

## MC1377

### Timing Circuitry

The composite sync input at Pin 2 performs three important functions: it provides the timing (but not the amplitude) for the sync in the final output; it drives the black level clamps in the modulators and output amplifier; and it triggers the ramp generator at Pin 1, which produces burst envelope and PAL switching. A representative block diagram of the timing circuitry is shown in Figure 5.

In order to produce a color burst, a burst envelope must be generated which "gates" a color subcarrier into the R-Y and B-Y modulators. This is done with the ramp generator at Pin 1.

The ramp generator at Pin 1 is an R-C type in which the pin is held low until the arrival of the leading edge of sync. The rising ramp function, with time constant R-C, passes through two level sensors – the first one starts the gating pulse and the second stops it (see Figure 10). Since the "early" part of the exponential is used, the timing provided is relatively accurate from chip-to-chip and assembly-to-assembly. Fixed components are usually adequate. The ramp continues to rise for more than half of the line interval, thereby inhibiting burst generation on "half interval" pulses on vertical front and back porches. The ramp method will produce burst on the vertical front and back "porches" at full line intervals.

### R-Y, B-Y Clamps and Output Clamp/Amplifier

The sync signal, shown in the block diagram of Figure 6, drives the R-Y and B-Y clamps which clamp the R-Y and B-Y signals to reference black during the blanking periods. The output amplifier/clamp provides this same function plus combines and amplifies the chroma and luma components for composite video output.

### Application Circuit

Figure 7 illustrates the block diagram of the MC1377 and the external circuitry required for typical operation.

Figure 5. Timing Circuitry

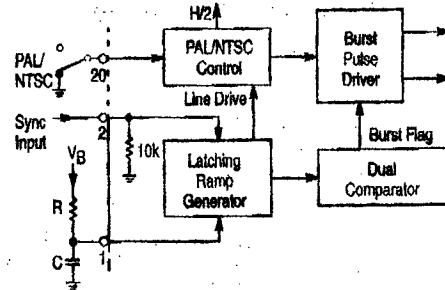


Figure 6. R-Y, B-Y and Output Amplifier Clamps

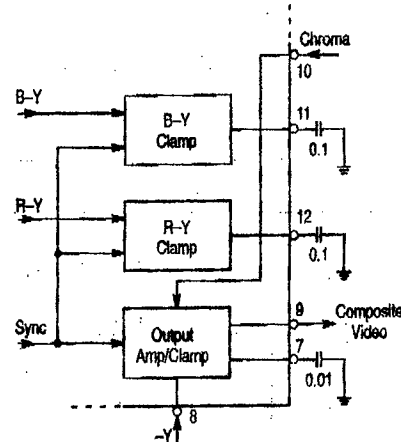
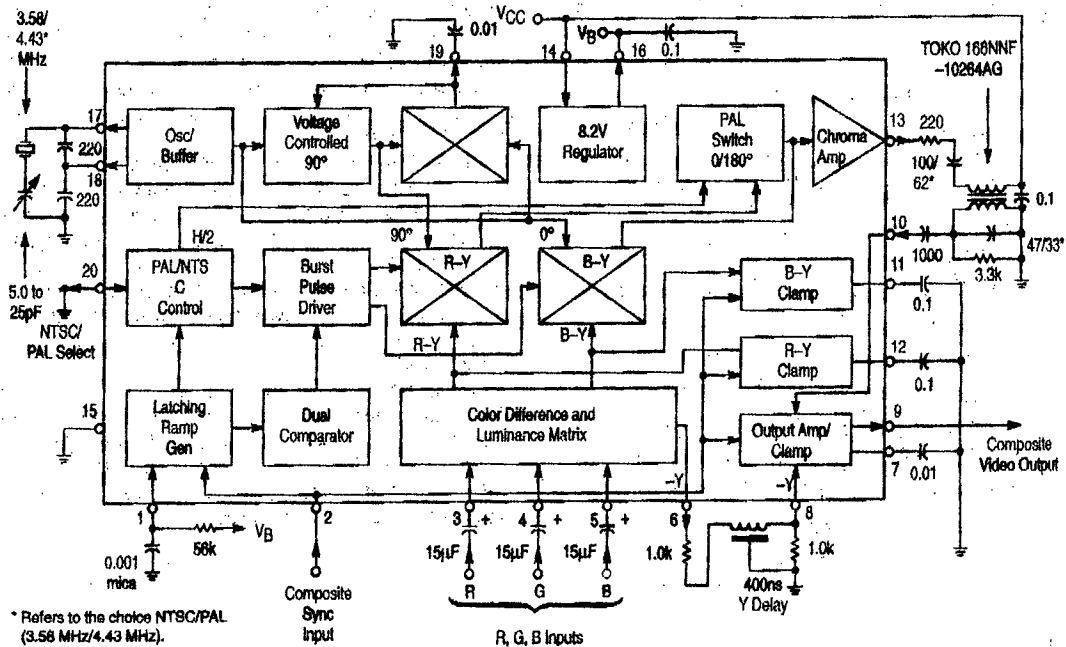


Figure 7. Block Diagram and Application Circuit



\* Refers to the choice NTSC/PAL (3.58 MHz/4.43 MHz).