

# Oakley ADSR/VCA Issue 2 - Page 1 of 3

Oakley Modular Systems

Documented by Tom Farrand • Radio-Flier Electronics • Updated on August 20, 2002

Qty	Mfgr. Name	Manufacturer's Part Number	Part Description	Schematic Reference	Vendor	Vendor Stock #	Each	Total
10	Xicon	271-100K	100K ¼W 1% resistor 50 ppm	R5, R11, R12, R20, R21, R22, R23, R24, R25, R34	Mouser	271-100K	0.09	0.90
6	Xicon	271-47K	47K ¼W 1% resistor 50 ppm	R1, R7, R14, R15, R19, R31	Mouser	271-47K	0.09	0.63
4	Xicon	271-1K	1K ¼W 1% resistor 50 ppm	R17, R18, R32, R33	Mouser	271-1K	0.09	0.36
3	Xicon	271-10K	10K ¼W 1% resistor 50 ppm	R9, R10, R28	Mouser	271-10K	0.09	0.27
2	Xicon	271-4.7K	4.7K ¼W 1% resistor 50 ppm	R26, R27	Mouser	271-4.7K	0.09	0.18
1	Xicon	271-47	47Ω ¼W 1% resistor 50 ppm	R3	Mouser	271-47	0.09	0.09
1	Xicon	271-330	330Ω ¼W 1% resistor 50 ppm	R4	Mouser	271-330	0.09	0.09
1	Xicon	271-5.1K	5.1K ¼W 1% resistor 50 ppm	R29	Mouser	271-5.1K	0.09	0.09
1	Xicon	271-6.8K	6.8K ¼W 1% resistor 50 ppm	R2	Mouser	271-6.8K	0.09	0.09
1	Xicon	271-22K	22K ¼W 1% resistor 50 ppm	R16	Mouser	271-22K	0.09	0.09
1	Xicon	271-33K	33K ¼W 1% resistor 50 ppm	R13	Mouser	271-33K	0.09	0.09
1	Xicon	271-220K	220K ¼W 1% resistor 50 ppm	R6	Mouser	271-220K	0.09	0.09
1	Xicon	271-1.0M	1M ¼W 1% resistor 50 ppm	R30	Mouser	271-1.0M	0.09	0.09
1	Xicon	291-3.3M	3.3M ¼W 5% resistor <sup>1</sup>	R8	Mouser	291-3.3M	0.07	0.07
1	Piher	PTC10V-1K	1K 10mm Cermet trimpot	“CV Trim”	Mouser	531-PTC10V-1K	0.45	0.45
1	Piher	PTC10V-25K	25K 10mm Cermet trimpot	“Level”	Mouser	531-PTC10V-25K	0.45	0.45
1	Omeg	BR16ECO-10KA	10K Linear pot w/bracket	“Sustain”	OMS	ADSR Pot Kit	1.88	-
3	Omeg	BR16ECO-1MB	1M Log pot w/bracket	“Attack”, “Decay”, “Release”	OMS	ADSR Pot Kit	1.88	-
						Pot kit (£ 5.00)	7.50	

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Qty	Mfgr. Name	Manufacturer's Part Number	Part Description	Schematic Reference	Vendor	Vendor Stock #	Each	Total
4	Vishay	MKT1826410064	0.1 uf @ 63V polyester film 5% capacitor	C1, C4, C6, C7	Mouser	75-MKT1826410064	0.21	0.84
3	Panasonic	EEU-FC1V220	22 uf @ 35V FC-series electrolytic capacitor <sup>2</sup>	C2, C11, C12	Digikey	P11230-ND	0.46	1.38
2	Vishay	MKT1826210014	1000 pf @ 100V polyester film 5% capacitor	C3, C9	Mouser	75-MKT1826210014	0.21	0.42
1	Vishay	MKT1826447064	0.47 uf @ 63V polyester film 5% capacitor	C10	Mouser	75-MKT1826447064	0.64	0.64
1	AVX	TAP106K016SCS	10 uf @ 16V tantalum 10% capacitor	C8	Mouser	581-TAP106K016	0.60	0.60
1	Mallory	CK05330K	33 pf @ 200V ceramic	C5	Mouser	539-CK05330K	0.34	0.34
6	Fairchild	1N4148	1N4148 Silicon diode	D1, D2, D3, D4, D5, D6	Mouser	512-1N4148	0.05	0.30
3	Fairchild	BC549C or BC550C or 2N3904	BC549C or BC550C NPN low noise transistor (2N3904: different pinout!) <sup>3</sup>	Q5, Q6, Q7	Mouser	512-BC550C or 512-2N3904	0.07 0.11	0.70 1.10
1	STM	CA3046	CA3046 transistor array 14-pin DIP	U6	Mouser	511-CA3046	0.98	0.98
3	T.I.	TL072ACP	TL072 dual opamp 8-pin DIP	U3, U4, U5	Mouser	595-TL072ACP	0.74	2.22
1	Fairchild	CD4001BCN	4001 Quad 2-input NOR	U1	Mouser	512-CD4001BCN	0.40	0.40
1	NJR	NJU4066BD	4066 Quad bilateral switch <sup>4</sup>	U2	Mouser	513-NJU4066BD	0.37	0.37
4	Switchcraft	112A	¼" phone jack with closed circuit	IN, GATE, OUT+, OUT-	Mouser	502-112A	1.44	5.76
2	Fair-Rite	2743002112	Ferrite Bead – broadband #43 material	L1, L2	Mouser	623-2743002112	0.12	0.24
1	Molex	MTA-156	MTA-156 power entry	PWR	Mouser	571-6404454	0.11	0.11
4	Tyco/Alco	PKES-90B-1/4	Knob with pointer stripe <sup>5</sup>	("Attack, Decay, Sustain, Release")	Various	-	1.50	6.00

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Notes:

- 1 Resistor R8 is not easily available in a 1% tolerance. Therefore, a 5% tolerance carbon film resistor is specified. This should be more than adequate in the application of setting the comparator hysteresis.
- 2 The Panasonic capacitor specified is much more expensive than those commonly used and specified elsewhere. In fact, these are about ten times more expensive! The capacitors I specified are low-ESR types with a high temperature rating, a higher voltage rating, and probably a lot longer life. Electrolytic capacitors are likely the first component to “age”. Therefore, I wanted a part that would age gracefully over a much longer time span. Use the nickel variety if you must, but it seems silly to chintz on capacitors and then use 1% tolerance 50-PPM resistors! By the way, the PC board is laid out for a capacitor lead spacing of 5 mm. All of the capacitors I could find in that value had an actual lead spacing of 2.0 mm. So fitting the caps to the board will require a bit of lead bending to make them fit properly.
- 3 2N3904 transistors may be substituted for the BC549 or BC550 transistors. **Note:** The 2N3904 part uses a different pinout than the BC5xx counterparts. When looking at the flat side of a **2N3904** and the leads point down, the pins (left-to-right) are **E-B-C**. When looking at the flat side of a **BC5xx** and the leads point down, the pins (left-to-right) are **C-B-E**. Install the transistor you buy accordingly!
- 4 Fairchild is not the manufacturer for the quad bilateral switch specified in the preceding parts list. It has been reported that the output would latch-up under certain conditions when a Fairchild-manufactured device was used at U2. By specifying a different manufacturer for U2, the likelihood of problems is minimized. The value of R4 was also increased from 47 to 300 ohms as a universal “fix” for devices that latch-up. Only one Oakley user reported such a problem so it is not believed to be widespread. The combination of U2 manufacturer and the change in the value of R4 should kill that bug.
- 5 The PKES-90B-1/4 knob is manufactured by Alco, a subsidiary of Tyco. Tyco seems to have jacked up the prices substantially on this knob. You are advised to shop around for the best deal on these knobs and buy a bunch of them. I bought 100 of them from Dee (Iowa) at \$0.99 each, last year. Dee now sells them for about \$1.75 each in the same quantity. Go figure. Some major suppliers are charging as much as \$3.45 each, so shop around!

The total cost of the components listed herein is \$32.83 and does not reflect quantity purchases. These prices were in effect at the time this list was compiled and will undoubtedly fluctuate over time.

Digikey = [www.digikey.com](http://www.digikey.com)

Mouser = [www.mouser.com](http://www.mouser.com)

OMS = [www.oakleysound.com](http://www.oakleysound.com)

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