Color Processor

DESCRIPTION

The AY-3-8615 is a single N-Channel MOS circuit which processes video signals from any of the Gimini "8600" Game Series circuitry. It converts these video signals into a single color composite video output. The colors of the background and objects are selectively changed directly by the game select matrix. The circuit also provides, as an output, a buffered 3.579545MHz clock for the game chip.

OPERATION

The AY-3-8615 provides a color composite video signal with color burst envelope and sync for input to the RF modulator of a TV game.

Sync: The sync input from any of the "8600" games is OR'ed with the video output of the color circuit. The sync amplitude level is compensated to ensure correct operation in color TV circuits.

Color Burst: A color burst signal, containing ten cycles of the 3.579MHz color reference is supplied after sync. The color phase of the burst is internally shifted by the game matrix inputs with respect to the phases of the background, right player and left player so that different colors may be rendered for each game. This color change may be affected with no external components.

Video Inputs: Seven video inputs are provided on the AY-3-8615. These are: field, background, color burst locator, left player, right player, blanking, and sync.

Video Output Mixer: With OR'ed sync, color burst and blanking, the video consists of background, field scores, right player, left player, and objects on a single output pin.

Grounded Select Input	Back-ground	Field	Right Player	Left Player
1. Sel1/Str1, Sel2/Str2, Sel2/Str4	Green	Yellow	Magenta	Blue
2. Sel2/Str1 Sel2/Str3	Blue	Cyan Blue	Dk. Blue	Red
3. Sel3/Str1, Sel3/Str2	Magenta	Lt. Red	Blue	Yellow
4. Sel1/Str2, Sel1/Str3, Sel1/Str4	Cyan Green	Green	Brown	Blue

Colors may be adjusted for system variations by the chip hue control which varies the phase delay of the color outputs.

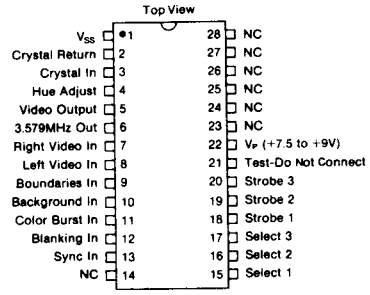
Luminescence Levels: The luminescence levels of the various signals in the composite video output have been selected to provide black and white compatibility. The field and left player signals are set to near white levels, the right to near black, and the background is set at a mid level to show gray.

Figure 1 shows the typical composite video waveform from the circuit.

In order to assure the correct video levels, a 2K variable potentiometer should be used to adjust the output to the min/max values specified for the modulator used.

PIN CONFIGURATION

28 LEAD DUAL IN LINE



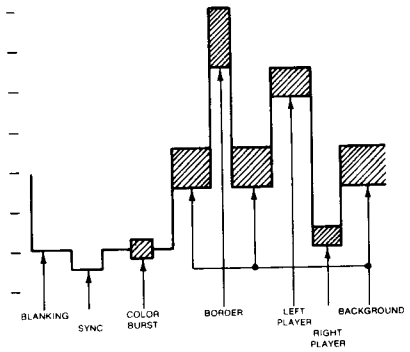


Fig. 1 COMPOSITE VIDEO OUTPUT

CLOCK INPUT

The AY-3-8615 is operated directly from a 3.579545MHz crystal input. A variable capacitor with a range of 3 to 15 pF should be used to tune the crystal.

CLOCK OUTPUT

The AY-3-8615 generates low impedance 3.579545MHz clock to directly drive the "8600" series game chips without external components.

Characteristics at +25°C	Min	Typ	Max	Units
Clock Input (Crystal)	—	3.579545	—	MHz
Video & Game Select				
Logic "0" (Select)	—	—	0.2	Volts
Logic "0" (Video)	—	—	1.0	Volts
Logic "1" (all)	V_P–2	—	—	Volts
Hue Adjust (External)	2.0	—	V_P	Volts
Video Output (2 K pot to V_P)	—	1K	—	Ω
Clock Output Rise & Fall Time	—	100	—	ns
Supply Current	—	—	25	mA

CONSUMER