circuitFX

circuitFX v1.84 - user guide

description

circuitFX is a script for Adobe After Effects, specifically designed to create graphical circuit boards. The circuit pattern is generated randomly with every press of the create button. Apart from the circuit lines and circles, circuitFX also creates, chips, resistors and capacitors. It has the ability to put all of the needed parts in one shape layer or create seperate shape layers for each part of the board.

installation

circuitFX can be run as a dockable panel or as a window.

To install and run as a dockable panel (will be visible in the "Window" menu):

1. Copy the file **circuitFX.jsxbin** into the folder:

   "..Support Files/Scripts/Script UI Panels" (on Windows)

   or "..Scripts/Script UI Panels" (on MacOS) of your After Effects installation.

2. Restart After Effects

To install and run as a window (will be visible in the File -> Scripts Menu):

1. Copy the file **circuitFX.jsxbin** into the folder:

   "..Support Files/Scripts/" (on Windows)

   or "..Scripts/" (on OS X) of your After Effects installation.

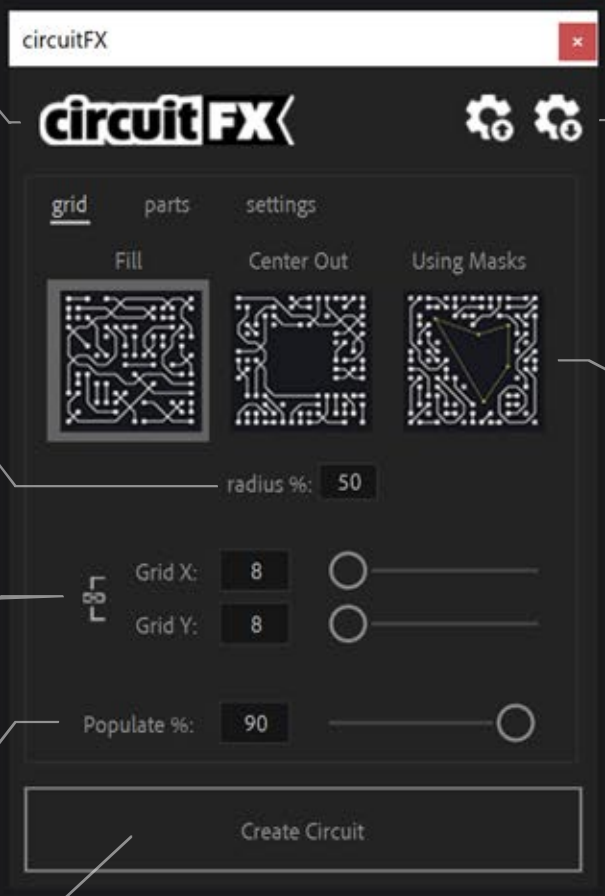
2. Restart After Effects

interface 1/3

The script can be run as a dockable panel (will be visible and run from the "Window" menu of After Effects) or in "window mode" (visible and run from the File -> Scripts menu). The mode depends on which folder you install the script in (see instructions on page 2)

Clicking on the logo brings up a window with small help tips.

Save/Load Settings Buttons. You can save/load circuitFX's panel settings to a simple JSON file.



Adjusts how big the center empty rectangle would be.

(the percentage is calculated automatically and depends on the GridX and GridY values. This parameter is only available when the "Center-Out" mode is selected)

There are **three** modes of circuit generation:

_ **Fill:** The whole composition is filled

_ **Center Out:** The formation starts from the center, going outwards, leaving a center rectangle empty.

_ **Using Masks:** Masks from the Grid Guide layer are used to mask in/out parts of the circuit

(circuitFX uses masks that are set to ADD, SUBTRACT or DIFFERENCE mode)

Set the X and Y density of the grid

(the minimum value is 4 in Fill mode and 8 in Center-Out mode)

Adjusts the percentage of the grid that is going to be used to populate circuit parts

(minimum value is 10%)

Creates the circuit board!

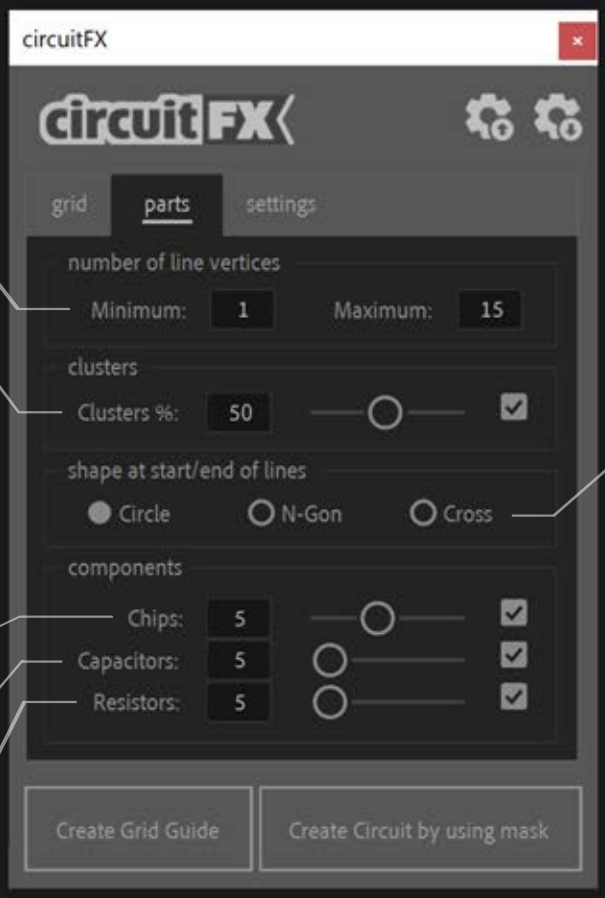
(when the "Using Masks" mode is selected this button is replaced with two new buttons.
The "Create Grid Guide Layer" and the "Create Circuit by Using Masks" buttons.

interface 2/3

Adjusts the minimum and maximum number of vertices of every circuit line

Adjusts the percentage of clusters in the circuit lines

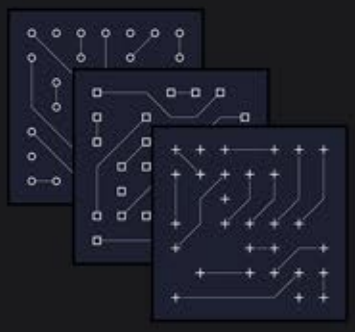
(clusters are circuit lines with multiple offsets applied to simulate parallel circuit paths)



Select between 3 types of shapes for the start & end of each circuit line. (circle, n-gon and cross)

With the N-Gon shape you can create triangles, squares, pentagons, hexagons etc

Below are a few examples.



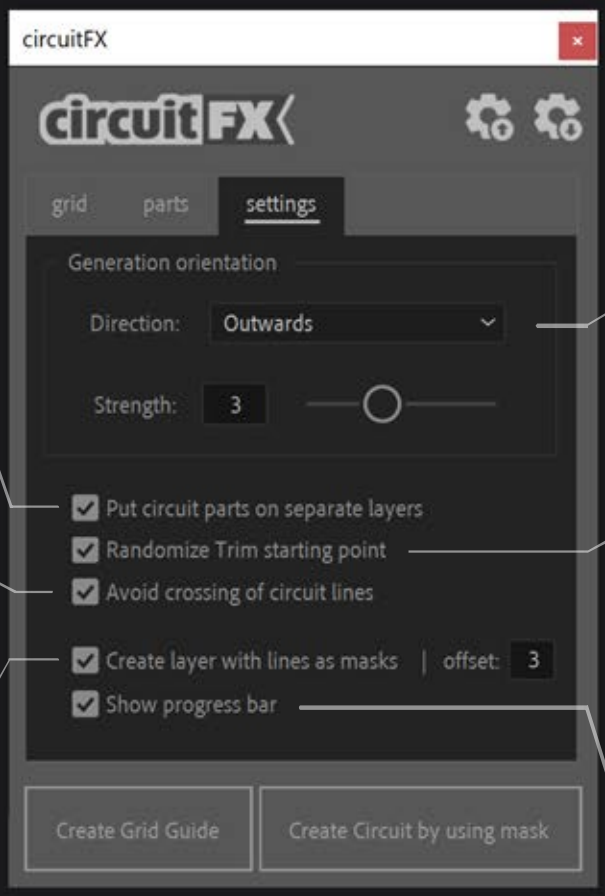
Adjust the number of **chips** to be created

Adjusts the number of **capacitors** to be created

Adjust the number of **resistors** to be created

The number of Chips, Capacitors and Resistors is automatically adjusted during the generation process. For example, if you set the “Populate” and “GridX ” and “GridY” to very low values and set the number of Chips to 50, there will not be enough available vertices (positions on the grid) to create all 50 Chips. In this case the number of Chips will be automatically reduced (when you hit the “Create Circuit” button) to the maximum number of calculated available vertices.

interface 3/3



By default every part of the circuit board is created in a single shape layer

By checking this checkbox every part of the circuit is put on a different shape layer

Uses a more complex algorithm (slower generation) to prevent circuit lines from crossing

Creates an extra solid layer with all the generated circuit lines as masks.

Its intended use is to function as a source layer for third party plug-ins such as 'Element3D'.

Set the orientation of the circuit generation and strength of the direction.

Randomizes the trim starting point of every circuit line, to avoid visible looping patterns

Creates a temporary composition, which prevents After Effects from constantly updating the composition viewer while generating the circuit, thus speeding up the process significantly. This temporary composition is automatically removed after the successful creation of the circuit.

Also enables the progress bar.

Example of a circuitFX solid layer, used as a source in Element 3D.

effect controls

Once the bar has been created, you will find a number of the following effect controls in the effect panel of the shape layer of circuitFX.

Effect Controls circuitFX 1

Comp 2 · circuitFX 1

adjusts the trim starting point of the lines	[LINES]: trim Start	Reset
	Slider	0,00
adjusts the trim ending point of the lines	[LINES]: trim End	Reset
	Slider	100,00
adjusts the trim offset of the lines	[LINES]: trim Offset	Reset
	Angle	0 x +0,0°
if checked, the lines are trimmed one after the other	[LINES]: trim individually	Reset
	Checkbox	☐
adjusts the width of the lines	[LINES]: width	Reset
	Slider	2,50
adjusts the corner roundness of the lines	[LINES]: round corners	Reset
	Slider	3,00
sets the color of the lines	[LINES]: color	Reset
	Color	
adjusts the opacity of the lines	[LINES]: opacity	Reset
	Slider	100,00
adjusts the distance between the cluster lines	[LINES]: cluster offset	Reset
	Slider	3,00
adjusts the distance randomness between the cluster lines	[LINES]: cluster offset randomness	Reset
	Slider	0,00
adjusts the size of the circles	[CIRCLES]: size	Reset
	Slider	18,75
adjusts the size randomness of the circles	[CIRCLES]: size randomness	Reset
	Slider	0,00
adjusts the fill color of the circles	[CIRCLES]: fill color	Reset
	Color	
adjusts the fill opacity of the circles	[CIRCLES]: fill opacity	Reset
	Slider	10,00
adjusts the stroke color of the circles	[CIRCLES]: stroke color	Reset
	Color	
adjusts the stroke width of the circles	[CIRCLES]: stroke width	Reset
	Slider	6,25
adjusts the overall opacity of the circles	[CIRCLES]: opacity	Reset
	Slider	100,00
adjust the size of the chips	[CHIPS]: size	Reset
	Slider	93,75
adjusts the size randomness of the chips	[CHIPS]: size randomness	Reset
	Slider	0,00
set the color of the chips	[CHIPS]: color	Reset
	Color	
adjust the size of the capacitors	[CAPACITORS]: size	Reset
	Slider	87,50
adjusts the size randomness of the capacitors	[CAPACITORS]: size randomness	Reset
	Slider	0,00
set the inner color of the capacitors	[CAPACITORS]: inner color	Reset
	Color	
set the outer color of the capacitors	[CAPACITORS]: outer color	Reset
	Color	
adjust the size of the resistors	[RESISTORS]: size	Reset
	Slider	187,50
adjusts the size randomness of the resistors	[RESISTORS]: size randomness	Reset
	Slider	0,00
set the color of the resistors	[RESISTORS]: color	Reset
	Color	
adjusts the circuit backplate color	[BACKPLATE]: color	Reset
	Color	
adjusts the circuit backplate opacity	[BACKPLATE]: opacity	Reset
	Slider	100,00

lines settings

circles n-gons crosses settings

chips settings

capacitors settings

resistors settings

backplate settings

compatibility

The script is compatible and has been successfully tested on:

- After Effects CS6
- After Effects CC
- After Effects CC 2014
- After Effects CC 2015
- After Effects CC 2015.3
- After Effects CC 2017
- After Effects CC 2018
- After Effects CC 2019
- After Effects 2020
- After Effects 2021
- After Effects 2022

on both Windows and macOs platforms (including M1 CPUs).

trial limitations

You can test circuitFX free for 7 days. In trial mode these limitations apply:

- Grid X and Y values go only up to 15.

version history

1.84 February 26, 2022

- **Optimised:** even faster circuit generating algorithm
- **Optimised:** better timing calculations of the progress bar
- **Optimised:** new licensing framework
- **Added:** load/save settings capability. You can now save/load circuitFXs panel settings to/from a simple .JSON file.

1.80 May 28, 2020

- **Added:** support for "Difference" masks mode. circuitFX apart from the "Add" and "Subtract", it also supports "Difference" mask mode. This is an important addition if you are converting text-to-masks in order to generate a circuit inside each letter of a word.
- **Added:** two new options for start/end shapes of each circuit line. You can now select between Cross, N-Gon and the default Circle. With the N-Gon shape you can create triangles, squares, hexagons etc.
- **Added:** size randomness for the start/end shapes

1.75 November 18, 2019

- **Added:** support for After Effects CC2020
- **Added:** support for MacOS Catalina

1.74 August 18, 2019

- **Fixed:** a bug where capacitors weren't generated in the "Center-out" mode and when "Put circuit parts on separate layers" was enabled
- **Optimised:** when the number of chips, capacitors or resistors is automatically reduced by circuitFX (due to small grid sizes or very large numbers of chips/capacitors/resistors) the user is informed with a detailed message on why and what was changed
- **Optimised:** more efficient generation of chips/capacitors/resistors in all modes
- **Optimised:** better labeling, coloring, naming, numbering and handling of generated layers

1.70 July 10, 2019

- **Added:** ten (10) more circuit direction options
- **Added:** option to generate only the lines coming from the center-out rectangle
- **Optimized:** the center-out generation algorithm has been improved and is now significantly faster (+30%)
- **Added:** option to create a layer with the circuit lines as masks to be used with 3rd-party plug-ins (such as Element3D)
- **Optimized:** redesigned progress bar that is more accurate, more informative, and works both in window and in dockable panel mode
- **Fixed:** fixed a bug where the circuitFX window would freeze, if very small grid sizes where set

1.60 April 30, 2019

- **Added:** support for bezier masks. circuitFX can (finally!) use masks with bezier vertices
- **Optimized:** more compact UI
- **Optimized:** more validation checks on UI text fields and sliders
- **Optimized:** significantly faster generation of chips, resistors and capacitors
- **Optimized:** better compatibility with non-english versions of After Effects
- **Optimized:** slightly faster circuit generation algorithm

1.52 March 20, 2019

- **Fixed:** some licensing issues
- **Optimized:** faster circuit generating algorithm

1.50 April 15, 2018

- **Optimized:** significantly faster generation of circuits (by invoking a temporary composition) in CC2017 and newer versions
- **Fixed:** a couple of issues in the UI
- **Added:** "Cluster" option

1.40 October 5, 2017

- **Added:** size of the grid dots of the guide layer, remain the same, no matter the size of the grid or the size of the comp. Also, an effect control slider has been added to further adjust the size if needed
- **Added:** generation orientation direction and strength options
- **Fixed:** pasting masks on the guide layer now positions them correctly, rather than putting them on the top left corner (0,0)
- **Optimized:** the "Avoid crossing of circuit lines" option is now checked by default on tool startup
- **Optimized:** circles size, circles stroke width, lines width as well as chips, capacitors and resistors initial size in now relative to the size of the grid
- **Optimized:** optimization of the circuit generation algorithm with noticeable speed improvements on all modes

1.31 May 16, 2017

- **Fixed:** "Using Masks" mode now properly works even after you close and re-open a project
- **Optimized:** faster creation of the grid guide layer

1.30 May 1, 2017

- **Fixed:** code optimizations - overall faster circuit generation
- **Fixed:** rounding of line corners and trimming, now works properly
- **Added:** new circuit generation mode "Using Masks"
- **Added:** ability to set min and max number of line vertices
- **Added:** After Effects Info Panel now shows detailed info of the circuit generation process in real-time

1.02 March 2, 2017

- **Added:** option to prevent circuit lines from crossing
- **Optimized:** you can now adjust the outer as well as the inner color of the capacitors

1.0 February 15, 2017

- initial release