

Component Clearance

Modified by Jason Howie on Oct 20, 2014

Rule category: [Placement](#)

Rule classification: Binary

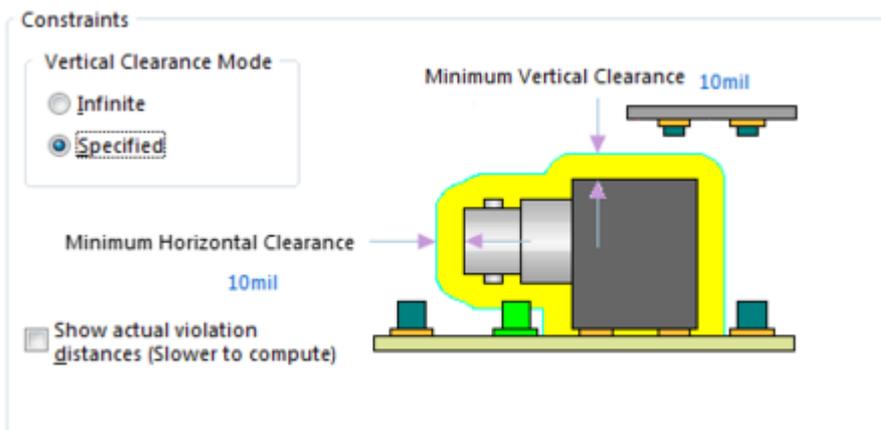
Summary

This rule specifies the minimum distance that components can be placed from each other. Component clearance includes clearance between 3D models used to define component bodies (extruded (simple) types). In the absence of 3D bodies, the primitives on the silk and copper layers (excluding Designator and Comment) are used to define the object shape and size along with the height value specified in the component properties.

Component clearance is calculated using accurate 3D meshing to define shape and contour for the component through its associated 3D body objects. These may be extruded 2D shapes. It is evident that using 3D bodies provides greatest accuracy when it comes to clearance checking, particularly in the vertical sense and in the context of complex component shapes.

The Component Clearance rule does not check for clearance violations between 3D bodies and the board surface.

Constraints



Default constraints for the Component Clearance rule.

- **Vertical Clearance Mode**– two modes for specifying vertical clearance are available:
 - **Infinite** – clearance checking is performed using a value representing infinity. This means

that any components placed above or below will be in violation. An example of use would be a board that has an adjustment mechanism that must remain accessible. Using this rule on that component will cause a violation against any components that protrude into the area above or below the component.

- **Specified**– clearance checking is performed using the exact shape defined by the component 3D bodies or component footprint properties. When using 3D bodies to make the check from, it is possible to have acceptable overhang between one component over another, provided they are not in violation. With this mode enabled, the following constraint becomes available:
 - **Minimum Vertical Clearance** – the value for the minimum permissible clearance, in the vertical sense, between placed components in the design.
- **Minimum Horizontal Clearance** – the value for the minimum permissible clearance, in the horizontal plane, between placed components in the design.
- **Show actual violation distances** – enable this option to show lines between the points of greatest violation between components. The distance of the line is displayed and can be useful in calculating the distance required to move an object to resolve the violation.



Enabling the **Show actual violation distances** option may reduce performance on some computer systems.

How Duplicate Rule Contentions are Resolved

All rules are resolved by the priority setting. The system goes through the rules from highest to lowest priority and picks the first one whose scope expression(s) match the object(s) being checked.

Rule Application

Online DRC and Batch DRC.

Notes

1. An extruded (simple) 3D body is a polygonal shaped object that can be placed in a library component or a PCB document, on any enabled mechanical layer. In a component foot print it can be used to specifically define the physical size and shape of a component in the X, Y and Z-axes.
2. Multiple 3D body primitives may be used to define shapes of any complexity. This can prove especially useful in the vertical sense, as it allows you to vary the height of a component in different regions of that component.

Source URL:

[http://documentation.circuitmaker.com/display/CMAK/PCB_Dlg-ComponentClearanceRule_Frame\(\(Component+Clearance\)\)_CM](http://documentation.circuitmaker.com/display/CMAK/PCB_Dlg-ComponentClearanceRule_Frame((Component+Clearance))_CM)