3D Smith Chart
Powerful learning, analysis and design

Advanced tool for high frequency 1 & 2 port circuits
✓ Works for all active & passive microwave circuits, even with negative resistance!
✓ Amplifier Stability circles
✓ 3D Unilateral transducer gain & group delays & quality factors
✓ Educational design mode on 2D & 3D Z-Y Smith charts on constant r,x,g,b circles & more
✓ S parameters
✓ Dynamic frequency sweep & complex ports

Affordable license
Full 3D visualization
Intuitive user interface
1 minute install
Highly configurable
State of the art concepts, backed by recent reputed journal publications
Continuously growing based on community input

3DSmithChart.com
Analysis mode (S files parameters inputs)

Impedance, Admittance, Amplifier Stability Circles & more – everything highly configurable

S parameters display with complex ports tuning & dynamic freq. sweep

Group delays

Quality factors

Unilateral power gain
Design mode
• enables the user to find the (normalized) matching circuits solutions:
  • Series resistance, inductance capacitance
  • Shunt resistance, inductance, capacitance

• Lossless transmission lines & stubs

Includes S-parameter analysis also for direct drawn loads
<table>
<thead>
<tr>
<th>Comparative capabilities</th>
<th>Smith chart</th>
<th>3D Smith Chart</th>
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<tbody>
<tr>
<td>Positive resistance</td>
<td>Interior of unity circle</td>
<td>North hemisphere</td>
</tr>
<tr>
<td>Negative Resistance ($</td>
<td>Reflection coefficient</td>
<td>&gt;1)</td>
</tr>
<tr>
<td>Perfect match</td>
<td>origin</td>
<td>North pole</td>
</tr>
<tr>
<td>$</td>
<td>Reflection coefficient</td>
<td>=</td>
</tr>
<tr>
<td>Inductive</td>
<td>Above x axes</td>
<td>East</td>
</tr>
<tr>
<td>Capacitive</td>
<td>Below x axes</td>
<td>West</td>
</tr>
<tr>
<td>$r,x,g,b$ constant</td>
<td>Circles, circle arcs, 1 line</td>
<td>Circles</td>
</tr>
<tr>
<td>Purely resistive</td>
<td>Ox axes</td>
<td>Greenwich meridian</td>
</tr>
<tr>
<td>Power levels/group delays</td>
<td>NO</td>
<td>3D space (Exterior &gt;0, Interior &lt;0)</td>
</tr>
</tbody>
</table>

**Selected related journal articles**


