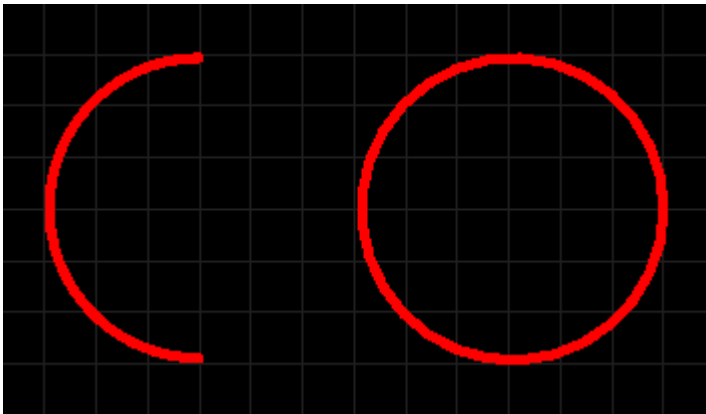


Arc

Modified by Jason Howie on Feb 20, 2015

Parent page: [Objects](#)



Two placed Arcs (the one on the right is a Full Circle Arc).

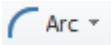
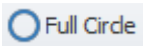
Summary

An arc is a primitive design object. It is essentially a circular track segment that can be placed on any layer. Arcs can have a variety of uses in PCB layout. For example, they can be used when defining component outlines on the overlay layers, or on a mechanical layer to indicate the board outline, edges of cut outs, and so on. They can also be used to produce curved paths while interactively routing. Arcs can be open, or closed to create a circle (often referred to as a full circle arc).

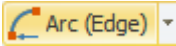
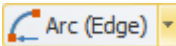
Availability

Arcs are available for placement in both PCB and PCB Library Editors:

PCB Editor

- Click **Home** | **Place** |  and select the required placement mode from the menu.
- Click **Home** | **Place** |  to immediately place an arc as a full circle.

PCB Library Editor

- Click **Home** | **Place** |  to place an arc in Edge mode.
- Click **Home** | **Place** |  and select a different placement mode from the menu.

Placement

The way in which an arc is placed depends on the particular method of placement that you have chosen to invoke. Four different methods of arc placement are supported:

- *Place arc by center* – this method enables you to place an arc object using the arc center as the starting point.
- *Place arc by edge* – this method enables you to place an arc object using the edge of the arc as the starting point. The arc angle is fixed at 90°.
- *Place arc by edge (any angle)* – this method enables you to place an arc object using the edge of the arc as the starting point. The angle of the arc can be any value.
- *Place full circle arc* – this method enables you to place a 360° (full circle) arc.

Placing an Arc Starting at the Center

After launching the command, the cursor will change to a cross-hair and you will enter arc placement mode. Placement is made by performing the following sequence of actions:

1. Click or press **Enter** to anchor the center point of the arc.
2. Move the cursor to adjust the radius of the arc, then click or press **Enter** to set it.
3. Move the cursor to adjust the start point for the arc, then click or press **Enter** to anchor it.
4. Move the cursor to change the position of the arc's end point, then click or press **Enter** to anchor it and complete placement of the arc.
5. Continue placing further arcs, or right-click or press **Esc** to exit placement mode.

Placing an Arc Starting at the Edge

After launching the command, the cursor will change to a cross-hair and you will enter arc placement mode. Placement is made by performing the following sequence of actions:

1. Click or press **Enter** to anchor the start point for the arc.
2. Move the cursor to change the position of the arc's end point, then click or press **Enter** to anchor it and complete placement of the arc.
3. Continue placing further arcs, or right-click or press **Esc** to exit placement mode.

Placing an Arc Starting at the Edge (any angle)

After launching the command, the cursor will change to a cross-hair and you will enter arc placement mode. Placement is made by performing the following sequence of actions:

1. Click or press **Enter** to anchor the start point for the arc.
2. Move the cursor to adjust the radius of the arc, then click or press **Enter** to anchor the center point.
3. Move the cursor to change the position of the arc's end point, then click or press **Enter** to anchor it and complete placement of the arc.
4. Continue placing further arcs, or right-click or press **Esc** to exit placement mode.

Placing a Full Circle Arc

After launching the command, the cursor will change to a crosshair and you will enter arc placement mode. Placement is made by performing the following sequence of actions:

1. Click or press **Enter** to anchor the center point of the arc.
2. Move the cursor to adjust the radius of the arc, then click or press **Enter** to set it and complete placement of the arc.
3. Continue placing further arcs, or right-click or press **Esc** to exit placement mode.

Additional Placement Actions

Additional actions that can be performed during placement are:

- For all methods (excluding full circle arcs), press the **Spacebar** before defining the arc's end point, to render the arc in the opposite direction.
- Press the **L** key to flip the arc to the other side of the board – note that this is only possible prior to anchoring the arc's start/center point.
- Press the + and - keys (on the numeric keypad) to cycle forward and backward through all visible layers in the design respectively – to change placement layer quickly.
- Press the **Tab** key to access an associated properties dialog, from where properties for the arc can be changed on-the-fly.

Note that the attributes can be modified during placement, press **Tab** to bring up the *Arc* dialog. Changes made will affect the object being placed, and subsequent objects placed during the same editing session.

Placing an Arc as a Keepout

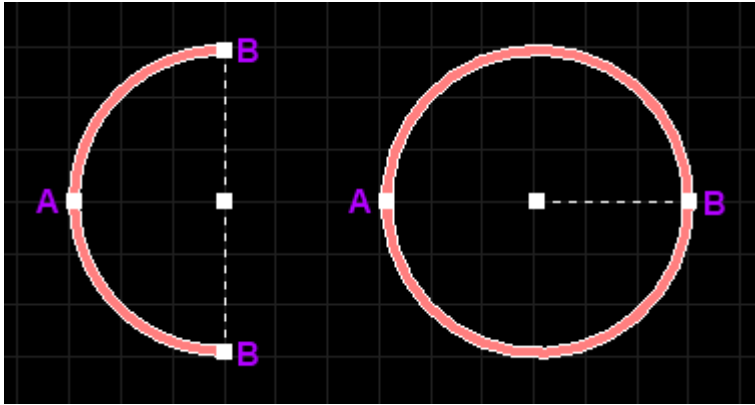
An arc can be placed as a layer-specific keepout object or an all-layer keepout to act, for example, as a placement or routing barrier. Objects defined as keepouts are ignored during output generation, such as photo plotting and printing. A layer-specific keepout arc is simply an arc object with its Keepout property enabled, an all-layer keepout is an arc that has been placed on the Keepout layer.

- To place a layer-specific keepout either place a standard arc on the required signal layer and then enable the **Keepout** checkbox to make it a layer-specific keepout, or use the predefined Arc keepout placement command, available in the sub-menu on the Ribbon at **Home | Place | Keepout**.
- To place an all-layer keepout make the Keepout layer the active layer, then place an arc from the Ribbon (**Home | Place | Arc**).

Graphical Editing

This method of editing allows you to select a placed arc object directly in the workspace and change its size, shape or location, graphically.

When an arc object is selected, the following editing handles are available:



Selected Arcs (Full Circle Arc on right).

- Click and drag **A** to adjust the radius.
- Click and drag **B** to adjust the end points (start and end angles).
- Click anywhere on the arc - away from editing handles - and drag to reposition it. While dragging, the arc can be rotated or mirrored:
 - Press the **Spacebar** to rotate the arc anti-clockwise or **Shift+Spacebar** for clockwise rotation. Rotation is in accordance with the value for the **Rotation Step**, defined on the **PCB Editor - General** page of the *Preferences* dialog.
 - Press the **X** or **Y** keys to mirror the arc along the X-axis or Y-axis respectively.

If attempting to graphically modify an object that has its **Locked** property enabled, a dialog will appear asking for confirmation to proceed with the edit. Double click on the locked object directly and disable the **Locked** property to graphically edit the object.

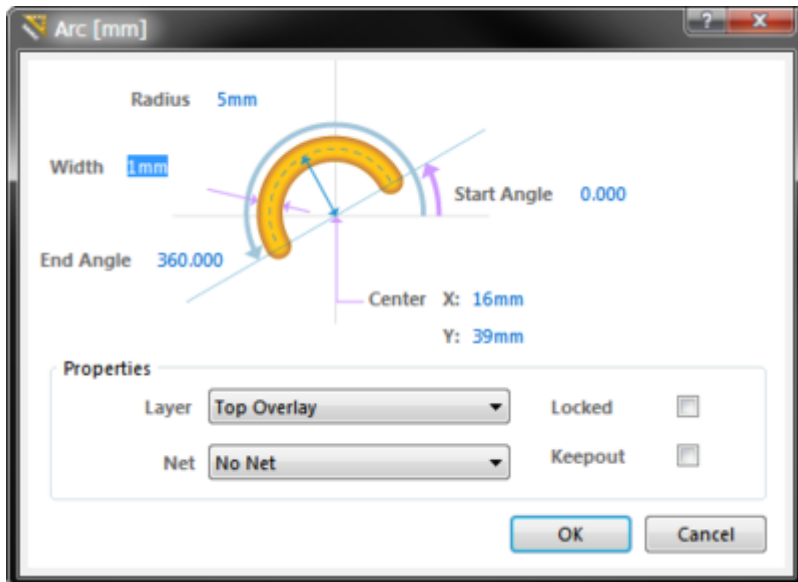
Non-Graphical Editing

The following methods of non-graphical editing are available:

Editing via an Associated Properties Dialog

Dialog page: [Arc](#)

This method of editing uses the [Arc dialog](#) to modify the properties of an arc object.



During placement, the dialog can be accessed by pressing the **Tab** key.

After placement, the dialog can be accessed in one of the following ways:

- Double-click on the placed arc object.
- Placing the cursor over the arc object, right-clicking and choosing **Properties** from the context menu.



To toggle the units of measurement used in the open dialog between metric (mm) and imperial (mil), press the **Ctrl+Q** shortcut. This affects the dialog only and does not change the measurement unit currently selected for the board (**Home | Grids and Units | Metric** or **Imperial**).

Editing via an Inspector Panel

Panel pages: [PCB Inspector](#), [PCBLIB Inspector](#)

An *Inspector* panel enables the designer to interrogate and edit the properties of one or more design objects in the active document. Used in conjunction with appropriate filtering, the panel can be used to make changes to multiple objects of the same kind, from one convenient location.

Source URL: [http://documentation.circuitmaker.com/display/CMAK/PCB_Obj-Arc\(\(Arc\)\)_CM](http://documentation.circuitmaker.com/display/CMAK/PCB_Obj-Arc((Arc))_CM)