

Making a poor man's ESD gun



Do not try this at home

Certified ESD guns are expensive. You need one to certify your electronics e.g. for sale in the EU, most likely one located in a certified lab. However, you might want to test your design yourself first, to get some initial confidence before wasting time and money bringing a bad design to the lab.

An ESD gun makes a specific, highly controlled discharge of high voltage over a very short amount of time/low current (=low overall energy). One common standard is to use a [model of an electrostatic discharge from the human body](#). You can make a non-specific, non-controlled discharge of high voltage using a simple device based on a [piezo element](#) struck with a pulse of force. As it happens, certain lighters make sparks using this principle, like the one shown in the picture.

1. Find a lighter with a piezo based ignition
2. Safely remove the lighter fuel. Lighter fuel is highly flammable and typically pressurized in the lighter.
 - a. The safest way is to use up the fuel by using the lighter as normal. This article doesn't endorse any other method of removing it.
3. Identify the "ground" pin of the igniter, this is simply connected to the other side of the piezo element. This will be connected to some kind of metal part in close proximity to the "spark plug", usually a metal hood. Find a way to connect a wire to it in a practical way. In the picture, the crocodile connector is attached to it.
 - a. When testing, you will typically want to connect this to the chassis of your thing, or ground if there's no chassis.

You now have a thing that can make something similar to an ESD pulse. You can apply these pulses to a thing and see what happens.

The spark from the pictured device is on the order of 6-7mm, corresponding to some kilovolts. Mileage may vary with model and make of the lighter.

