Bill of Materials

MicroSquare (EHX MS Fuzz reproduction)

Resistors

Device ID	Value	Detail	Count	
R0	68k	¼ watt metal film	1	
R1, R13	4k7	¼ watt metal film	1	
R2	470r	¼ watt metal film	1	
R3	2k2	¼ watt metal film	1	
R4	3k3	¼ watt metal film	1	
R5	33k	¼ watt metal film	1	
R6, R8	2k7	¼ watt metal film	2	
R9, R18, R20, R25, R26	10k	¼ watt metal film	5	
R10	22k	¼ watt metal film	1	
R11	220r	¼ watt metal film	1	
R12	560r	¼ watt metal film	1	
R14	820r	¼ watt metal film	1	
R7, R15	27k	¼ watt metal film	2	
R16	3m3	¼ watt metal film	1	
R17	7k5	¼ watt metal film	1	
R19	15k	¼ watt metal film	1	
R21	8k2	¼ watt metal film	1	
R22, R23	13k	¼ watt metal film	2	
R24	100k	¼ watt metal film	1	
R27	47r	¼ watt metal film	1	Can be any tiny value
RLED1	4k7	¼ watt metal film	1	Match to LED choice
RPD	1M	¼ watt metal film	1	Pulldown

Capacitors

Device ID	Value	Detail	Count	
C1, C16	10u	25v Electrolytic 2.5mm	2	
C2, C15, C21	100n	Poly Box WIMA 5mm	3	
C3, C20	22n	Poly Box WIMA 5mm	2	
C4	2n2	25v Electrolytic 2.5mm	1	
C5, C6, C18	1u	25v Electrolytic 2.5mm	3	
C7	47n	Poly Box WIMA 5mm	1	
C8, C9	4u7	25v Electrolytic 2.5mm	2	
C10	82n	Poly Box WIMA 5mm	1	
C11, C13	470n	Poly Box WIMA 5mm	2	
C12	1n8	Poly Box WIMA 5mm	1	
C14	100u	25v Electrolytic 2.5mm	1	
C17	47u	25v Electrolytic 2.5mm	1	
C19	470p	MLCC 5mm	1	Ceramic OK

C28	220p	MLCC 5mm	1	Ceramic OK

Variable Resistors

Device ID	Value	Detail	Count	
SQUAREWAVE	B100k	Alpha 16mm	1	PCB mount
GUITAR	B100k	Alpha 16mm	1	PCB mount
TONE	B100k	Alpha 16mm	1	PCB mount
FILTER	B100k	Alpha 16mm	1	PCB mount
SQUELCH	B100k	Bourns 3362	1	Trim
GAIN	B10K	Bourns 3362	1	Trim
OUTPUT	A100K	Bourns 3362	1	Trim – B100K ok

Diodes

Device ID	Value	Detail	Count	
D1	1n5817	Polarity protection	1	
D3, D4, D5	1n914	1n4148 alternative	2	
D2	LED	Optional	1	

Semiconductors

Device ID	Value	Detail	Count	
Q1	2n5087	Fairchild	1	
U1-U4	4558	JRC / Texas Instruments	4	Dual op amps ok
U5	LM13700	Dual transconductance	1	
U6	1044SCPA	Charge pump	1	

Build Notes

1. Squelch doesn't seem to have a huge effect. I think this is more useful when the "whole pedal" is built, and the triggering for the original filter sweep section comes into play. Set it in the middle if unsure.
2. Set gain to taste, I tend to have it pretty high.
3. In order to "balance" the filtered and un-filtered setting, turn the Filter control all the way up clockwise. When playing the pedal adjust the Output trimmer when switching the Filter in and out of the circuit until the volumes are comparable. The Filter is slightly lossy, so this helps to address the output difference.
4. It may be ok to use 13600 instead of the 13700 but I didn't test it. The buffers in the chip aren't used in this part of the original circuit so I suspect it would be fine. Likewise I haven't yet tested SMT versions with adaptor boards but I imagine that would be ok.
5. C19 and C29 are in parallel, and approximate a 680p cap. I found it useful try one cap depending on the tone you prefer. Lower (total) values of C19 and C29 will give "peakier" and harsher treble sounds. Higher values will darken the filter. Try anything from 220p up to 2n2 in total. You can simply put a 680pf cap in either position and call it a day 😊

6. The MS is a weird beast – the circuit origins are over 50 years old. As such expect some idiosyncrasies, eg input level triggering, the need to play quite hard / boost the front end or have a compressor up front. I dont totally understand it, but I like it, warts and all!