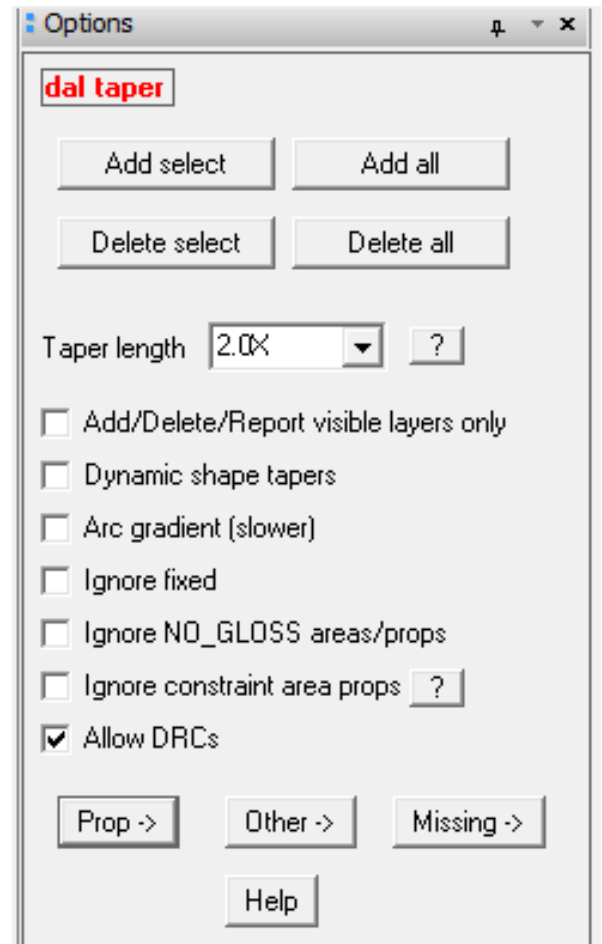
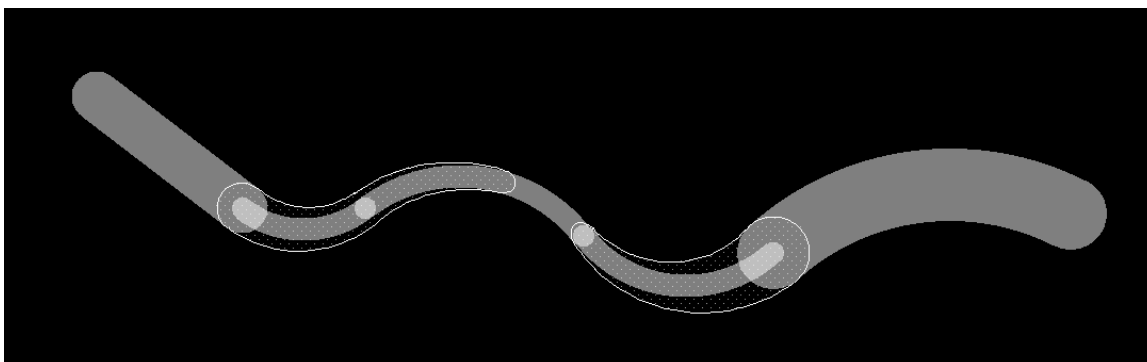
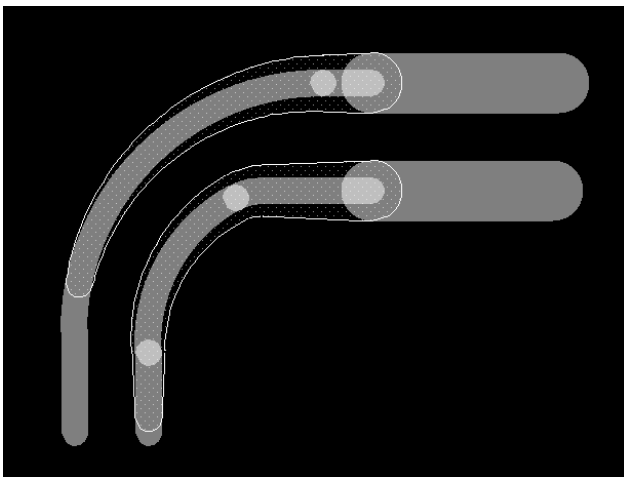
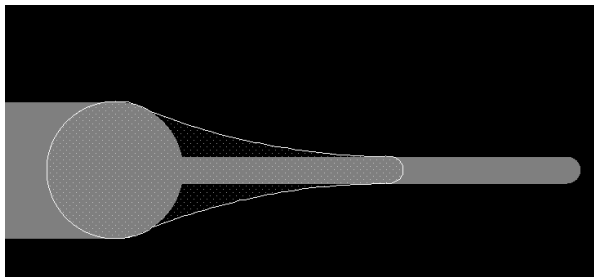


Taper

Creates smooth (taper) transitions between different lines width junctions. This improves the reliability of connections on flex circuits.

Features:

- Works with arcs and through multi segment lines.



Examples

Before



Works with arcs

After



Works with arcs

Before



Diff pair

After



Diff pair

Before



Long taper

After



Long taper

Before



Arc gradient

After



Arc gradient

DRC And Highlight Missing Tapers

The image displays a series of 'Before' and 'After' comparisons for four different DRC error types:

- Works with arcs:** Shows a pair of arcs with a missing taper (Before) and the corrected version (After).
- Diff pair:** Shows a pair of curved lines with a missing taper (Before) and the corrected version (After).
- Long taper:** Shows a long taper on a curved line (Before) and the corrected version (After).
- Arc gradient:** Shows a taper on a straight line with an arc gradient (Before) and the corrected version (After).

To the right is a 'Taper' control panel with the following options:

- Buttons: Add select, Add all, Delete select, Delete all
- Taper length: 2000.0
- Dynamic shape tapers:
- Arc gradient (slower):
- Ignore fixed:
- Ignore NO_GLOSS areas/props:
- Allow DRCs:
- Connect line endcaps (toggle):
- Context menu: Report, Highlight, Dehighlight, Drc, Clear drcs

The 'Show Element' window displays the following details for a DRC error:

```

LISTING: 1 element(s)
  < DRC ERROR >
Class:          DRC ERROR CLASS
Subclass:       TOP
Origin xy:      (5189.0000 2961.0000)
Constraint:     Externally Determined Violation
Constraint Set: Missing taper
Constraint Type: EXTERNAL REFERENCE

Constraint value: None
Actual value:   NONE

-----
Element type:   ARC SEGMENT
Class:          ETCH
Subclass:       TOP

part of a connect line
Not on a Net

arc seg:xy (5189.0000 2961.0000) xy (5242.0000 2968.0000) width (13.0000)
center-xy: (5220.5789 2926.0453) radius (47.1069) CW

-----
Element type:   ARC SEGMENT
Class:          ETCH
Subclass:       TOP


part of a connect line
    
```

Report (Sorted By Layer With Auto Zoom To XY location)

```
Report
File Close Help
86 missing taper(s) found.
# Layer,XY,Netname
1, TOP, (5150.02 2364.964), DUMMY_NET
2, TOP, (5099.02 2364.964), DUMMY_NET
3, TOP, (5041.0 2569.0), DUMMY_NET
4, TOP, (5133.142 2784.0), DUMMY_NET
5, TOP, (5133.142 2768.0), DUMMY_NET
6, TOP, (5094.0 2969.0), DUMMY_NET
7, TOP, (5189.0 2961.0), DUMMY_NET
8, TOP, (5706.0 220.0), DUMMY_NET
9, TOP, (5665.0 198.0), DUMMY_NET
10, TOP, (5614.0 230.0), DUMMY_NET
11, TOP, (5583.0 274.0), DUMMY_NET
12, TOP, (5527.0 259.0), DUMMY_NET
13, TOP, (5843.0 325.8406), DUMMY_NET
14, TOP, (5746.0 379.0), DUMMY_NET
15, TOP, (5869.799 449.0), DUMMY_NET
16, TOP, (5836.0 463.0), DUMMY_NET
17, TOP, (5791.0 489.0), DUMMY_NET
18, TOP, (5968.0 -149.0), DUMMY_NET
19, TOP, (6001.0 -233.0), DUMMY_NET
20, TOP, (6217.02 655.9644), GND
21, TOP, (6166.02 655.9644), GND
22, TOP, (6215.02 835.9644), GND
23, TOP, (6164.02 835.9644), GND
24, TOP, (6228.02 746.9644), GND
25, TOP, (6177.02 746.9644), GND
26, TOP, (6142.0 -153.0), DUMMY_NET
27, TOP, (6144.02 -199.0356), DUMMY_NET
28, TOP, (6163.0 -268.0), DUMMY_NET
29, TOP, (6185.02 35.9644), DUMMY_NET
30, TOP, (6236.02 35.9644), DUMMY_NET
31, TOP, (6247.02 -23.0356), DUMMY_NET
32, TOP, (6186.02 33.0356), DUMMY_NET
```

Help

1.0_005 09-26-2015



Help

Command: dal taper

Purpose: Creates smooth (taper) transitions between different lines width junctions. This helps improve the reliability of connections on flex circuits.

Add select - Adds tapers on selected clines or cline segments.
All all - Adds tapers on all clines on all or only visible layers per option.

Delete select - Deletes tapers by selection.
Delete all - Deletes all tapers on all or only visible layers per option.

Taper length - The taper length controls the length of the taper slope added from the end of the wider line along the thinner line.
Acceptable values are a floating point number or a value X (times) the width of the wider cline segment. Ex. 2X.

Add/Delete/Report visible layers only - When checked, only visible layers are processed.
Dynamic shape tapers - When checked, draws the taper shapes as dynamic and autovooids obstacles.
Arc gradient (slower) - When checked, the slope of the taper is created as a arc gradient. Note this requires more chords along the straight line segments.
Ignore fixed - When checked, fixed properties are ignored for creating and deleting tapers. Fixed tapers are skipped in subsequent runs.
Ignore NO_GLOSS areas/props - When checked, tapers are added in NO_GLOSS areas or on nets with the NO_GLOSS property.
Ignore constraint area props - When checked, property values attached to constraint areas are not used for the taper length in those areas.
Allow DRCs - When checked, tapers that create DRCs are maintained.

Prop ->

- [Fix all] Tapers - Convenience funtion to fix all tapers.
- [Unfix all] Tapers - Convenience function to unfix all tapers.
- [Fix selected] Tapers - Convenience function to fix selected tapers.
- [Unfix selected] Tapers - Convenience function to unfix selected tapers.
- [Flash fixed] Tapers - Flashes all fixed taper graphics for easy location identification.
- [Flash all] Tapers - Flash all tapers.

*See the PDF or video link below for more detailed information and pictures.

Visit our website: www.daltools.com [More Documentation \(PDF\)](#) [Web Demonstration](#)

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Ok