

Bill of Materials for Voltron 7 Full Kit P0.0
CGS592 - SSG Component Kit

Item	Description	Qty	Designator	Package
CAPACITOR				
1	47pF 5% Ceramic	2	C102, C202	RAD-0.2N
2	100pF 5% Ceramic	1	C501	RAD-0.2N
3	1nF 63V Polyester	1	C401	RAD-0.2
4	2.2nF 63V Polyester	1	C402	RAD-0.2
5	100nF Ceramic	12	C603, C604, C605, C606, C607, C608, C609, C610, C611, C612, C613, C614	RAD-0.2N
6	100nF 63V Polyester	1	C101	RAD-0.2
7	220nF 63V Polyester	1	C201	RAD-0.2
8	10uF 35V Electrolytic	2	C601, C602	RB-D5.0-P2.0
CONNECTOR				
9	CRIMP - KK254	3	J601^3	-
10	3-way 0.1inch Crimp Housing	1	J601	2.54MM
11	3-way 0.1inch Straight Header	1	J601	2.54MM
12	8-pin IC Socket 0.3inch	3	U103, U201, U501	DIP-8
13	14-pin IC Socket 0.3inch	2	U102, U202	DIP-14
14	16-pin IC Socket 0.3inch	1	U101	DIP-16
DIODE				
15	1N4148	8	D101, D102, D201, D202, D401, D402, D403, D501	DIODE-0.3
LINEAR				
16	TL072 Dual JFET Opamp	2	U103, U201	DIP-8
17	LM741 - GP Opamp	1	U501	DIP-8
18	LM13700 - Dual OTA	1	U101	DIP-16
19	LM3900 - Quad Norton Amplifier	2	U102, U202	DIP-14
INDUCTOR				
20	Ferrite Bead - 5A	2	L601, L602	AXIAL-0.3
RESISTOR				
21	100R 1% 0.5W Metal Film	2	R109, R209	AXIAL-0.4

Channel 1 [CGS506 - MCSM Component Kit]

Item	Description	Qty	Designator	Package
	CAPACITOR			
1	100nF Ceramic	2	C201, C202	RAD-0.2N
	CONNECTOR			
2	1x4 Pin RA Header	1	X2	-
3	1x8 Pin RA Header	1	X1	-
4	8-pin IC Socket 0.3inch	3	Q101, Q102, Q103	DIP-8
5	14-pin IC Socket 0.3inch	1	U101	DIP-14
	DIODE			
6	1N4148	1	D101	DIODE-0.3
	LINEAR			
7	LM3900 - Quad Norton Amplifier	1	U101	DIP-14
	RESISTOR			
8	5K11 1% 0.5W Metal Film	4	R110, R112, R116, R118	AXIAL-0.4
9	16K2 1% 0.5W Metal Film	1	R123	AXIAL-0.4
10	33K 1% 0.5W Metal Film	1	R124	AXIAL-0.4
11	37K4 1% 0.5W Metal Film	2	R107, R113	AXIAL-0.4
12	57K6 1% 0.5W Metal Film	2	R109, R115	AXIAL-0.4
13	63K4 1% 0.5W Metal Film	1	R108	AXIAL-0.4
14	200K 1% 0.5W Metal Film	2	R119, R121	AXIAL-0.4
15	240K 1% 0.5W Metal Film	2	R120, R122	AXIAL-0.4
16	402K 1% 0.5W Metal Film	1	R103	AXIAL-0.4
17	470K 1% 0.5W Metal Film	2	R111, R117	AXIAL-0.4
18	806K 1% 0.5W Metal Film	1	R102	AXIAL-0.4
19	1M5 1% 0.5W Metal Film	1	R106	AXIAL-0.4
20	10M 1% 0.5W Metal Film	3	R101, R105, R114	AXIAL-0.4
	SMD			
21	1M87 0.25W	1	R104	1206

Channel 2 [CGS506 - MCSM Component Kit]

Item	Description	Qty	Designator	Package
	CAPACITOR			
1	100nF Ceramic	2	C201, C202	RAD-0.2N
	CONNECTOR			
2	1x4 Pin RA Header	1	X2	-
3	1x8 Pin RA Header	1	X1	-
4	8-pin IC Socket 0.3inch	3	Q101, Q102, Q103	DIP-8
5	14-pin IC Socket 0.3inch	1	U101	DIP-14
	DIODE			
6	1N4148	1	D101	DIODE-0.3
	LINEAR			
7	LM3900 - Quad Norton Amplifier	1	U101	DIP-14
	RESISTOR			
8	5K11 1% 0.5W Metal Film	4	R110, R112, R116, R118	AXIAL-0.4
9	16K2 1% 0.5W Metal Film	1	R123	AXIAL-0.4
10	33K 1% 0.5W Metal Film	1	R124	AXIAL-0.4
11	37K4 1% 0.5W Metal Film	2	R107, R113	AXIAL-0.4
12	57K6 1% 0.5W Metal Film	2	R109, R115	AXIAL-0.4
13	63K4 1% 0.5W Metal Film	1	R108	AXIAL-0.4
14	200K 1% 0.5W Metal Film	2	R119, R121	AXIAL-0.4
15	240K 1% 0.5W Metal Film	2	R120, R122	AXIAL-0.4
16	402K 1% 0.5W Metal Film	1	R103	AXIAL-0.4
17	470K 1% 0.5W Metal Film	2	R111, R117	AXIAL-0.4
18	806K 1% 0.5W Metal Film	1	R102	AXIAL-0.4
19	1M5 1% 0.5W Metal Film	1	R106	AXIAL-0.4
20	10M 1% 0.5W Metal Film	3	R101, R105, R114	AXIAL-0.4
	SMD			
21	1M87 0.25W	1	R104	1206

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Main [CGS506 - MCSM Component Kit]

Item	Description	Qty	Designator	Package
CAPACITOR				
1	82pF 5% Ceramic	4	C103, C106, C203, C206	RAD-0.2N
2	33nF 63V Polyester	4	C102, C105, C202, C205	RAD-0.2
3	100nF Ceramic	8	C503, C504, C505, C506, C507, C508, C509, C510	RAD-0.2N
4	330nF 63V Polyester	4	C101, C104, C201, C204	RAD-0.2
5	10uF 35V Electrolytic	2	C501, C502	RB-D5.0-P2.0
CONNECTOR				
6	8-pin IC Socket 0.3inch	2	U102, U202	DIP-8
7	16-pin IC Socket 0.3inch	2	U101, U201	DIP-16
8	14-pin IC Socket 0.3inch	1	U102	DIP-14
9	CRIMP - KK396	4	J501^4	-
10	KK396 - 4-way Crimp Housing	1	J501	3.96MM
11	KK396 - 4-way Straight - Locking Header	1	J501	-
12	IDC10 Box Header	2	J502, J503	2.54MM
LINEAR				
13	TL072 Dual JFET Opamp	2	U102, U202	DIP-8
14	LM13700 - Dual OTA	2	U101, U201	DIP-16
INDUCTOR				
15	Ferrite Bead - 5A	2	L501, L502	AXIAL-0.3
RESISTOR				
16	330R 1% 0.5W Metal Film	2	R213, R214	AXIAL-0.4
17	20K 1% 0.5W Metal Film	4	R301, R302, R401, R402	AXIAL-0.4
18	22K 1% 0.5W Metal Film	8	R102, R104, R108, R110, R202, R204, R208, R210	AXIAL-0.4
19	47K5 1% 0.5W Metal Film	4	R101, R107, R201, R207	AXIAL-0.4
20	68K 1% 0.5W Metal Film	8	R105, R106, R111, R112, R205, R206, R211, R212	AXIAL-0.4
21	10M 1% 0.5W Metal Film	4	R103, R109, R203, R209	AXIAL-0.4

CGS513 - VC Wave Multipliers Component Kit

Item	Description	Qty	Designator	Package
	CAPACITOR			
1	33pF 5% Ceramic	4	C603, C702, C802, C806	RAD-0.2N
2	47pF 5% Ceramic	8	C102, C302, C303, C304, C401, C402, C403, C602	RAD-0.2N
3	150pF 5% Ceramic	1	C301	RAD-0.2N
4	47nF 63V Polyseter	4	C601, C701, C801, C805	RAD-0.2
5	100nF Ceramic	14	C903, C904, C905, C906, C907, C908, C909, C910, C911, C912, C913, C914, C915, C916	RAD-0.2N
6	220nF 63V Polyester	2	C101, C201	RAD-0.2
7	1uF 35V Bipolar Electrolytic	2	C604, C803	RB-D6.3-P2.5
8	10uF 35V Electrolytic	2	C901, C902	RB-D5.0-P2.0
9	10uF Bipolar Electrolytic	1	C703	RB-D6.3-P2.5
10	47uF Electrolytic	1	C804	RB-D5-P2.5
	CONNECTOR			
11	CRIMP - KK396	3	J901^3	-
12	8-pin IC Socket 0.3inch	5	U102, U301, U302, U303, U401	DIP-8
13	KK396 - 3-way Crimp Housing	1	J901	-
14	16-pin IC Socket 0.3inch	1	U101	DIP-16
15	14-pin IC Socket 0.3inch	2	U501, U701	DIP-14
16	KK396 - 3-way Straight - Locking Header	1	J901	-
	DIODE			
17	4.7V 5% 500mW	1	D803	DIODE-0.3
18	1N4148	22	D101, D102, D103, D201, D301, D302, D303, D304, D305, D306, D401, D402, D403, D404, D405, D406, D601, D602, D701, D702, D801, D802	DIODE-0.3
	LINEAR			
19	LM3900 - Quad Norton Amplifier	2	U501, U701	DIP-14
20	LM13700 - Dual OTA	1	U101	DIP-16
21	TL071 JFET Opamp	2	U102, U301	DIP-8
22	TL072 Dual JFET Opamp	3	U302, U303, U401	DIP-8

CGS513 - VC Wave Multipliers Component Kit

Item	Description	Qty	Designator	Package
	INDUCTOR			
23	Ferrite Bead - 5A	2	L901, L902	AXIAL-0.3
	RESISTOR			
24	330R 1% 0.5W Metal Film	2	R109, R410	AXIAL-0.4
25	1K5 1% 0.5W Metal Film	4	R105, R107, R204, R208	AXIAL-0.4
26	3K3 1% 0.5W Metal Film	2	R111, R809	AXIAL-0.4
27	10K 1% 0.5W Metal Film	2	R110, R411	AXIAL-0.4
28	15K 1% 0.5W Metal Film	1	R201	AXIAL-0.4
29	22K 1% 0.5W Metal Film	1	R102	AXIAL-0.4
30	33K 1% 0.5W Metal Film	6	R302, R305, R308, R401, R404, R407	AXIAL-0.4
31	47K 1% 0.5W Metal Film	1	R202	AXIAL-0.4
32	82K 1% 0.5W Metal Film	1	R301	AXIAL-0.4
33	100K 1% 0.5W Metal Film	20	R104, R203, R207, R303, R304, R306, R307, R309, R310, R402, R403, R405, R406, R408, R409, R502, R601, R602, R807, R808	AXIAL-0.4
34	150K 1% 0.5W Metal Film	1	R503	AXIAL-0.4
35	220K 1% 0.5W Metal Film	2	R501, R504	AXIAL-0.4
36	330K 1% 0.5W Metal Film	4	R101, R103, R108, R505	AXIAL-0.4
37	470K 1% 0.5W Metal Film	1	R506	AXIAL-0.4
38	820K 1% 0.5W Metal Film	3	R609, R705, R805	AXIAL-0.4
39	1M0 1% 0.5W Metal Film	7	R603, R604, R606, R607, R608, R610, R702	AXIAL-0.4
40	1M5 1% 0.5W Metal Film	1	R706	AXIAL-0.4
41	2M2 1% 0.5W Metal Film	4	R605, R701, R801, R806	AXIAL-0.4
42	3M3 1% 0.5W Metal Film	2	R106, R206	AXIAL-0.4
43	6M8 1% 0.5W Metal Film	1	R205	AXIAL-0.4
44	10M 1% 0.5W Metal Film	4	R703, R704, R803, R804	AXIAL-0.4
	TRANSISTOR			
45	BC557B PNP Transistor	2	Q101, Q201	TO-92
	TRIMPOT			
46	100K 20TV Cermet	2	P102, P202	T93YA

Bill of Materials for Voltron 7 Full Kit P0.0
CGS512 - VCFQ Component Kit

Item	Description	Qty	Designator	Package
CAPACITOR				
1	Do Not Fit	1	C204	-
2	22pF 10% Ceramic	2	C205, C206	RAD-0.2N
3	47pF 5% Ceramic	2	C103, C104 NB: See Build Guide	RAD-0.2N
4	220pF 2.5% Polystyrene	2	C202, C208	AXIAL-0.4W
5	220pF 5% Ceramic	2	C102, C105	RAD-0.2N
6	1nF 63V Polyester	1	C101	RAD-0.2
7	100nF 63V Polyester	3	C201, C203, C207	RAD-0.2
8	100nF Ceramic	6	C3, C4, C5, C6, C7, C8	RAD-0.2N
9	10uF 35V Electrolytic	2	C1, C2	RB-D5.0-P2.0
CONNECTOR				
10	CRIMP - KK396	3	J3^3	-
11	KK396 - 3-way Crimp Housing	1	J3	-
12	1x8 Pin Receptacle	3	GC1, GC2, GC3	2212S
13	8-pin IC Socket 0.3inch	3	U101, U102, U201	DIP-8
14	KK396 - 3-way Straight - Locking Header	1	J3	-
DIODE				
15	1N4148	5	D101, D102, D103, D104, D105	DIODE-0.3
16	5.1V 5% 500mW	2	D201, D202 NB: See Build Guide	DIODE-0.3
HARDWARE				
17	M2.5 x 12mm Spacer Threaded	3	GC1, GC2, GC3	-
18	M2.5 x 6mm Pan Head Bolt	6	GC1^2, GC2^2, GC3^2	-
LINEAR				
19	TL072 Dual JFET Opamp	2	U101, U201	DIP-8
20	LT1013CP - Dual Precision Opamp	1	U102	DIP-8
INDUCTOR				
21	Ferrite Bead - 5A	2	L1, L2	AXIAL-0.3

Bill of Materials for Voltron 7 Full Kit P0.0
CGS348 - Compact VCO Component Kit

Item	Description	Qty	Designator	Package
	CAPACITOR			
1	Do Not Fit	1	C504	-
2	18pF 5% Ceramic	1	C202	RAD-0.2N
3	68pF 5% Ceramic	1	C301	RAD-0.2N
4	82pF 5% Ceramic	2	C403, C404	RAD-0.2N
5	100pF 5% Ceramic	2	C203, C204	RAD-0.2N
6	220pF 5% Ceramic	1	C503	RAD-0.2N
7	330pF 5% Ceramic	1	C501	RAD-0.2N
8	2200pF 2.5% Polystyrene	1	C201	AXIAL-0.6
9	4n7 63V Polyester	1	C502	RAD-0.2
10	100nF Ceramic	5	C101, C603, C604, C605, C606	RAD-0.2N
11	4.7uF 25V Electrolytic	2	C401, C402	RB-D5.0-P2.0
12	10uF 35V Electrolytic	2	C601, C602	RB-D5.0-P2.0
13	47uF Electrolytic	1	C405	RB-D5-P2.5
	CONNECTOR			
14	1x2 Pin 9mm Header	2	JP1, JP2	2.54MM
15	Jumper Shunt	2	JP1, JP2	2.54MM
16	3-way 0.1inch Crimp Housing	1	J601	2.54MM
17	14-pin IC Socket 0.3inch	1	U401	DIP-14
18	8-pin IC Socket 0.3inch	6	Q201, U101, U102, U201, U202, U301	DIP-8
19	3-way 0.1inch Straight Header	1	J601	2.54MM
20	CRIMP - KK254	3	J601^3	-
	DIODE			
21	1N4148	11	D101, D102, D103, D201, D401, D402, D403, D404, D405, D502, D503	DIODE-0.3
22	Do Not Fit	2	D501, D504	-
	LINEAR			
23	CA3140 Opamp	1	U201	DIP-8
24	LM311 - Comparator	1	U202	DIP-8
25	LM317LZ - Adjustable Positive Voltage Regulator	1	U601	TO-92

Bill of Materials for Voltron 7 Full Kit P0.0
CGS348 - Compact VCO Component Kit

Item	Description	Qty	Designator	Package
	LINEAR - continued			
26	TL072 Dual JFET Opamp	3	U101, U102, U301	DIP-8
27	LM337LZ - Adjustable Negative Voltage Regulator	1	U602	TO-92
28	LM3900 - Quad Norton Amplifier	1	U401	DIP-14
	INDUCTOR			
29	Ferrite Bead - 5A	2	L601, L602	AXIAL-0.3
	RESISTOR			
30	Wire Link	1	LK1	TO FIT
31	TEMPCO - PT146 1K 3500ppm	1	Q201	AXIAL-0.5
32	Do Not Fit	8	R102, R113, R503, R504, R508, R509, R512, R513	-
33	47R 1% 0.5W Metal Film	1	R122	AXIAL-0.4
34	240R 1% 0.5W Metal Film	2	R602, R604	AXIAL-0.4
35	330R 1% 0.5W Metal Film	5	R304, R413, R415, R417, R511	AXIAL-0.4
36	470R 1% 0.5W Metal Film	1	R308	AXIAL-0.4
37	680R 1% 0.5W Metal Film	1	R202	AXIAL-0.4
38	820R 1% 0.5W Metal Film	1	R107	AXIAL-0.4
39	1K0 1% 0.5W Metal Film	2	R305, R406	AXIAL-0.4
40	1K5 1% 0.5W Metal Film	3	R307, R601, R603	AXIAL-0.4
41	2K2 1% 0.5W Metal Film	1	R505	AXIAL-0.4
42	3K3 1% 0.5W Metal Film	1	R208	AXIAL-0.4
43	10K 1% 0.5W Metal Film	6	R106, R204, R206, R405, R412, R414	AXIAL-0.4
44	13K 1% 0.5W Metal Film	1	R207	AXIAL-0.4
45	15K 1% 0.5W Metal Film	2	R118, R203	AXIAL-0.4
46	22K 1% 0.5W Metal Film	1	R408	AXIAL-0.4
47	30K 1% 0.5W Metal Film	2	R418, R419 NB: See modification	AXIAL-0.4
48	33K 1% 0.5W Metal Film	2	R403, R411 NB: See modification	AXIAL-0.4
49	47K 1% 0.5W Metal Film	3	R105, R205, R506	AXIAL-0.4
50	56K 1% 0.5W Metal Film	1	R120	AXIAL-0.4
51	91K 1% 0.5W Metal Film	1	R119	AXIAL-0.4
52	100K 1% 0.5W Metal Film	12	R101, R103, R104, R108, R110, R114, R115, R116, R301, R303, R306, R416	AXIAL-0.4

Lower USG [CGS511 - Universal Slope and Transient Generator Component Kit]

Item	Description	Qty	Designator	Package
	CAPACITOR			
1	47pF 5% Ceramic	2	C102, C103	RAD-0.2N
2	1nF 63V Polyester	1	C101	RAD-0.2
3	22nF 63V Polyester	1	C104	RAD-0.2
4	100nF Ceramic	5	C1, C2, C303, C304, C305	RAD-0.2N
5	10uF 35V Electrolytic	2	C301, C302	RB-D5.0-P2.0
	CONNECTOR			
6	1x4 Pin Extended Receptacle	1	J302	-
7	14-pin IC Socket 0.3inch	2	Q104, U101	DIP-14
8	8-pin IC Socket 0.3inch	2	U1, U102	DIP-8
9	Do Not Fit	1	J301	-
	DIODE			
10	1N4148	4	D101, D102, D103, D202	DIODE-0.3
11	5.6V 5% 500mW	1	D201	DIODE-0.3
	LINEAR			
12	RC4558 Dual Opamp	1	U1	DIP-8
13	LF353 - Dual JFET Opamp	1	U102	DIP-8
14	LM3900 - Quad Norton Amplifier	1	U101	DIP-14
	INDUCTOR			
15	Ferrite Bead - 5A	2	L301, L302	AXIAL-0.3
	RESISTOR			
16	100R 1% 0.5W Metal Film	1	R118	AXIAL-0.4
17	330R 1% 0.5W Metal Film	1	R213	AXIAL-0.4
18	1K0 1% 0.5W Metal Film	2	R205, R209	AXIAL-0.4
19	1K5 1% 0.5W Metal Film	1	R117	AXIAL-0.4
20	2K2 1% 0.5W Metal Film	3	R114, R115, R204	AXIAL-0.4
21	8K2 1% 0.5W Metal Film	1	R113	AXIAL-0.4

Upper TG [CGS511 - Universal Slope and Transient Generator Component Kit]

Item	Description	Qty	Designator	Package
CAPACITOR				
1	47pF 5% Ceramic	2	C102, C103	RAD-0.2N
2	1nF 63V Polyester	1	C101	RAD-0.2
3	22nF 63V Polyester	1	C104	RAD-0.2
4	100nF Ceramic	5	C403, C404, C405, C406, C407	RAD-0.2N
5	10uF 35V Electrolytic	2	C401, C402	RB-D5.0-P2.0
CONNECTOR				
6	1x4 Pin 9mm Header	1	J402	2.54MM
7	14-pin IC Socket 0.3inch	2	Q102, U101	DIP-14
8	8-pin IC Socket 0.3inch	2	U102, U201	DIP-8
9	CRIMP - KK396	3	J401^3	-
10	KK396 - 4-way Straight - Locking Header	1	J401	-
11	KK396 - 4-way Crimp Housing	1	J401	3.96MM
DIODE				
12	1N4148	4	D101, D102, D103, D302	DIODE-0.3
13	5.6V 5% 500mW	1	D301	DIODE-0.3
LINEAR				
14	RC4558 Dual Opamp	1	U201	DIP-8
15	LF353 - Dual JFET Opamp	1	U102	DIP-8
16	LM3900 - Quad Norton Amplifier	1	U101	DIP-14
INDUCTOR				
17	Ferrite Bead - 5A	2	L401, L402	AXIAL-0.3
RESISTOR				
18	Do Not Fit	3	R116, R310, R312	-
19	100R 1% 0.5W Metal Film	1	R118	AXIAL-0.4
20	1K0 1% 0.5W Metal Film	2	R304, R308	AXIAL-0.4
21	1K5 1% 0.5W Metal Film	1	R117	AXIAL-0.4

