



## DATONG ELECTRONICS LIMITED

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### UNIVERSAL RF SPEECH CLIPPER — Alignment Details

1. Feed a sinusoidal signal at a frequency of  $3000 \pm 50$  Hz into the unit (SKT2 "tip") at a level which is well below the clipping threshold (see note 7). Adjust the core of L1 for maximum output signal at SKT 1 (pin 3), reducing the input level if necessary to avoid the onset of clipping.
2. Repeat the procedure with the core of L2 using an input frequency of  $1700 \pm 50$  Hz.
3. The setting of the core of L3 determines the frequency of the internal oscillator. Its setting is arbitrary, although once L1 and L2 have been adjusted as described above, L3 must not be altered. The nominal frequency at pins 8 and 13 of IC6 is 240 kHz, and at points A,B,C, or D it is precisely one quarter of this, i.e., 60 kHz. Good square waves with each of the four quadrature phases exist at these four points. The actual oscillation frequency is not critical and is not controlled during manufacture.

### Suggested Checking Procedure

1. Apply an input signal, preferably a sinusoid with frequency between 300 and 3000 Hz.
2. An amplified replica should appear at pin 6 of IC1.
3. Pin 6 of IC2 and IC3 should provide a pair of replicas (mutually phase shifted by  $90^\circ$ ) of the signal at pin 6 of IC1. The signal amplitudes at IC2 and IC3 are slightly lower than at IC1.
4. The two signals at pins 4 and 11 of IC4 should appear identical except in relative phase, and should comprise "chopped" versions of those at pin 6 of IC2 and IC3.
5. The signal at pin 12 of IC5 should be a single sideband suppressed carrier signal at the nominal 60 kHz and with a low level of residual carrier (the carrier is typically well over 50db below peak signal at this point).
6. Pin 8 of IC5 should carry an amplified and clipped version of that at pin 12. The amplitude of residual carrier should be less than 25% of the clipped signal peak amplitude.