

TV Horizontal Oscillator

For Color and Monochrome Receivers

Features:

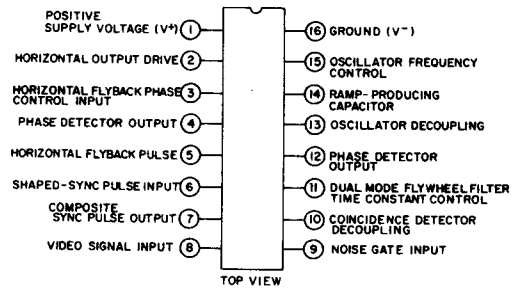
- Sync separator
- Noise gate input
- Internal precision timing ramp
- Dual-time-constant phase-locked loop
- Output suitable for transistor or thyristor deflection systems
- Reduced power dissipation

The RCA-CA920AE is a silicon monolithic integrated circuit intended for use in the horizontal stages of color and monochrome television receivers. This device performs the functions of a sync separator, noise gate, and horizontal oscillator with dual-time-constant switching in the flywheel loop. It also generates automatic phase control between horizontal flyback pulses and the horizontal oscillator frequency and provides fast edge switching drive for transistor or thyristor horizontal output stages.

The CA920AE is compatible with the industry type TBA920 in both lead arrangement and electrical operation, although the CA920AE features reduced operating current.

The CA920AE is supplied in the 16-lead dual-in-line plastic package.

TERMINAL ASSIGNMENT



92CS-27479

•Formerly Dev. Type No. TA6773.

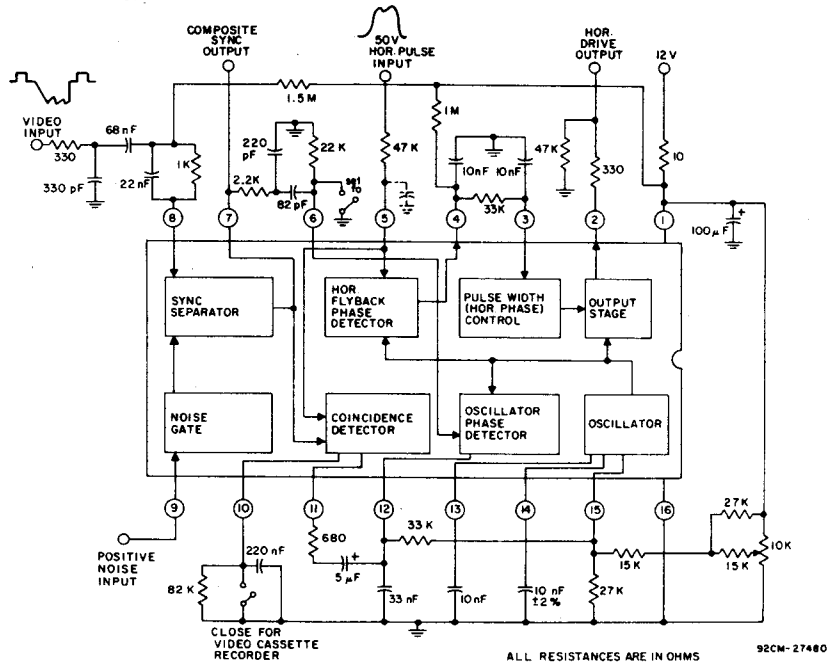


Fig. 1 - Functional block diagram of the CA920AE with typical peripheral circuitry.

Linear Integrated Circuits

CA920AE

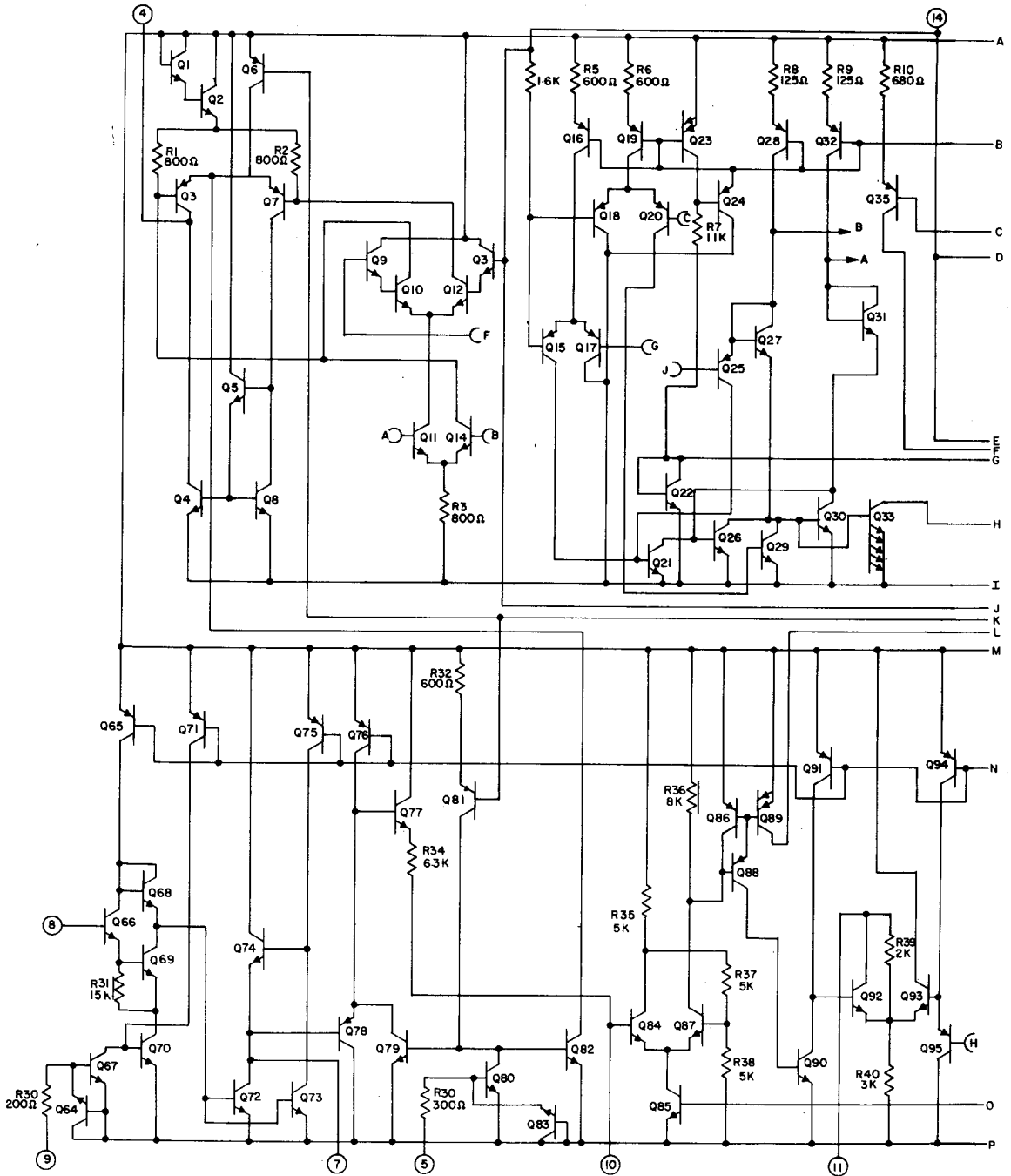
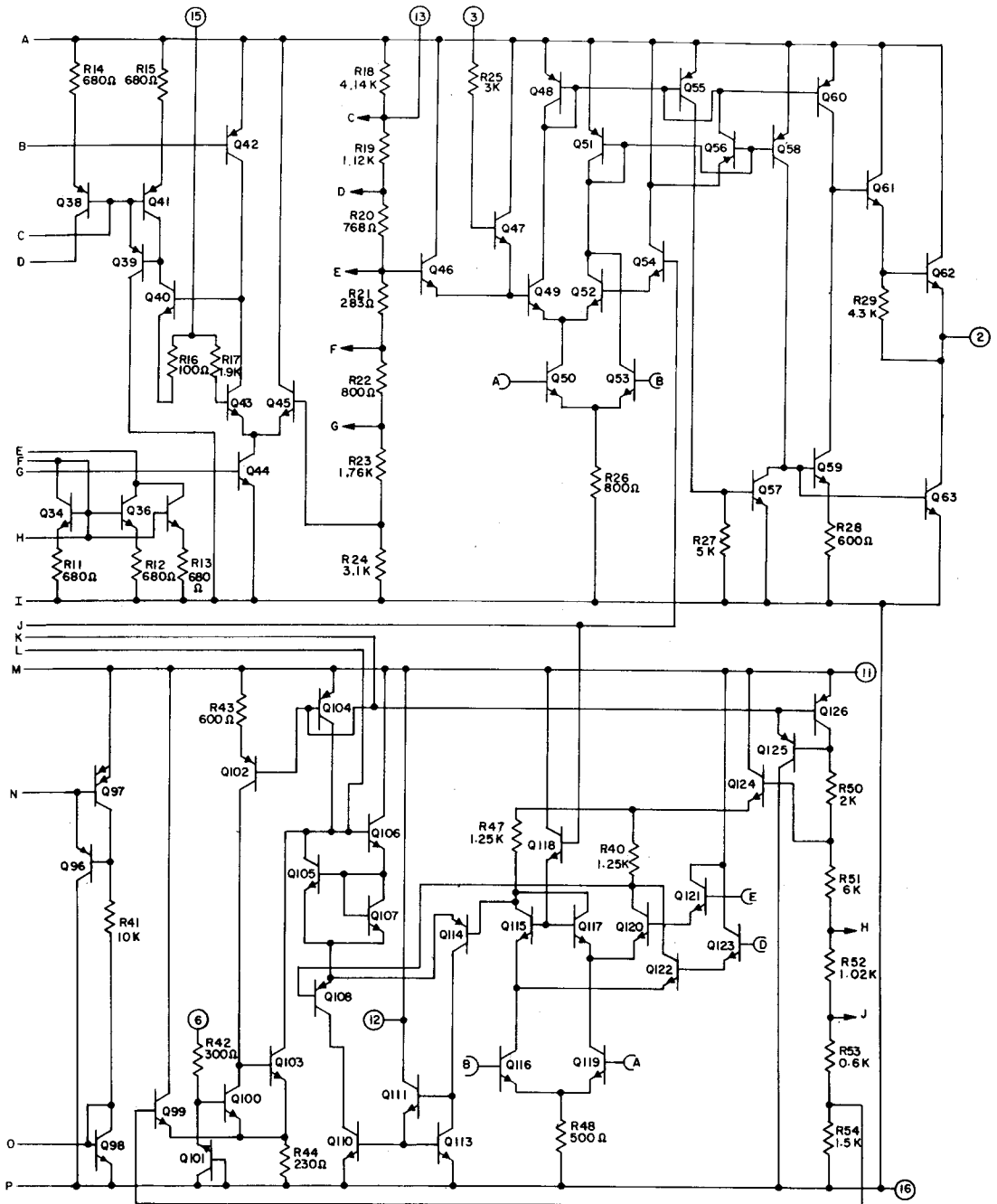


Fig. 2 - Schematic diagram of the CA920AE (cont'd on next page).

TV/CATV Circuits

CA920AE



92CL-31005

Fig. 2 - Schematic diagram of the CA920AE (cont'd from previous page).

Linear Integrated Circuits

CA920AE

MAXIMUM RATINGS, Absolute Maximum Values:

DC SUPPLY VOLTAGE	13.2 V
DEVICE DISSIPATION:	
Up to $T_A = 55^\circ\text{C}$	750 mW
Above $T_A = 55^\circ\text{C}$	Derate linearly at 7.9 mW/ $^\circ\text{C}$
AMBIENT TEMPERATURE RANGE:	
Operating	-40 to +85 $^\circ\text{C}$
Storage	-65 to +150 $^\circ\text{C}$
LEAD TEMPERATURE (During soldering):	
At a distance not less than 1/32" (0.79 mm) from case for 10 seconds max.	+265 $^\circ\text{C}$

ELECTRICAL CHARACTERISTICS at $T_A = 25^\circ\text{C}$, and Supply Voltage (V^+) = 12 V, Unless otherwise specified. See Fig. 1.

CHARACTERISTIC	TEST CONDITIONS	LIMITS			UNITS
		Min.	Typ.	Max.	
Supply Current, Term. 1, I^+	Term. 2 open		22		mA
Video Characteristics (Term.8):					
Input Voltage V_g	Peak to peak	1.5	3	6	V
Input Current I_g	Peak			10	mA
Noise Gate Characteristics (Term.9):					
Input Current I_g		0.03		10	mA
Reverse Input Current I_g				-10	mA
Horizontal Flyback Positive Pulse Characteristics (Term.5):					
Input Voltage V_5		1		3	V
Input Current I_5		0.05	1	10	mA
Input Impedance Z_5			0.4		k Ω
Positive Sync Characteristics (Term.7):					
Output Voltage V_7	Peak to peak		10		V
Output Impedance Z_7	Leading edge		50		Ω
Output Impedance Z_7	Trailing edge		100		Ω
Horizontal Output Characteristics (Term.2):					
Output Current $I_{2\text{MAX}}$	Peak			200	mA
Output Current $I_{2\text{AV}}$	Average			20	mA
Output Pulse Width t_W		12		32	μs
Output Impedance Z_2	Leading edge		2.5		Ω
Output Impedance Z_2	Trailing edge		15		Ω
Horizontal Oscillator Characteristics (Term.15):					
Free-Running Frequency f_o	No sync input	14.84	15.625	16.41	kHz
Free-Running Frequency f_o	$V^+ = 4.5\text{ V}$	14.06	(Note 1)	17.19	kHz
Oscillator Cut-out Voltage	V^+ varied		4.0		V
Oscillator Pull-in Range			± 1.0		kHz
Phase Control (Note 2)				15	μs

Note 1: Free-running frequency at 12 V adjusted to 15.625 kHz.

Note 2: External delay between the leading edge of output pulse at Term. 3 and the start of the horizontal flyback pulse.