

General Notes:

- The Frequency Shifter Model 185 module consists of a combination of the following circuits/PCBs:
 - 2 x 196 Phase Shifter
 - 1 x 111 Ring Modulator
 - 1 x 185 dual mixer

Here is the BOM for the 185 dual mixer. The 196 and 111 PCBs used in the Model 185 are built according to their respective BOMs.

Resistors (1/4 watt, +/- 5%)

Value	Reference	Total	Description	Mouser # (or option)
220R	R7, R15	2		660-MF1/4LCT52R221J
330R	R6, R14	2		71-CCF07330RJKE36
1K	R2, R10	2		660-MF1/4LCT52R102J
1K5	R5, R13	2		660-MF1/4LCT52R152J
2K2	R3, R11	2		660-MF1/4LCT52R222J
10K	R8, R16	2		660-MF1/4LCT52R103J
15K	R1, R4, R9, R12	4		71-CCF0715K0JKE36
68K	R27, R28, R30, R31	4		279-RR02J68KTB

Capacitors

Value	Reference	Total	Description	Mouser # (or option)
5pf	C2, C6	2		810-FG18C0G1H050CNT0
10uf	C1, C5	2		647-UFW1H100MDD1TA
100uf	C3, C4, C7, C8	4		647-UFG1A101MEM1TD

Transistors*Match all 4 transistors for gain.*

Value	Reference	Total	Description	Mouser # (or option)
2N3904	Q1, Q2, Q3, Q4	4		610-2N3904

Miscellaneous

	Total	Description	Mouser # (or option)
Switchcraft Tini Jax	6	Audio inputs, Audio outputs	502-41
Standoffs	14	14mm, M3	855-R30-3011402
EDAC power connector	1	<i>optional</i>	587-306-50-010

Mouser Cart

**NB: potentiometers, screws, EDAC power connector are not included in the Mouser Cart.*

**Some items may be backordered.*

<https://www.mouser.com/ProjectManager/ProjectDetail.aspx?AccessID=3eb62eff84>

Wiring:

FREQUENCY SHIFTER
MODEL 185

