

# FF5 Project (Fuzz Face™ Replicas) Instructions

Version 2014 November 19

Copyright 2007 – 2014 JD Sleep

Permission refused for posting/serving this file from any site other than [www.generalguitargadgets.com](http://www.generalguitargadgets.com)



We call this project **FF5**, since there are at least 5 versions of fuzztones that you can build on the PCB. We titled this photo "Shoot Out at the Fuzz Face Corral". This instructions document covers all the versions of the Fuzz Face Projects on the site, these are:

Dallas Arbiter Fuzz Face	PNP	Germanium Transistors	Positive Ground
Dallas Arbiter Fuzz Face	NPN	Silicon Transistors	Negative Ground
Boutique Late 60's	PNP	Germanium Transistors	Positive Ground
Boutique Early 70's	NPN	Silicon Transistors	Negative Ground
Easy Face	PNP	1 - Si & 1 - Ge Transistor	Positive Ground

Any 5 of these versions can be built on the same PCB! **It is important to thoroughly read all instructions before you start building.**

- Throughout this document we will use the *table of elements* abbreviations for Silicon and Germanium transistors. These are: **Si** for silicon and **Ge** for germanium.
- If you are new to DIY, you may be overwhelmed by the options and decisions you will have to make to build this project. If this is the case, buy the kit and



# FF5 Project (Fuzz Face™ Replicas) Instructions

Version 2014November19

Copyright 2007 – 2014 JD Sleep

Permission refused for posting/serving this file from any site other than [www.generalguitargadgets.com](http://www.generalguitargadgets.com)

build the NPN Si Transistor version and enjoy. You may be surprised at how good Si transistors sound. You may have heard about the smooth tone you get from Ge transistors in the Fuzz Face. With the transistors in the kit and tuned with the trimmer, you can get some great fuzz face sounds. Eric Johnson is known to use a Si transistor version Fuzz Face with excellent tone results.

- Be sure to see the document in the "Tech Pages" section on our site ([How do I Build it/ Technical Help / Powering Your Effects / Basic Information...](#)). This covers the general topic of wiring **DC Power** inside stompboxes. This is especially important if you are building one of the positive ground versions.
- **Don't confuse the way the DC jack is wired with the way positive or negative ground circuits are wired. Even if the circuit is positive ground, we still wire the DC jack with a negative center pin.** This can make life a little simpler since you can use any of the typical stompbox power supplies and you don't have to have a special power supply for your Fuzz Face. If this doesn't make sense to you, study the link on the previous bullet.
- If you daisy chain power to your pedals, check out the Charge Pump "wrapper" on the Fuzz Face project page. It is possible to daisy chain your positive ground Fuzz Face with all your other (negative ground) pedals if you add this additional wrapper inside your pedal.
- We found that low gain Si PNP transistors usually sound very good in place of Ge transistors in all versions featured here. The kits include these Si transistors and we suggest that you try them out before you invest in Ge transistors. The Kits include sets of low-gain NPN and PNP Si transistors, if you wish to use Ge or other specialized transistors, you will also need to order those from a reputable dealer such as [Small Bear](#) or [AMZ](#).
- Our kits include a 1k C (reverse log taper) for the Fuzz control instead of the 1k B that the originals have. It is a known fact that the reverse log taper gives a much better rotation for the fuzz control. We wouldn't have made this upgrade if we weren't absolutely sure this is a worthwhile improvement. You can use a 1k B and it will work fine, but we like the 1k C better. We have left the schematics and diagrams to show a 1k B since that is the original value.
- Using the same PCB board for both negative ground and positive ground version can present some deviations from the norm. We decided to default to negative ground wire colors for all versions. The polarization markings for polarized parts is no longer marked on our PCBs, so follow the parts placement diagrams, they will be different for negative and positive ground versions.



# FF5 Project (Fuzz Face™ Replicas) Instructions

Version 2014November19

Copyright 2007 – 2014 JD Sleep

Permission refused for posting/serving this file from any site other than [www.genealguitargadgets.com](http://www.genealguitargadgets.com)

- **We always recommend that you use inexpensive Si transistors to build the Fuzz Face and get it working. Once you are sure it is all working correctly, replace the Si transistors with your Ge transistors.** This will reduce the possibility of damaging your valuable Ge transistors. The kit includes high quality transistor sockets and a set of inexpensive (but good sounding) Si PNP transistors to use permanently or until after you get it tested for use with the Ge transistors.
- Note that the original Fuzz Face circuits did not have a trimmer in **R5**, what we have called **R5T**. We have included this trimmer in the parts placement diagrams because we believe it is a good feature to tune in a good tone. If you want to go without the trimmer, just run a jumper across R5T and adjust the value of R5 as the "Fuzz Face, No Trimmer" diagram file on the project page shows.
- All versions may include the optional parts: **R1**, **C4**, **C6** and **D3**. This is personal preference for you, the builder, whether to include them or not. **R1** (1M5 resistor) may eliminate pop from the bypass switching. **R1** PCB placement is not applicable for the Late Sixties and Easy Face versions since they have potentiometers on the front end. **C4** (10pF or 100pF capacitor) may eliminate or reduce RF interference. **C6** (100uF capacitor) is a power filter and **D3** (diode) is for reverse voltage protection. Note that including **D3** will reduce the voltage to the circuit. The amount of reduction is based on the type of diode used. A 1N914 will reduce voltage to the circuit by about one volt (this is not necessarily a bad thing for this circuit). **C4** is not needed if you plan on using only battery power.
- Note that the LED leads are reversed for the PNP versions. The current limiting resistor (**R11**) can be placed on either lead of the LED, so the part and wiring remains the same on the PCB for all versions.
- Don't be afraid to "hybrid" any aspect of these versions. For example, you could try the "**Easy Face**" **Blend Control** on any of the other versions. The **Pre-Gain** control (as in the Easy Face) is a very useful addition to any version. Use your "tonal taste buds" and imagination to put together something that works best for you.

Follow the general building instructions and use the appropriate diagrams for the version you are building. Here are some steps to take to get started building from the kit:

1. Decide what version you are building. You can build the Dallas Arbiter™ Ge or



# FF5 Project (Fuzz Face™ Replicas) Instructions

*Version 2014November19*

*Copyright 2007 – 2014 JD Sleep*

*Permission refused for posting/serving this file from any site other than [www.generalguitargadgets.com](http://www.generalguitargadgets.com)*

- Si transistor version with the base kit (no options). The other versions require the purchase of a kit option.
2. Use the Bill of Materials and Parts Diagram for the version you are building to sort out the kit parts. You will have some extra parts that you will not use, as there are parts included for several options and versions.
  3. NPN versions use the pair of 2N3904 or PN2369A transistors. PNP versions use the pair of 2N3906 transistors.
  4. We don't include Ge transistors with any of the kits. After you get it built, you can easily downgrade to Ge transistors if you used the sockets.

**Side Note:** The site previously featured the Fuzz Face project with PNP transistor versions and negative ground circuits. This idea can be found on many sites on the web. The first time we saw it was on [AMZ](#). We found that for **most** builders, **most of the time**, this would cause oscillation or would cause funny things to happen to the sound when the guitar volume control was turned down (also related to oscillation). There are some stop-gap measures you can add to the circuit to minimize this, but we decided to release this version without the PNP/negative ground options. After having the PNP/negative ground projects on the site for several years, we feel that generally speaking it may be "compromising" this guitar effect to use this scheme or circuit. Our experience is that the odds of oscillation problems are greatly increased when building PNP/negative ground in the Fuzz Face circuit. PNP/positive ground is not a problem at all if you are using battery power. If you use a power supply, you will just need to have a separate supply for your PNP (positive ground) pedals, or build it with the Charge pump converter.

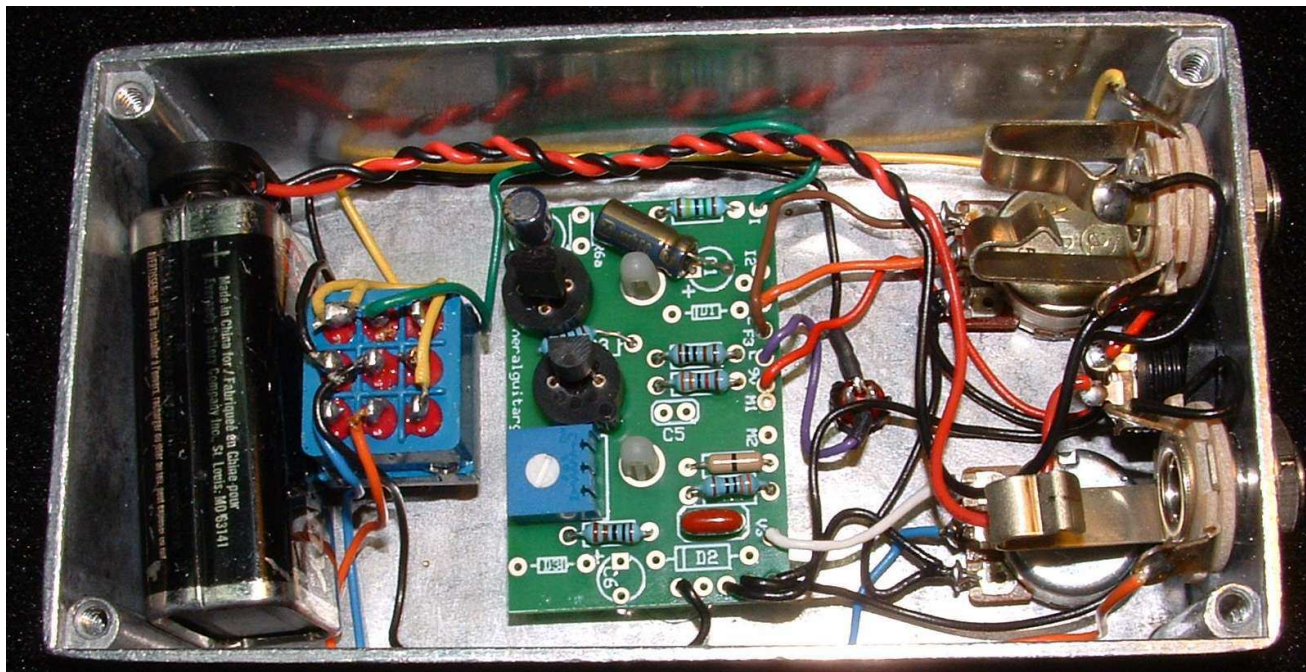
Here's an inside view of the unit we built to give you a real view of our construction. This is the NPN version with the **R1** optional resistor to eliminate switch pop.

## FF5 Project (Fuzz Face™ Replicas) Instructions

*Version 2014November19*

*Copyright 2007 – 2014 JD Sleep*

*Permission refused for posting/serving this file from any site other than [www.generalguitargadgets.com](http://www.generalguitargadgets.com)*



Here is a chart of voltages taken at the transistor pins. Use these voltages as a guideline. You may not get the exact readings listed, but they should be close. This is also the NPN version.

Component	Location	Voltage
9 volt power supply		9v
Q1	Collector	1.4v
	Base	0.6v
	Emitter	0.0v
Q2	Collector	4.5v (if you use a trimmer, you can set the voltage)
	Base	1.4v
	Emitter	0.8v