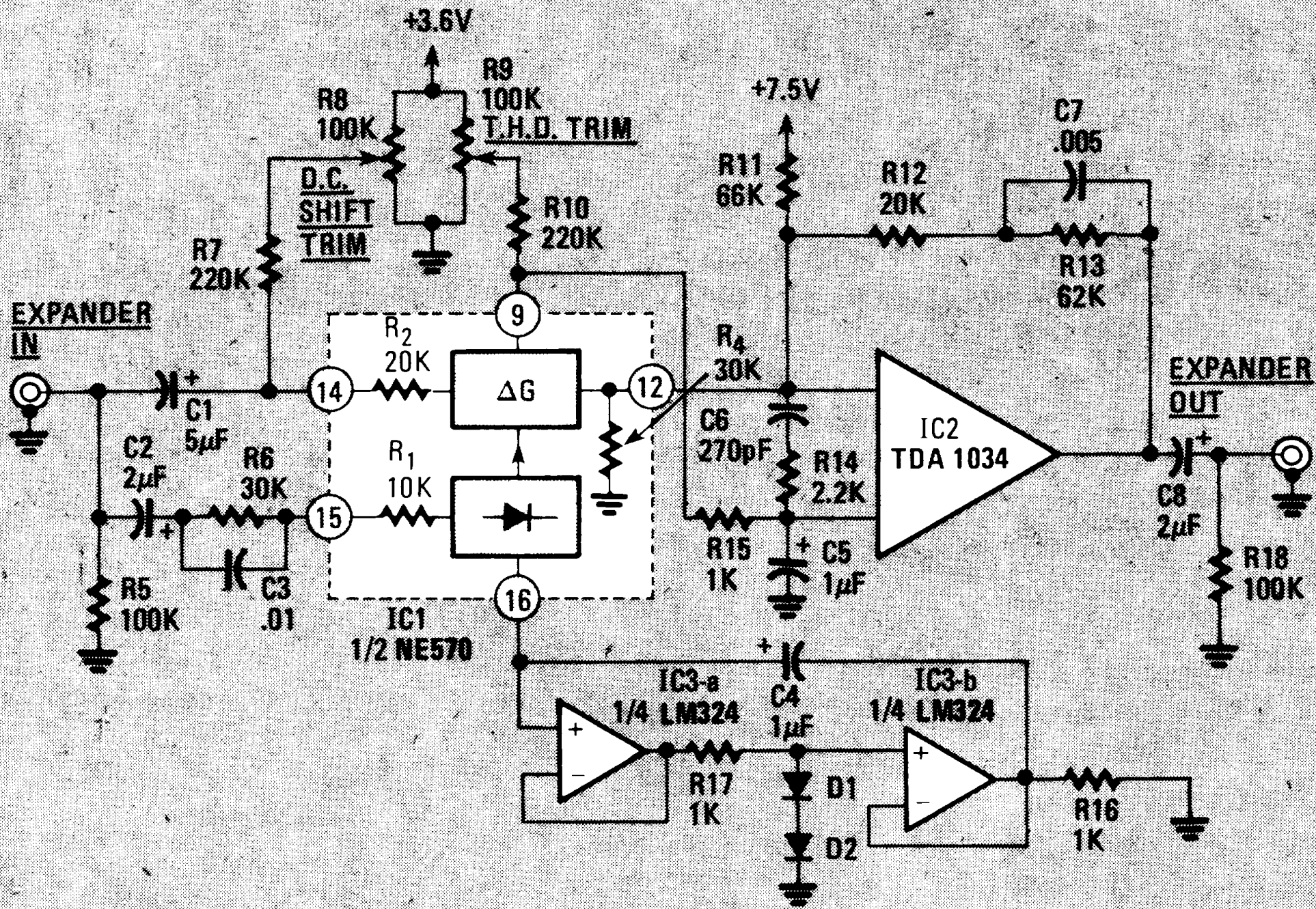
IN THIS COLUMN, WE TRY TO BRING YOU news and details of new and interesting semiconductors and related matters without any month-to-month continuity. This month, because of long-time reader interest in volume expanders and audio noise reduction, we are deviating from the established format to show the circuit of the volume expander that complements the volume compressordiscussed last month.

The hi-fi expander in Fig. 1 includes de-emphasis and attack and decay times to complement the compressor. Again, an external op-amp is substituted for the one in the Signetics NE570 compandor IC. In this case, the circuit performance demands a slew rate better than the 0.6 volts-per-microsecond provided by the NE570 op-amp. The expander, like the compressor, has a unity-gain level of 0 dBm. Adjustments are provided for harmonic distortion and DC shift.

Make the **THD TRIM** adjustments first using a l0-kHz 0-dBm (774.6 mV) signal. Adjust the **DC SHIFT TRIM** for minimum envelope bounce when tone bursts are fed through the circuit.

Performance is reported to be spectacular when the expander is applied to consumer tape recorders.


+3.6V
R9
100K
T.H.D. TRIM
R8
100K
D.C.
SHIFT
TRIM
R7
220K
R10
220K
+7.5V
R11
66K
R12
20K
C7
.005
R13
62K
EXPANDER
IN
C1
5μF
C2
2μF
R6
30K
C3
.01
R5
100K
9
14
15
16
12
R2
20K
ΔG
R1
10K
R4
30K
IC1
1/2 NE570
C6
270pF
R14
2.2K
R15
1K
C5
1μF
IC2
TDA 1034
EXPANDER
OUT
C8
2μF
R18
100K
C4
1μF
IC3-a
1/4 LM324
IC3-b
1/4 LM324
R17
1K
D1
D2
R16
1K