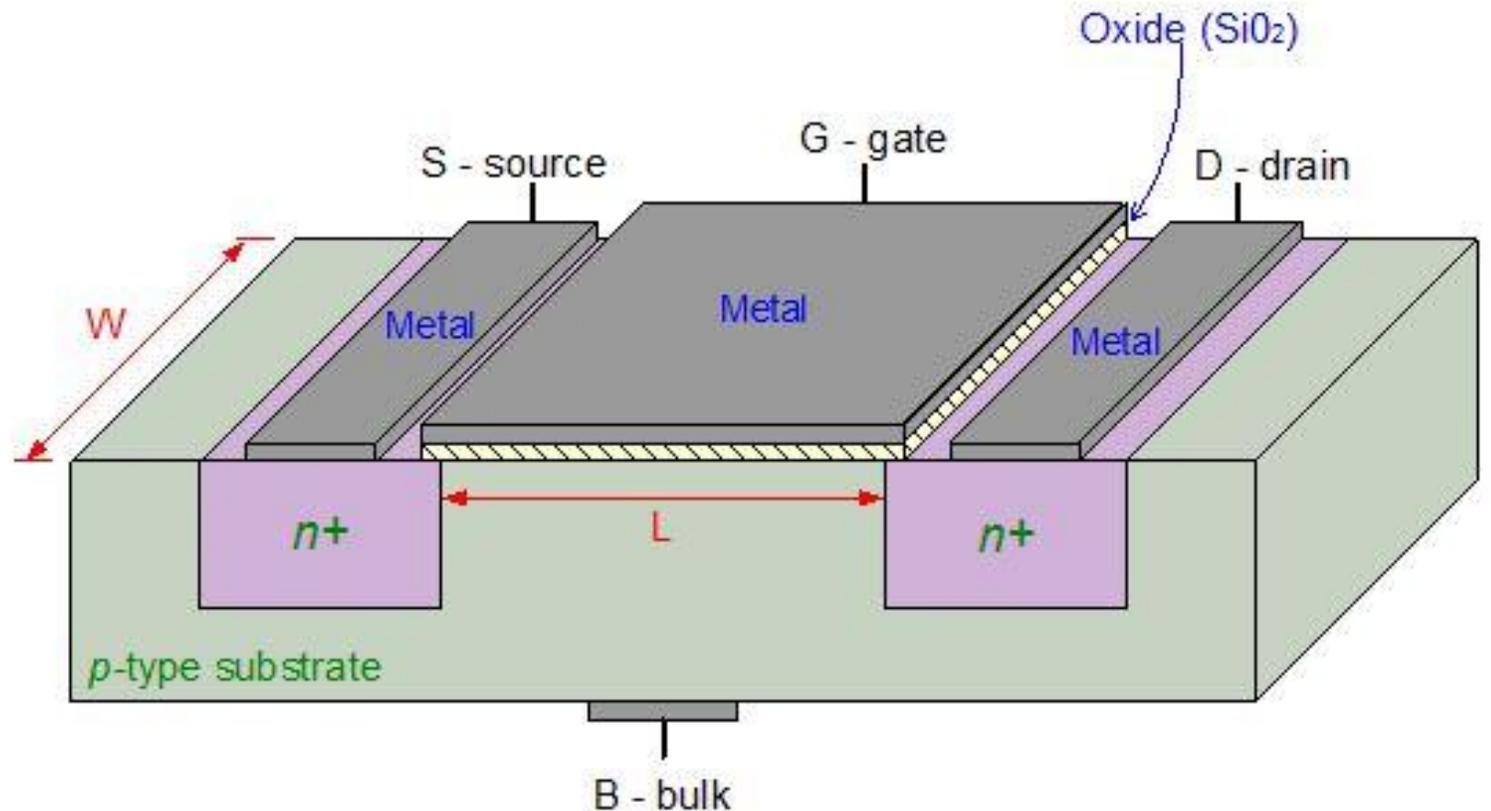


Transistors and ICs in General. (An IGBT is a transistor)



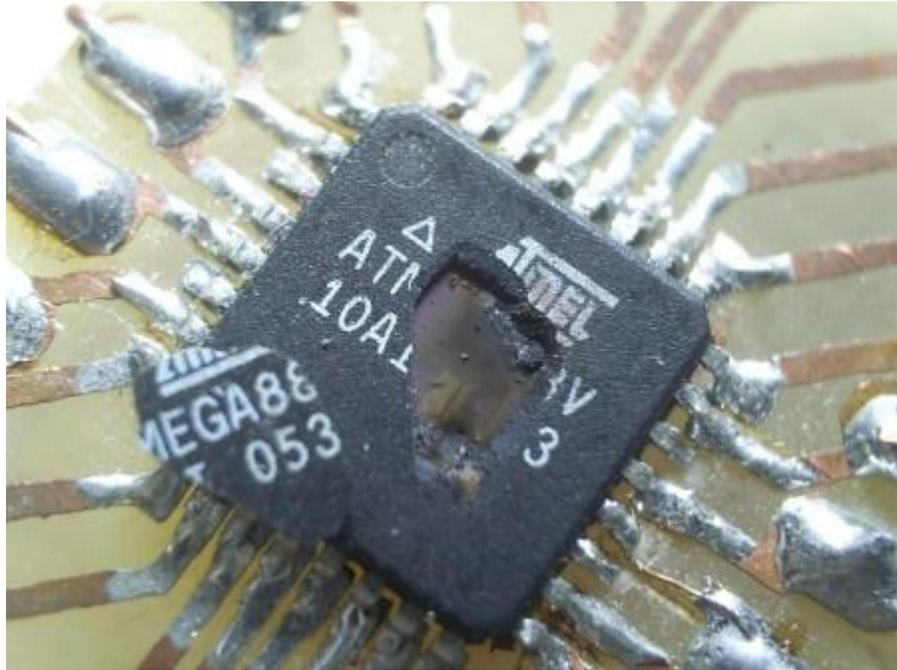
Handling Components:

- How does an ESD sensitive component die?
- An ESD will break the oxide barrier between gate and the substrate, making a short circuit.





- Resulting in a non-functional component which could quickly overheat and explode or a not function at all.





Handling Components:

- How to prevent a components from ESD?
- Use anti-static plastic bags and sponge.
- Avoid touching their legs.
- Insert their legs into the sponge.





Handling PCBs:

- Which PCBs are sensitive to ESD?
- PCBs with “many Digital ICs inside”.
- Computer PCBs
- HMI PCBs
- Servo-Drive PCBs

SENSITIVE



NOT SENSITIVE





Handling PCBs:

- How does an ESD Sensitive Board Die?
- ESD Sensitive components are Networked in PCBs.
- An ESD can travel through the Network.
- An ESD in a Board can damage many components at the same time.



- Resulting in a Non-functional Board Even after repair...





Handling PCBs:

- Are ESD-Sensitive PCBs inside a Device, safe?
- Yes they are safe since they are grounded to the body of the device.
- The conductive body of the device acts the same as an anti-static plastic bag.





Handling PCBs:

- Are PCBs sensitive to ESD ONLY?
- No, Today's boards are sensitive to humidity, and shock as well.
- An SMD component can easily be removed by a little force.





Handling PCBs:

- What's the best way to handle PCBs?
- In between two anti-static foams wrapped in an anti-static plastic bag:





Handling PCBs:

- Do Anti-Static sponges 'Really' make a difference?
What makes them Anti-static?
- A normal sponge made of plastic fiber is an isolator.
- Being an isolator without conducting material, it can hold electric charge.





Handling PCBs:

- Do Anti-Static sponges 'Really' make a difference? What makes them Anti-static?
- An anti-static sponge is made of conducting material and therefore it doesn't hold charge (It has resistance in its fiber).





Handling PCBs:

- Which type of anti-static Sponge/bag is better?



**Great Static Protection!
(Less Electrical Resistance)**



**Poor Static Protection
(Large Electrical
Resistance, Almost an
isolator)**



**At Fictron, We do know how to handle
Electronic Components and Devices!**

Thank you for Viewing!



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