

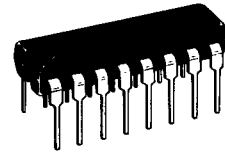
MC1393A

TV VERTICAL PROCESSOR

... designed for universal use in black and white as well as large-screen color television receivers.

- Injection Locked Oscillator
- Greater Than 12 Hz Injection
- Low Thermal Drift
- Eliminates Centering Control
- Independent Vertical Hold and Size Controls
- Scan Current Independent of Yoke Variations
- Retrace Pulse for Effective Blanking
- Linear Sawtooth Amplification

TV VERTICAL
PROCESSOR
SILICON MONOLITHIC
INTEGRATED CIRCUIT



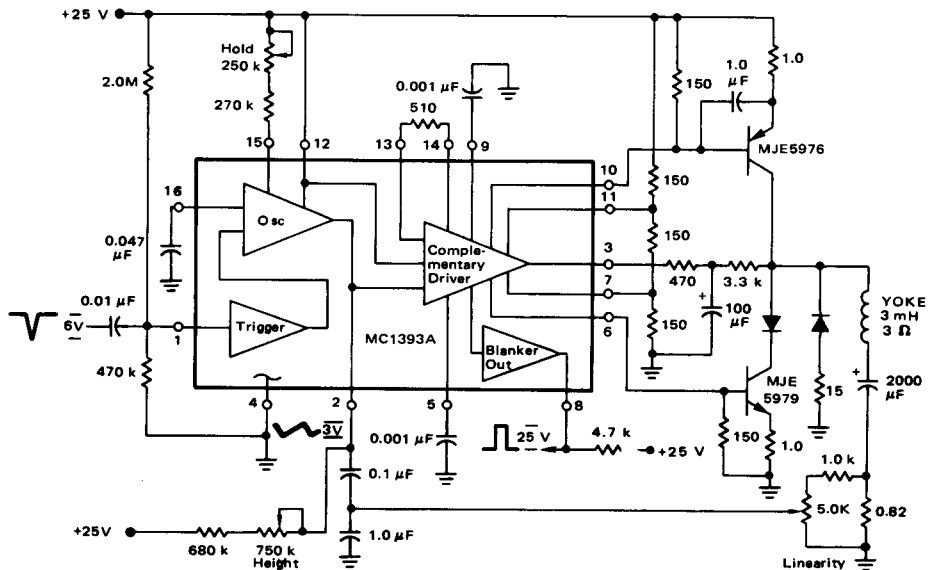
PLASTIC PACKAGE
CASE 648

ORDERING INFORMATION

Device	Temperature Range	Package
MC1393A	0 to +70°C	Plastic DIP

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FIGURE 1 - TYPICAL APPLICATION CIRCUIT



MAXIMUM RATINGS ($T_A = +25^{\circ}\text{C}$ unless otherwise noted)

Rating	Value	Unit
Power Supply Voltage	30	Vdc
Junction Temperature	150	$^{\circ}\text{C}$
Operating Ambient Temperature Range	0 to +70	$^{\circ}\text{C}$
Storage Temperature Range	-65 to +150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($V_{CC} = +25\text{ V}$, $T_A = +25^{\circ}\text{C}$) (Figure 1)

Characteristic	Typ	Unit
Supply Drain ⁽¹⁾	525	mAdc
Oscillator Frequency (Pin 16)	60	Hz
Oscillator Supply Sensitivity	0.3	Hz/V
Oscillator Drift	130	PPM/ $^{\circ}\text{C}$
Oscillator Injection (Pull-In)	12	Hz
Driver Input Sawtooth Amplitude (Pin 2)	3.0	V(p-p)
Output Current (Yoke)	3.0	A(p-p)
Scan Non-Linearity	8.0	%

Note 1: Total Current Includes Current in Circuit External to the IC.

CIRCUIT DESCRIPTION**Oscillator**

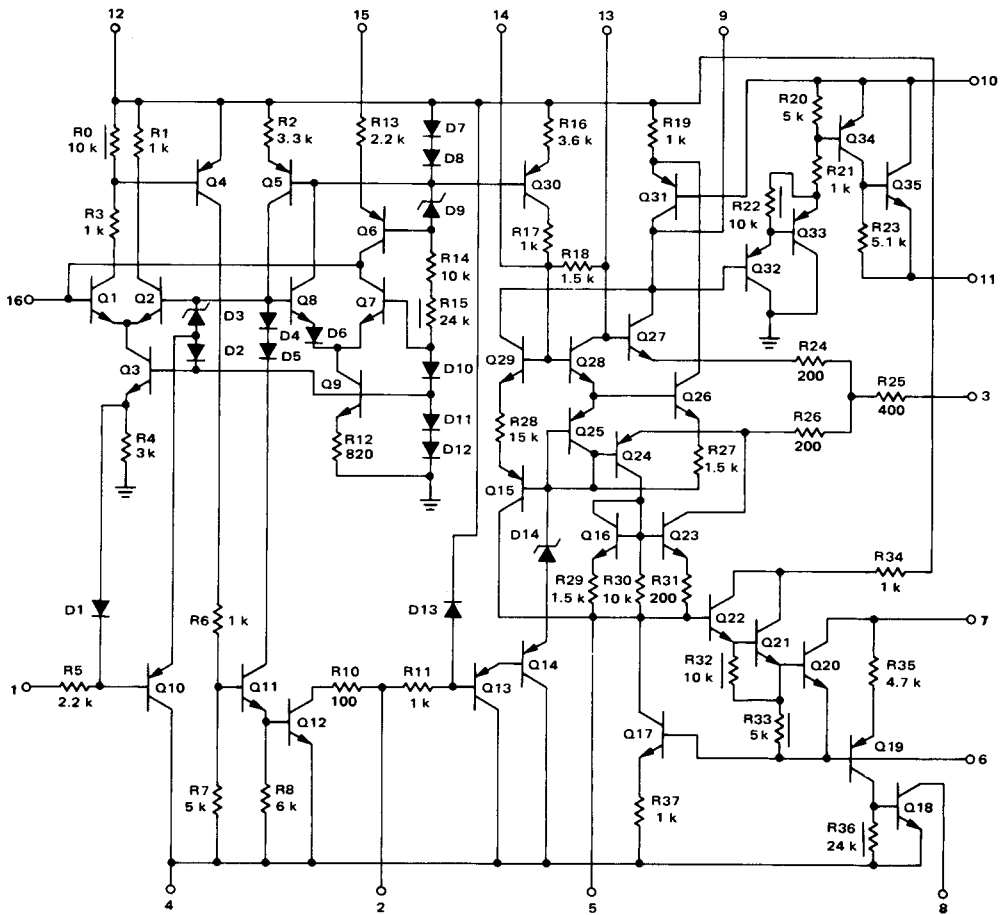
The oscillator employs two differential amplifiers (Q1, Q2, and Q7, Q8). A capacitor at Pin 16 is charged by a current source Q6 until it reaches a voltage that turns on Q1. Q7 is turned on by Q1 providing a discharge path for the voltage stored at Pin 16. Q12 is on during the same period as Q1, and provides a discharge path for a ramp generated at Pin 2. Q1 stays on until the capacitor voltage is discharged to a level that turns Q7 off. A negative sync pulse at Pin 1 turns Q10 on and increases the oscillator frequency by lowering the Q1 switching voltage.

Complementary Driver

A sawtooth generated at Pin 2 is level shifted to the driver inputs Q24 and Q27. Q17 and an NPN output transistor at Pin 6 are a current driver function for one-half

of the output. Q20 acts as a current amplifier providing base current for the NPN output transistor. The current gain between Q20 and the output transistor is inversely proportional to the resistance ratio of R37 and the output emitter resistor. 1.0 mA of current through R37 will produce 1.0 A through a 1.0 ohm output-emitter resistor, thus providing a gain of 1000. Q20, Q31 and a PNP output transistor at Pin 10 are a second current driver function, making up the other half of the complementary output. Q35 provides base current for the output. The maximum amount of base current drive is determined by the current in the voltage divider on Pins 7 and 11. Pin 3 is a return path for the dc and provides for automatic centering. Pin 8 is the collector output of Q18 providing a positive blanking pulse.

FIGURE 2 - CIRCUIT SCHEMATIC



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