

**FREQUENCY SHIFTER / BALANCED MODULATOR MODEL 285**

**BILL OF MATERIALS REV 1.1**

**PCB1**

**SEMICONDUCTORS**

VALUE	DESIGNATOR	QTY	DESCRIPTION	MOUSER PART#
TL074	IC1, IC2, IC3	3		511-TL074CN
TL071	IC4	1		595-TL071CP
BAT54S	D1	1		512-BAT54S
1N457	D2, D3	2		512-1N457
2N3904	Q1	1		610-2N3904

**CAPACITORS**

VALUE	DESIGNATOR	QTY	DESCRIPTION	MOUSER PART#
2.7nF	C2	1	STYRENE AXIAL	23PS227 (ANY FILM WOULD WORK, BUT YOU MIGHT NEED TO BEND THE LEADS TO FIT)
4.7uF	C3	1	CERAMIC SMD 1206	810-C3216X7R1H475M1E
0.1uF	F1, F2, F3, F4, F5, F6, F7	7	CERAMIC 5MM LS	581-SA105E104M

**RESISTORS**

VALUE	DESIGNATOR	QTY	DESCRIPTION	MOUSER PART#
100K	R1, R2, R3, R4, R5, R6, R8, R9, R12, R13, R14, R16, R17, R18, R22, R25, R26, R33, R39, R40	20	1% 1/4W	271-100K-RC
10K	R7, R30, R31, R32, R38, R41, R42, R44, R46	9	1% 1/4W	271-10K-RC
200K	R10	1	1% 1/4W	271-200K-RC
30K	R11, R15, R23	3	1% 1/4W	271-30K-RC
150K	R19, R20	2	1% 1/4W	271-150K-RC
220R	R21	1	1% 1/4W	271-220-RC
33K	R24	1	1% 1/4W	271-33K-RC
20K	R27	1	1% 1/4W	271-20K-RC
49K9	R28, R35, R36, R37	4	1% 1/4W	271-49.9K-RC
39K	R29	1	1% 1/4W	271-39K-RC
1K	R34	1	1% 1/4W	271-1K-RC
2K	R43, R47	2	1% 1/4W	271-2K-RC
12K	R45	1	1% 1/4W	271-12K-RC
10-100K LINEAR	POT1, POT2, POT3, POT4	4		<a href="http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-16mm-right-angle-pc-mount/">http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-16mm-right-angle-pc-mount/</a>
10-100K AUDIO	POT5	1		<a href="http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-16mm-right-angle-pc-mount/">http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-16mm-right-angle-pc-mount/</a>

**MISC**

VALUE	DESIGNATOR	QTY	DESCRIPTION	MOUSER PART#
SPDT ON-ON	SW1	1	TOGGLE SWITCH	108-1MS1T1B1M1QE-EVX
	J1	1	TINIJAX NORMALIZED	502-42A
	J2, J3, J4, J5, J6, J7, J8, J9, J10, J11, J12, J13	12	TINIJAX	502-41
	PLD1	1	PLD 20 PIN (FEMALE)	517-929975-01-10-RK
	B1, B2	2	BANANA JACK BLACK	530-108-0903-1
		5	SMALL DAVIES KNOB	5164-1610AA
		1	BLUE SWITCH CAP	108-00357-EV

**PCB2**

**SEMICONDUCTORS**

VALUE	DESIGNATOR	QTY	DESCRIPTION	MOUSER PART#
LM1117-3.3V	IC1	1	3.3V	926-LM1117IDT3.3NOPB
TL074	IC2, IC7, IC11	3		511-TL074CN
SPIN FV-1	IC3, IC6	2	DSP	<a href="http://smallbear-electronics.mybigcommerce.com/ic-spin-semi-fv-1/">http://smallbear-electronics.mybigcommerce.com/ic-spin-semi-fv-1/</a>
CLOCK CRYSTAL	IC4, IC8	2	32.768 KHz	695-CM200C-327KF-U
24LC32A	IC5	2	MARKED WITH "F"	INCLUDED
24LC32A	IC9	2	MARKED WITH "R"	INCLUDED
SSM2164	IC10	1	QUAD VCA	<a href="http://smallbear-electronics.mybigcommerce.com/ic-v2164d">http://smallbear-electronics.mybigcommerce.com/ic-v2164d</a>
TL071	IC12	1		595-TL071CP

**CAPACITORS**

VALUE	DESIGNATOR	QTY	DESCRIPTION	MOUSER PART#
10uF	C1, C2, C3, C4, C17, C31	6	TANTALUM SMD CASE D	80-T491D106K025
100pF	C5, C8, C9, C18, C22, C23, C32, C37, C40, C41, C42	11	CERAMIC 5MM LS	581-SA102A101J
1uF	C6, C10, C11, C20, C24, C25, C34	7	FILM 5MM LS	80-R82DC4100AA60J
1nF	C7, C12, C13, C21, C26, C27, C35	7	FILM 5MM LS	871-B32529C102J
22pF	C19, C33	2	CERAMIC 5MM LS	581-SA102A220J
560pF	C36, C39, C43, C44	4	CERAMIC 5MM LS	581-SA101A561GAA
470pF	C38	1	CERAMIC 5MM LS	581-SA101A471JAR
0.1uF	F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12, F13, F14, F15, F16, F17, F18	18	CERAMIC 5MM LS	581-SA105E104M

**RESISTORS**

VALUE	DESIGNATOR	QTY	DESCRIPTION	MOUSER PART#
20K	R1, R6, R7, R15, R16, R20, R21, R29, R30	9	1% 1/4W	271-20K-RC
470R	R2, R8, R9, R17, R22, R23, R31	7	1% 1/4W	271-470-RC
10K	R3, R5, R10, R14, R19, R24, R28	7	1% 1/4W	271-10K-RC
30K	R4, R11, R12, R18, R25, R26, R32, R35, R36, R37, R40, R42, R43	13	1% 1/4W	271-30K-RC
10R	R13, R27	2	1% 1/4W	271-10-RC
499R	R33, R34, R44, R45	4	1% 1/4W	271-499-RC
15K	R38, R39, R41	3	1% 1/4W	271-15K-RC
100K	R46, R47	2	1% 1/4W	271-100K-RC
7K5	R48	1	1% 1/4W	271-7.5K-RC

**MISC**

VALUE	DESIGNATOR	QTY	DESCRIPTION	MOUSER PART#
	PBD1	1	PLD 20 PIN (MALE)	517-929836-09-10-RK
		1	POWER CONNECTOR	587-306-50-010