ZANE PCB Ruler

A demonstration aid for electronics design and manufacturing.
Not a calibrated measuring instrument.

Zero point

The scale starts at the corner; the first tick marks 1 mm. This makes it easier to measure from an edge.

SMD components

These examples show component polarity markings on a PCB. The footprint next to the IC is for a quartz crystal.

Top side

The main component side. On a single-sided assembly, components are mounted here.

PCB traces

Traces from 0.15 mm to 1 mm wide, with and without solder mask, provide a practical visual size reference.

Plated holes

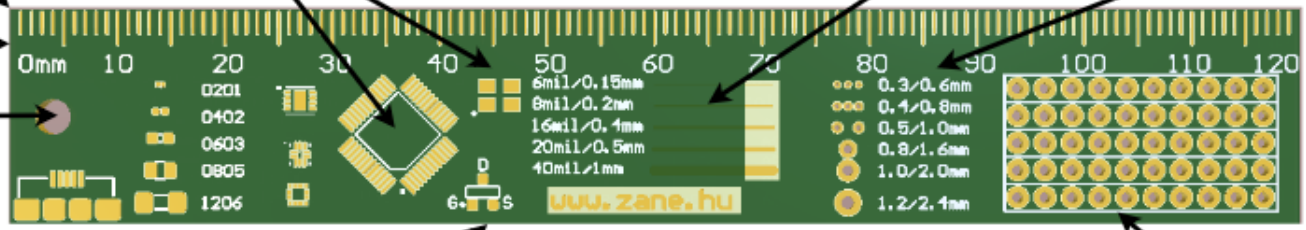
A practical reference for hole sizes. The 0.3 mm holes shown are widely available as a standard PCB fabrication option, often without a surcharge.

Millimetre scale

NPTH

Non-plated through hole. This is the only hole on the ruler without plating.

Micro-USB connector



SMD chips

Common chip-component footprints, from 0201 to 1206, shown for size comparison.

Sensors

Sensirion temperature and humidity sensors, ST accelerometers and other sensors often use tiny packages like these.

BSS138

A faulty SOT-23 footprint in our component library once caused repeated problems. This transistor is a reminder of that lesson.

Identification

Identifiers and reference marks are often left until the deadline. A circuit may work without them, but clear, well-placed markings make everyone else's work easier.

Prototyping area

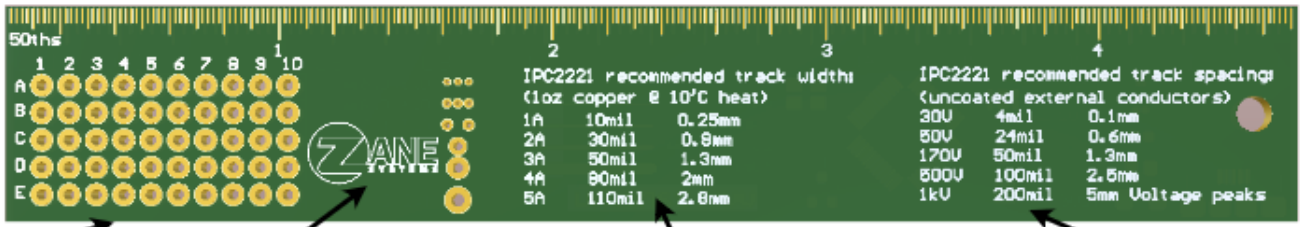
Small but useful: this area can accommodate a real circuit. We have even seen a relay circuit built here. Use the tool in whatever way helps your project!

Bottom side

The solder side. With double-sided SMD assembly, surface-mount components can also be fitted here.

Mil scale

A mil is one thousandth of an inch (0.001 in). It is still widely used in electronics.



Grid

The prototyping holes are spaced at 100 mil (2.54 mm), a common pitch for through-hole prototyping.

Rows and columns are labelled on the solder side.

Graphics

PCBs can carry custom graphics, including logos and explanatory illustrations.

Holes

Hole design matters too. Consider solderability, spacing to adjacent holes and the finished diameter after plating.

Trace current capacity

This quick reference, based on IPC guidance, helps estimate trace widths for a given current under the stated conditions.

Electrical clearances

The second IPC-based quick reference gives indicative trace spacing for different voltages under the conditions printed on the ruler.