



(a)
Earth Ground

(b)
Chassis Common

(c)
Signal or Logic Common

Use The Right Ground Symbol

Using the right ground symbol in your electronics schematics and other drawings.

Earth-ground symbol represents a real connection to earth.

That would be the service entrance ground connection or copper-clad ground rod or metallic water lines.

That earth ground is wired to the neutral of your house wiring at the breaker panel. You can reasonably use the earth-ground symbol (a) for the ground pin on the electrical outlet.

Your electronics equipment schematic should only use the earth-ground symbol to indicate connection to the electrical outlet ground pin on equipment plugged to wall outlet or any power supply or machine equipment that is referenced directly to Earth Ground via the service provided Earth ground. such as a star point ground plate..

It is bad practice to use Earth-Ground symbols for chassis common.

You can use the chassis common (b) wherever a power supply or circuit card connects to the chassis.

In a circuit board schematic you can use chassis symbol when a standoff screws the PCB to the chassis.

Signal-ground symbols (c) are most suitable for most circuitry on a PCB.

Also Logic circuits tied together with a common reference between them.

A design can have several of these symbols, with notations to identify them.

It is good practice to identify the common of a particular supply by a unique notation, such as 5C or 24com rather than simply GND for every common, whether at earth ground or not, as is often current practice, which can lead to a high degree of confusion!

One big distinction is that (b) & (c) can, and often are used as a circuit conductor, but Earth Ground is rarely, if ever used as a circuit conductor, only in extremely rare installations where earth ground is used as the return conductor.