





Shopping List				
Value	QTY	Type	Rating	Spacing
1k	4	Carbon / Metal Film	1/4W	
4k7	1	Carbon / Metal Film	1/4W	
10k	4	Carbon / Metal Film	1/4W	
22k	1	Carbon / Metal Film	1/4W	
33k	3	Carbon / Metal Film	1/4W	
100k	1	Carbon / Metal Film	1/4W	
470k	2	Carbon / Metal Film	1/4W	
1M	1	Carbon / Metal Film	1/4W	
33pF	1	Ceramic / MLCC	25v min.	2.5mm
100pF	2	Ceramic / MLCC	25v min.	2.5mm
100n	2	Ceramic / MLCC	25v min.	2.5mm
100n	3	Film	25v min.	5mm
2n7	1	Film	25v min.	5mm
10n	2	Film	25v min.	5mm
18n	1	Film	25v min.	5mm
33n	1	Film	25v min.	5mm
1uF	2	Film	25v min.	5mm
47uF	1	Electrolytic	25v min.	5mm
BA282	4	or, MA856 (if you can find them)		
1n914	2			
1n34a	3			
JRC4580	2	4580D or 4580DD		
1M	1	Bourns 3362p		
25kB	1	Right Angle PC Mount	16mm	
100kA	1	Right Angle PC Mount	16mm	
100kB	1	Right Angle PC Mount	16mm	
w20kC	1	*included with purchase	9mm	
1MB	1	Right Angle PC Mount (Plastic Shaft)	9mm	
500kA	1	Right Angle PC Mount (Plastic Shaft)	9mm	

This list is for the audio board only. See the v.2 Switching Board doc for the parts needed for the switching system. This effect does not use a split-rail power supply so you do not need to build the Switching Board with the charge pump.

#### Notes

-The w20kC pot is included with the board. This is a 20k pot with a center detent.

-The w1MC that was used for the Blues King is no longer available, so use a 1MB pot instead. The difference between these two is lack of center detent and a different taper around the center, however the same *range* of tones will still be available with the 1MB pot.

- The 500kA pot is for the bass control. This is pictured as 100kA on the PCB image on pg.1 but I believe this is an error. The schematic lists 500kA and I have tested both values for the bass control. 500kA works much better, IMO.

- MA856 diodes are pretty hard to come by. Use the suggested BA282 sub.

**2.5mm caps, MLCC:**

**33pF:**

<http://www.mouser.com/ProductDetail/KEMET/C320C330J1G5TA?qs=sGAEpiMZZMt3KoXD5rJ2NxivTsVQ6hWgqoJLKUAFkWBu%3d>

**100pF:**

<http://www.mouser.com/ProductDetail/KEMET/C320C101J5G5TA?qs=sGAEpiMZZMt3KoXD5rJ2N54QGdmtVhtg63%252bt7NgZMo0%3d>

**100n:**

<http://www.mouser.com/Search/ProductDetail.aspx?R=C320C104K5R5TAvirtualkey6460000virtualkey80-C320C104K5R>

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**BA282:**

<http://www.smallbear-electronics.mybigcommerce.com/diode-ba282/>

**1n34A:**

<http://www.smallbear-electronics.mybigcommerce.com/diode-nos-germanium/>

<https://www.mammothelectronics.com/collections/diodes/products/1n34a-diode>

**NJM4580D:**

<http://www.smallbear-electronics.mybigcommerce.com/ic-njm4580d/>

<https://www.mouser.com/ProductDetail/NJR/NJM4580D?qs=sGAEpiMZZMtxdzBvM0rKcRaPwkRIKiMntmELwxQe%2fTc%3d>

**NJM4580DD:**

<https://www.mouser.com/ProductDetail/NJR/NJM4580DD?qs=%2fha2pyFadujgijvCOzDD%252byxUGddmTIGUcMxFRwHSul4%3d>

**Bourns 1M (3362p):**

<https://www.mouser.com/ProductDetail/Bourns/3362P-1-105LF?qs=sGAEpiMZZMvygUB3GLcD7kddhVJPYV2kST8Lo8GI%252b%2f8%3d>

**9mm Plastic Shaft, PC Mount (500kA, 1MB):**

<http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-9mm-right-angle-pc-mount-w-knurled-plastic-shaft/>

**16mm Right Angle, PC Mount (25kB, 100kA, 100kB):**

<http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-16mm-right-angle-pc-mount/>



## Overview

Descriptions from the VFE website: <http://vfepedals.com/blues-king.html>

**From the VFE Website:** The BLUES KING overdrive pedal is the perfect tool for sculpting low-to-mid gain tones, pushing your amp into its sweet spot. The EQ curve of the tone controls prevents the tone-masking flaws of many overdrive pedals, preserving the full tonal palette of your guitar and amp. We took the circuit a step further by letting you tailor the precise character and compression of the drive circuitry, making the BLUES KING capable of dialing in your own signature overdrive tone.

- The Blues King starts with a simple, unity gain buffer. The input impedance of this stage is set by the internal IMPED trimpot. How the impedance affects the tone depends on whatever comes before the pedal. If tied directly to a guitar with passive pickups, you can expect more top end sparkle at higher impedances.
- The next stage is one of two gain stages. The DRIVE knob is arranged in such a way that it sets the gain of both the pre-gain and main gain stages.
- The bass frequency response of the pre-gain stage is set by the BASS knob, which is actually a bass cut. Pushing this control clockwise cuts bass to keep the bottom end tight and punchy through the following clipping stages.
- The main gain stage is where the signal first starts to add compression and drive. The SOFT knob uses variable HCC technology to set the amount of compression. Turn clockwise for dynamic, symmetrical clipping, or counterclockwise for sweet, asymmetrical drive. Set to 12:00 for the cleanest gain possible.
- Next up is a harder clipping section that also uses variable HCC. Use the SOFT & HARD knobs together for stacked drive tones. Turn this control clockwise for smooth germanium drive, or counterclockwise for biting silicon clipping. Set to 12:00 to remove any compression from this section.
- The next stage uses a passive treble cut to smooth out any grit generated in the dual drive sections. Pull the TONE knob back to smooth out the top end, or crank it to easily pierce through the mix. To use the pedal as a full-range clean boost, set the TONE control clockwise and BASS control counterclockwise, while setting both HARD & SOFT knobs to 12:00.
- The final stage can add clean gain or attenuate the signal for setting at unity or boosting your volume.
- The extra gain comes in handy at lower drive settings, letting you add a little grit inside the pedal and then boosting the volume to let your amp do the rest of the work.

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## Controls

**Level (100kA):** Sets the output volume of the Blues King. In version 3, this control can add an additional 9dB of boost!

**Drive (100kB):** Sets the amount of gain of both the pre-gain and main gain stages. The range of this control is tapered for fine-tuning the perfect low-gain drive tones.

**Tone (25kB):** The tone control is a simple treble cut. Pull it back a little to smooth out the top end, or pull it back some more and increase the bass cut for a mid-boosted drive tone.

**Bass (500kA):** Controls the bass response of the pre-gain stage. Turn clockwise to cut the bass response for a tighter bottom end. As stated above, this is listed as 100kA on the PCB image on pg1. but 500kA seems to be the right value to use here.

**Soft (w20kC):** Employs variable HCC circuitry to transition between asymmetrical (counterclockwise), symmetrical (clockwise), and diode lift (12:00). Asymmetrical yields the most compression, distortion and even harmonics. Symmetrical gives a dynamic, crunchy tone. Finally, the diode lift removes all clipping components, making this clipping stage a clean boost.

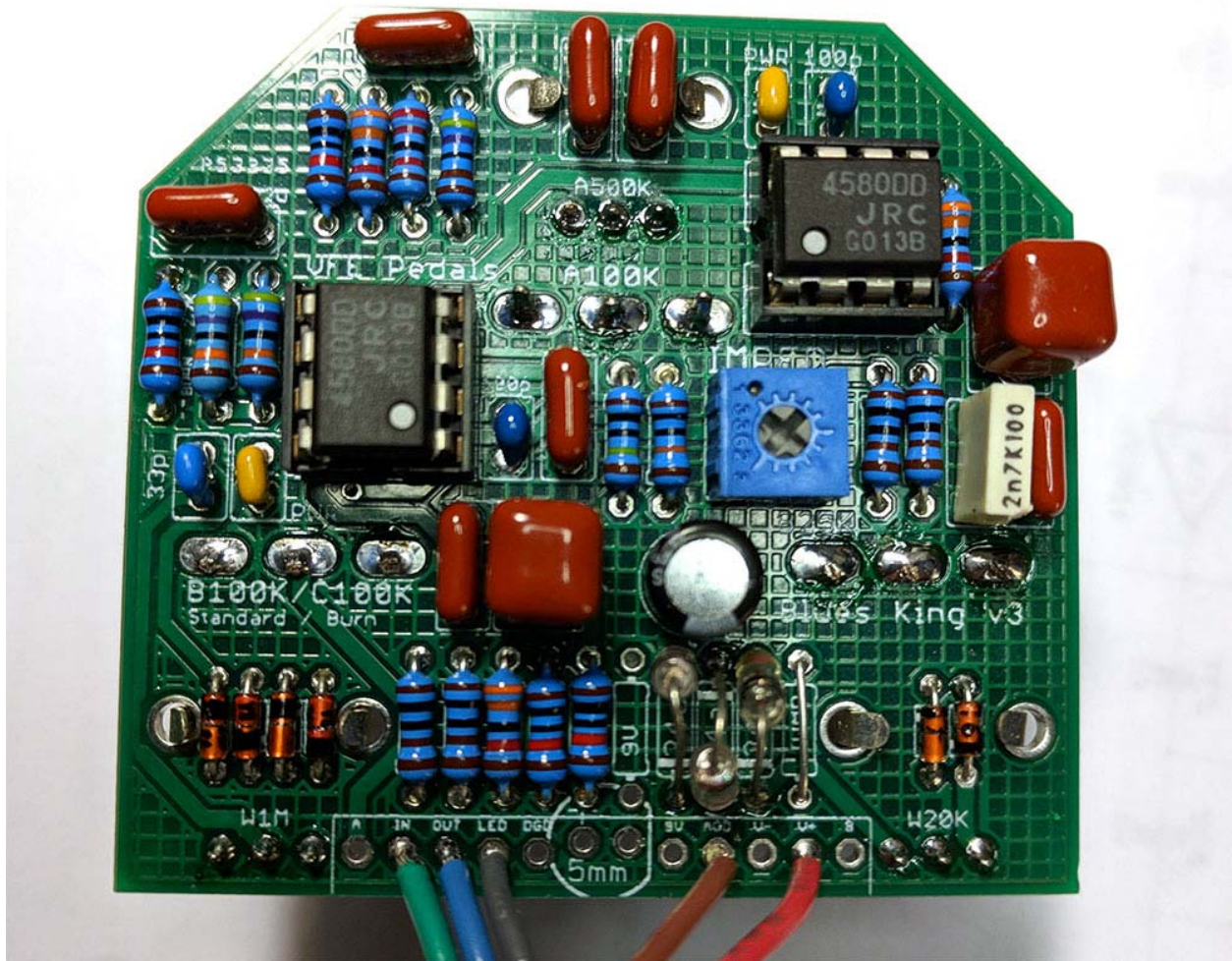
**Hard (1MB):** Employs variable HCC circuitry to transition between sweet asymmetrical germanium diode clipping (clockwise), and a symmetrical silicon clipping (counterclockwise). The 12:00 removes the clipping and makes this section "clean".

**IMP (1M Trim):** Sets the input impedance of the first gain stage. Set this trimmer all the way up for passive pickups. For active pickups, turning the trimmer down to match the lower output impedance of those pickups may improve frequency response and dynamics of the overdrive. Experiment!

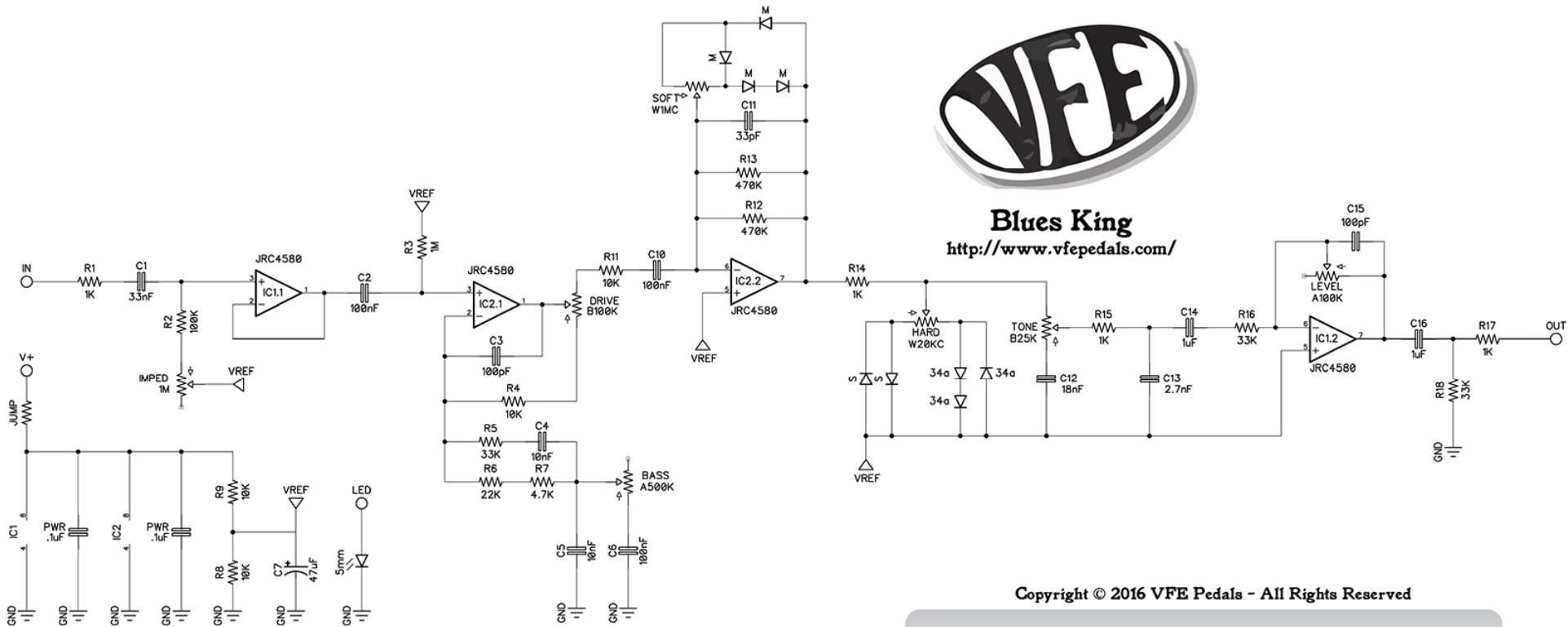




# Build Pic







**Blues King**  
<http://www.vfepedals.com/>

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Diode Part Numbers	Alternate Values (Burn)
M BA282	R11 2.2K
S 1N914	C10 220nF
34a 1N34A	DRIVE C100K