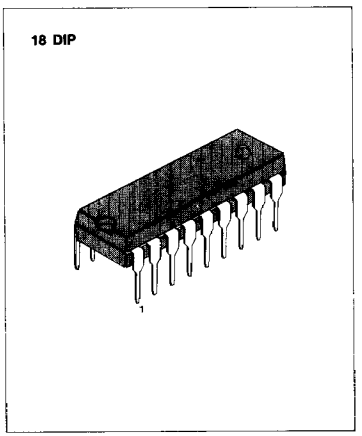
COLOR TV DEFLECTION SIGNAL PROCESSING IC

The KA2134 is a silicon integrated circuit designed for the deflection signal processing circuit for small- and medium-sized color television receivers.



FUNCTIONS

- Vert. Amp Drivers
- Hori. Oscillators
- Noise Detectors
- X-Ray Protectors

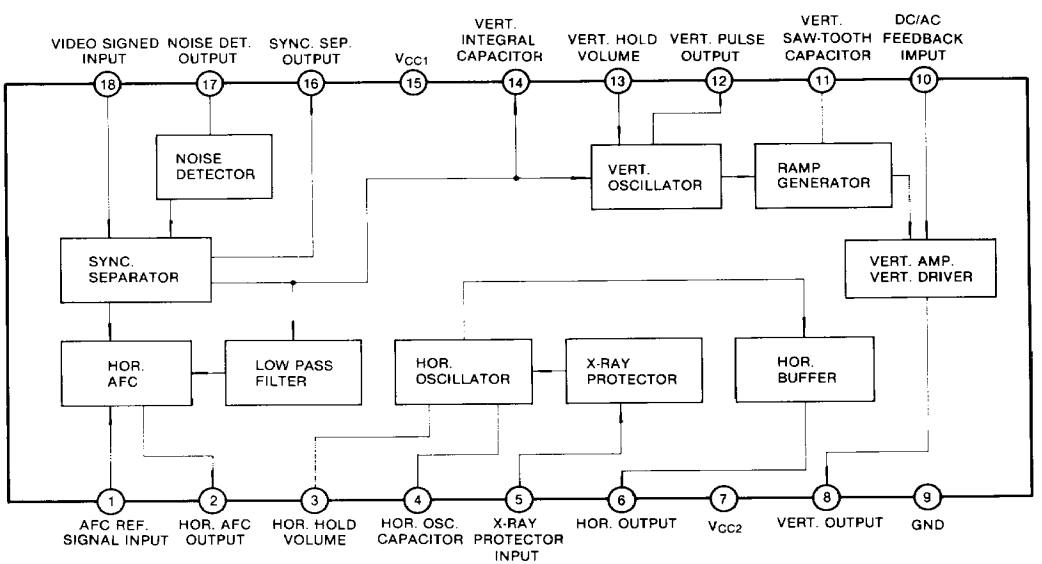
FEATURES

- **Built-in vertical deflection driver circuit**
- **Incorporating vertical and horizontal oscillator circuit, operations highly stable against changes in supply voltage and temperature**
- **Highly stable sync. separation circuit against noise**
- **Built-in high tension protector circuit (X-ray protection)**
- **12V supply voltage operation**

ORDERING INFORMATION

Device	Package	Operating Temperature
KA2134	18 DIP	$-20 \sim +70°C$

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Characteristic		Symbol	Value		Unit
Voltage	Supply Voltage	$V_{pin\ 7}$	10.5		V
		$V_{pin\ 15}$	14.4		V
	Circuit Voltage	$V_{pin\ 1}$	0	10	V
		$V_{pin\ 9}$	0	$V_{15\text{-}9}$	V
		$V_{pin\ 12}$	0	10	V
		$V_{pin\ 17}$	0	6	V
		$V_{pin\ 18}$	−3	2	V
Current	Supply Current	$I_{pin\ 7}$	16		mA
		$I_{pin\ 15}$	23		mA
	Circuit Current	$I_{pin\ 2}$	−3	3	mA
		$I_{pin\ 3}$	−5	0	mA
		$I_{pin\ 4}$	−3	3	mA
		$I_{pin\ 5}$	−1	1	mA
		$I_{pin\ 6}$	−30	0	mA
		$I_{pin\ 8}$	−30	0	mA
		$I_{pin\ 12}$	−2	1	mA
		$I_{pin\ 13}$	0	30	mA
Power Dissipation		P_D	500		mW
Temp.	Operating Temp.	T_{opr}	−20 ~ +70		°C
	Storage Temp.	T_{stg}	−55 ~ +150		°C

Note: +'S and −'S in the circuit current stand for current directions; + for flow-in and— for flow-out.

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

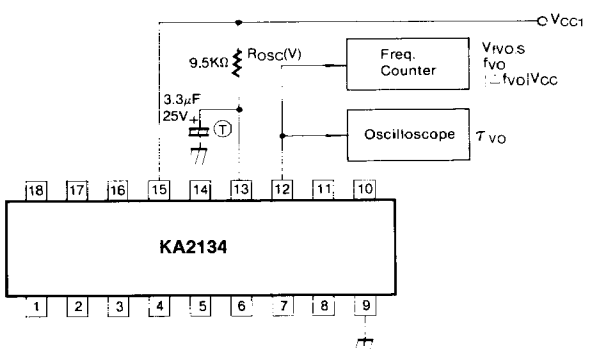
Characteristic	Symbol	Test Circuit	Condition	Min	Typ	Max	Unit
Supply Current	$I_{pin\ 7}$		V_{CC2} = 12V	7.5	12.0	15.5	mA
Supply Current	$I_{pin\ 15}$		V_{CC1} = 12V	13	19	25	mA
Protector Operating Voltage	$V_{pin\ 5}$		V_{CC2} = 12V	0.73		0.86	V
Oscillation Beginning Voltage	$V_{OSCS}(1)$	1	V_{CC1} at the time f_{VO} is in 40 ~ 60Hz range and it's amplitude is over $0.7V_{P\text{-}P}$			6	V
Vertical Free-Running Freq.	f_{VO}	1	V_{CC1} = 12V, $R_{OSC}(V)$ = 9.5Kohm	47	50	53	Hz
f_{VO} Dependence Ratio on Supply Voltage	$\triangle f_{VO}/V_{CC}$	1	f_{VO}19.6V ~ f_{VO}114.4V	0	1.0	1.3	Hz

ELECTRICAL CHARACTERISTICS (Continued)

Characteristic	Symbol	Test Circuit	Condition	Min	Typ	Max	Unit
Pulse Width(V_{-OSC})	τ	1	V_{CC1} = 12V, $R_{OSC}(V)$ = 9.5Kohm	420	600	780	μs
Pull-in Range	f_{VP}	2	V_{CC1} = 12V, $R_{OSC}(V)$ = 9.5Kohm		43	47	Hz
Vert. Sawtooth Wave Amplitude	V(saw)	2	V_{CC1} = 12V, $R_{OSC}(V)$ = 9.5Kohm	0.9	1.2	1.5	V_{p-p}
f_{VO} Dependence Ratio on Temp.	$\triangle f_V/Ta$	1	Ta = −20 ~ +70°C		0.8		Hz/°C
V(saw) Dependence Ratio on Temp.	$\triangle V(saw)/Ta$	2	Ta = −20 ~ +70°C			30	mV_{p-p}/°C
Oscillation Beginning Voltage	$V_{OSC-S}(2)$	3	V_{7-9} at the time f_{HO} is in 10 ~ 20KHz range and it's amplitude is over 1 V_{p-p}			6	V
Horizontal Free Running Voltage	f_{HO}	3	V_{CC2} = 12V, $R_{OSC}(H)$ = 2.95Kohm	15.0	15.75	16.25	KHz
f_{HO} Dependence Ratio on Supply Voltage	$\triangle f_{HO}/V_{CC}$	3	f_{HO}9.6V ~ f_{HO}14.4V	0	100	200	Hz
Duty Ratio	τ	3	V_{CC2} = 12V	31.5	35.4	38.9	%
Control Sensitivity	β	4	I_o = ±100μA	19	21	23	Hz/μA
f_{HO} Dependence Ratio on Temp.	$\triangle f_{HO}/Ta$	3	Ta = −20 ~ +70°C	−1.67		1.67	Hz/°C
AFC Loop Gain	f_{AFC}		$\beta \times \mu$	5800	7700	9600	Hz/rad

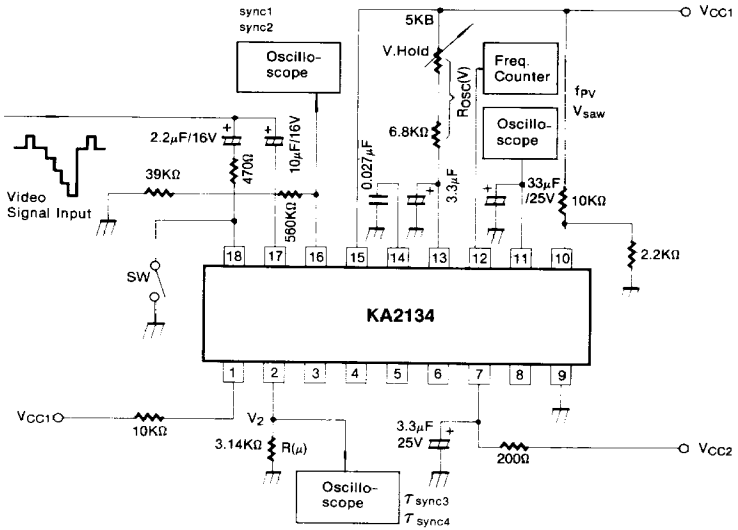
TEST CIRCUIT

Test Circuit 1 ($V_{OSC-S(1)}$, f_{VO}, $\triangle f_{VO}/V_{CC}$, τ , $\triangle f_V/Ta$)

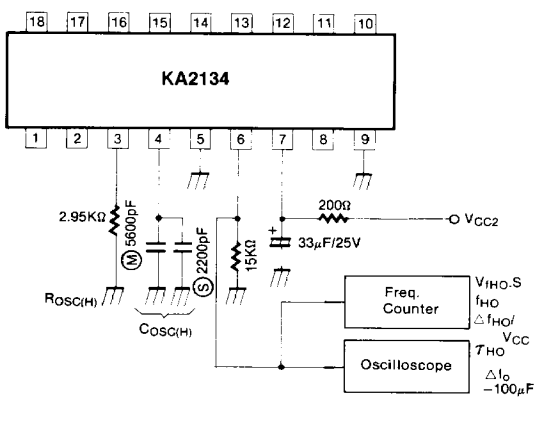


Ⓣ: Tantalum Electrolytic Capacitor

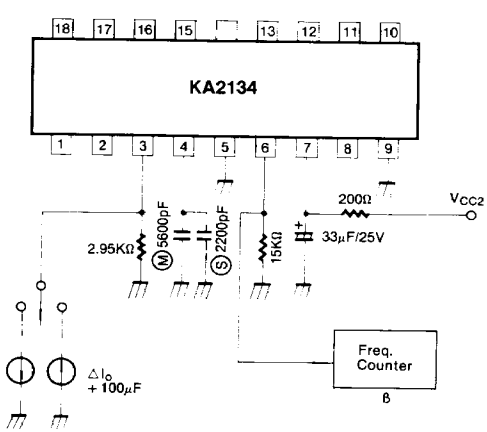
Test Circuit 2 (f_{VP}, $V_{(saw)}$, $\triangle V_{(saw)}/Ta°$)



Test Circuit 3 ($V_{OSC\cdot S(2)}$, f_{HO}, $\triangle f_{HO}/V_{CC}$, τ , $\triangle f_{HO}/Ta$)



Test Circuit 4 (ß)



M : Mylar Capacitor
S : Stylen Capacitor

TYPICAL APPLICATION CIRCUIT