

## HORIZONTAL SIGNAL PROCESSING

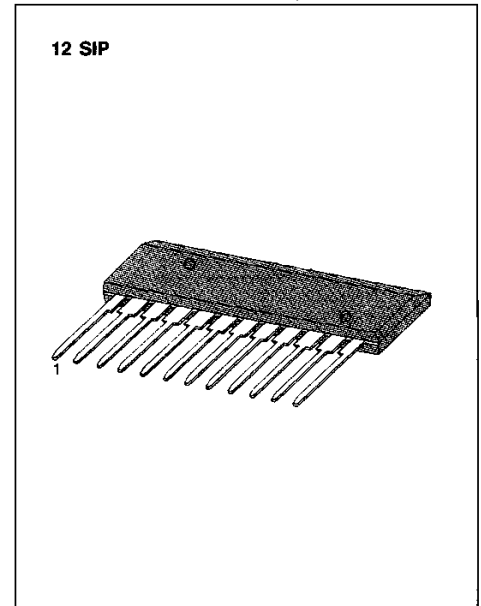
The KA2135 is a monolithic integrated circuit designed for the horizontal signal processing circuit for CRT displays of television receivers, and monitors.

## FUNCTIONS

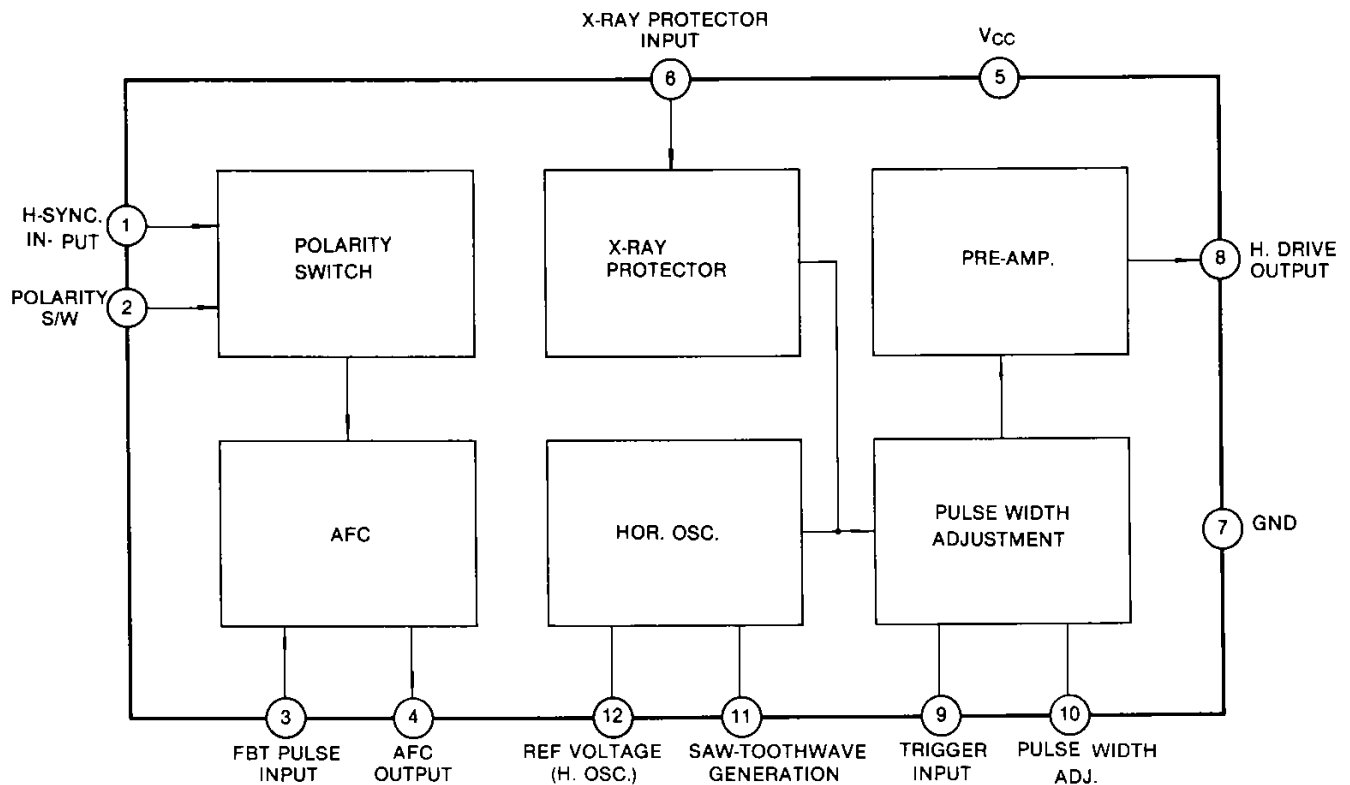
- Polarity Switches
- X-Ray Protectors
- AFC
- Hori. OSC
- Pre Amp
- Pulse Width Adjustment

## FEATURES

- Processing for both negative & positive SYNC signal
- Wide horizontal oscillation frequency range (14KHz ~ 60KHz)
- Wide output pulse width selection ( $2\mu\text{s}$  ~  $40\mu\text{s}$ )



## BLOCK DIAGRAM



## ORDERING INFORMATION

Device	Package	Operating Temperature
KA2135	12 SIP	- 20 ~ + 70°C

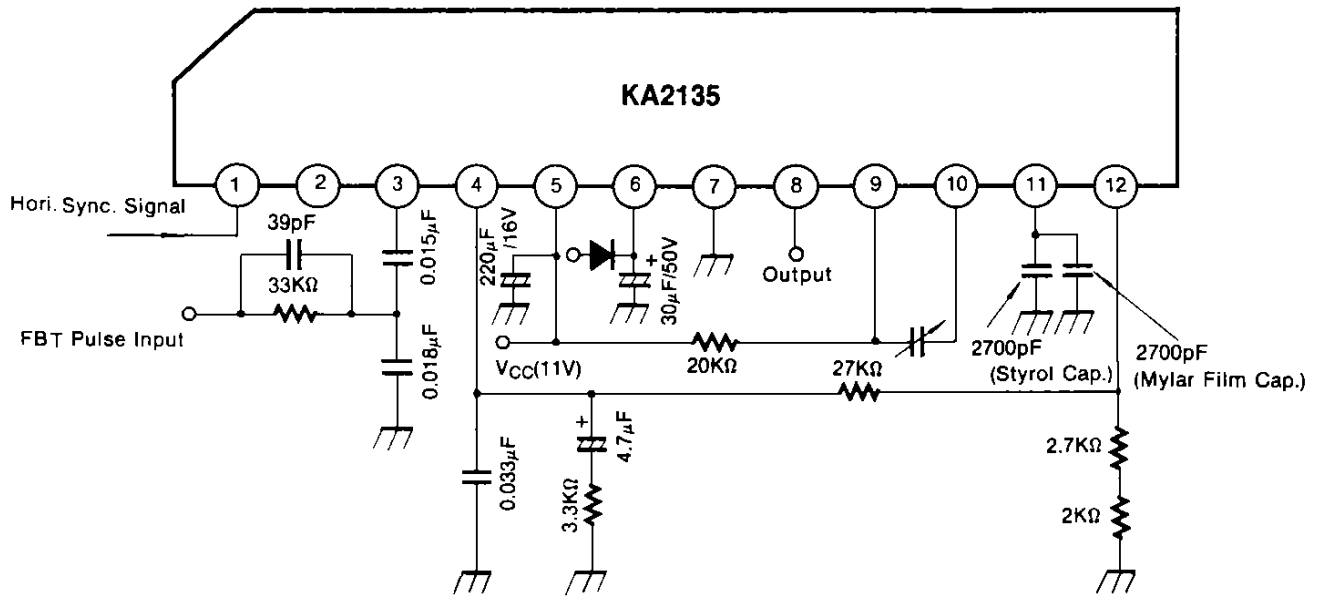
**ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)**

Characteristic	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	13.2	V
Supply current	$I_{CC}$	50	mA
Power Dissipation	$P_D$	1140	mW
Operating Temperature	$T_{OPR}$	-20 ~ +70	°C
Storage Temperature	$T_{STG}$	-40 ~ +150	°C

**ELECTRICAL CHARACTERISTICS (Ta = 25°C)**

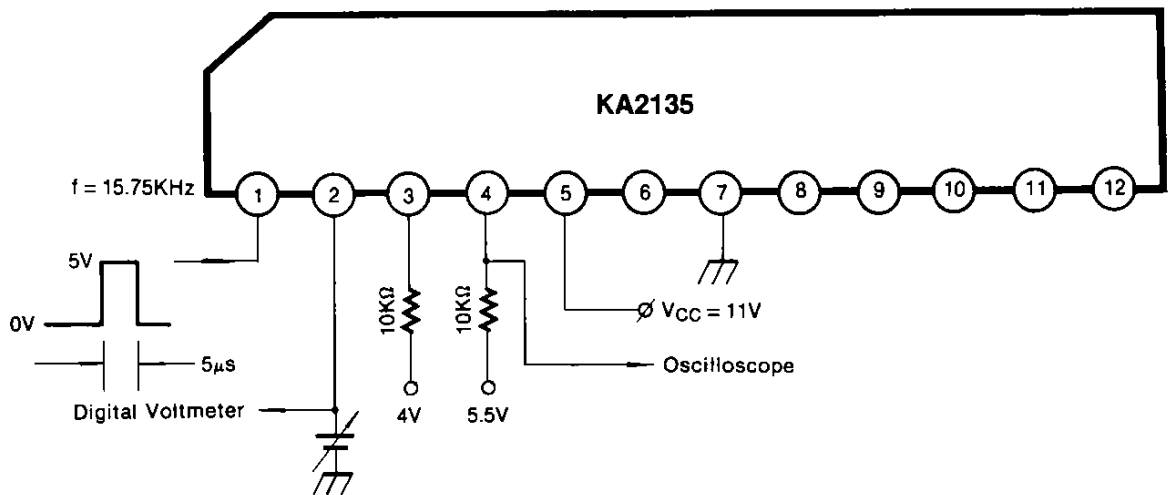
Characteristic	Symbol	Test Circuit	Condition	Min	Typ	Max	Unit
Total Supply Current	$I_{CC}$		$V_{CC} = 11V$	30	45	60	mA
Polarity Switching Voltage 1	$V_1$	1	Positive Signal $I_N$	0		0.4	V
Polarity Switching Voltage 2	$V_2$	1	Negative Signal $I_N$			2.5	V
Hori. OSC Starting Voltage	$V_{OSC-S(H)}$	2	$f_{HO} = 12KHz \sim 19KHz$			7.5	V
Hori. OSC Frequency	$f_{HO(1)}$	2	$V_{CC} = 11V, C = 4400pF$	15.0	15.75	16.5	KHz
Hori. OSC Frequency Range	$f_{HO(2)}$	3	$V_{CC} = 11V, C = 820pF, 5600pF$	14		60	KHz
$f_{HO}$ to Supply Voltage Ratio	$\Delta f_{HO}/V_{CC}$	2	$f_{HO} = 15.75KHz, f_{HO}/9.9V - f_{HO}/12.1V$		40	130	Hz
$f_{HO}$ to Ambient Temperature Ratio	$\Delta f_{HO}/T_A$	2	$f_{HO} = 15.75KHz, f_{HO}/-20^\circ C - f_{HO}/60^\circ C$			260	Hz
OSC Frequency Control Sensitivity	$S_{OSC}$	4	$\Delta I_O = \pm 25\mu A$	16.0	17.6	19.3	Hz/ $\mu A$
D.C. Loop Gain	$G_{DC}$		$\mu \times S_{OSC}$		700		Hz/ $\mu s$
Output Pulse Width	$t_{HO(1)}$	5	$V_{CC} = 11V, R = 20K\Omega, C = 6800pF$	17.8	19.4	21.2	$\mu s$
Output Pulse Width Selection	$t_{HO(2)}$	5	$V_{CC} = 11V, R = 20K\Omega, C = 330pF, 18000pF$	2		40	$\mu s$
Output Pulse Width to Supply Voltage Ratio	$\Delta t_{HO}/V_{CC}$	5	$V_{CC} = 9.9V \sim 12.1V$			5	%
Output Pulse Width to Supply Temperature Ratio	$\Delta t_{HO}/T_A$	5	$V_{CC} = 11V, T_a = -20^\circ C \sim +60^\circ C$			5	%
OSC Output Saturation Voltage	$V_8$		$V_{CC} = 11V, V_{10.7} = 1V$			2.0	V
OSC Output Drive Current	$V_8$		$V_{CC} = 11V, V_{10.7} = 1V$	300			mA
X-Ray Protection Start Voltage	$V_8$	2	$V_{CC} = 11V$	0.5	0.64	0.75	V

# TYPICAL APPLICATION CIRCUIT

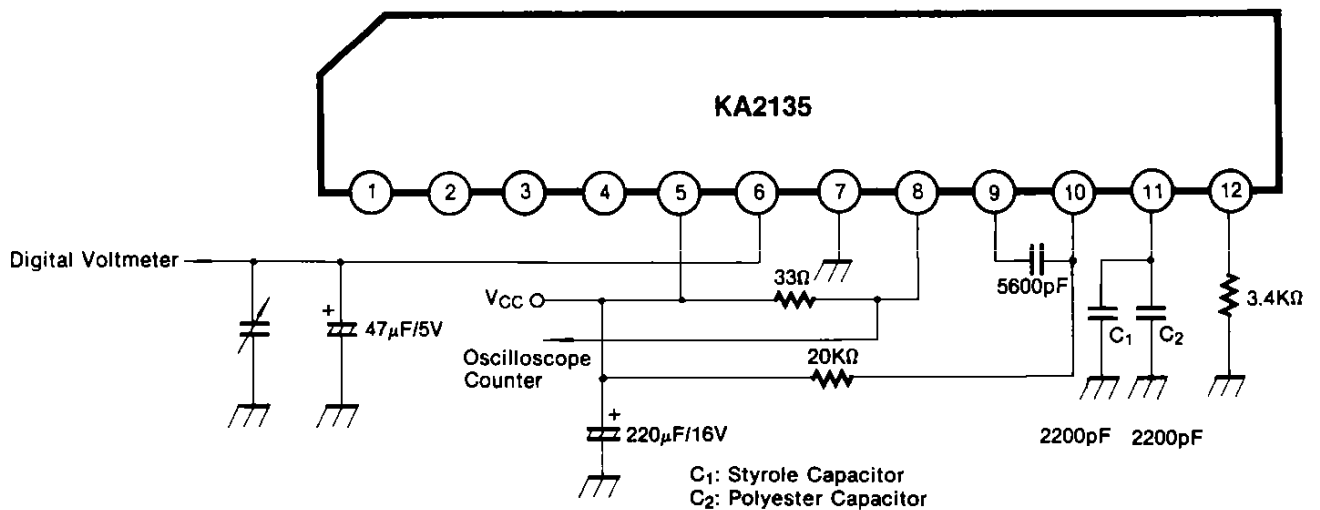


## TEST CIRCUIT

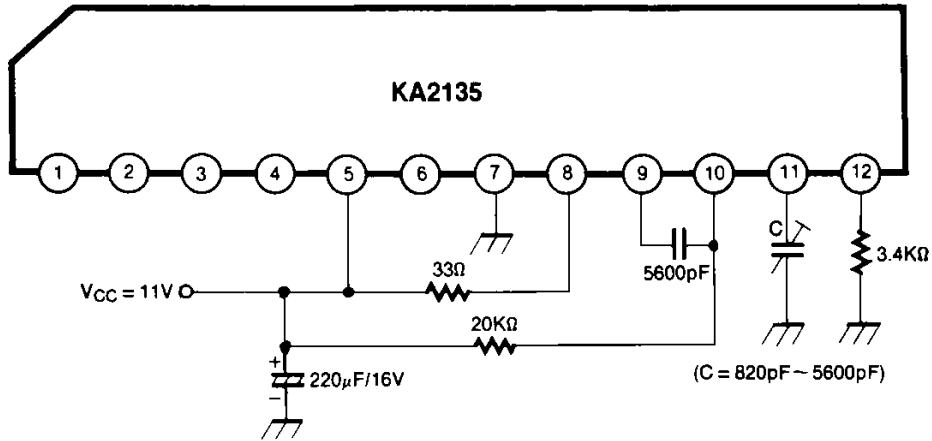
Test Circuit 1 ( $V_{2.7}$ )



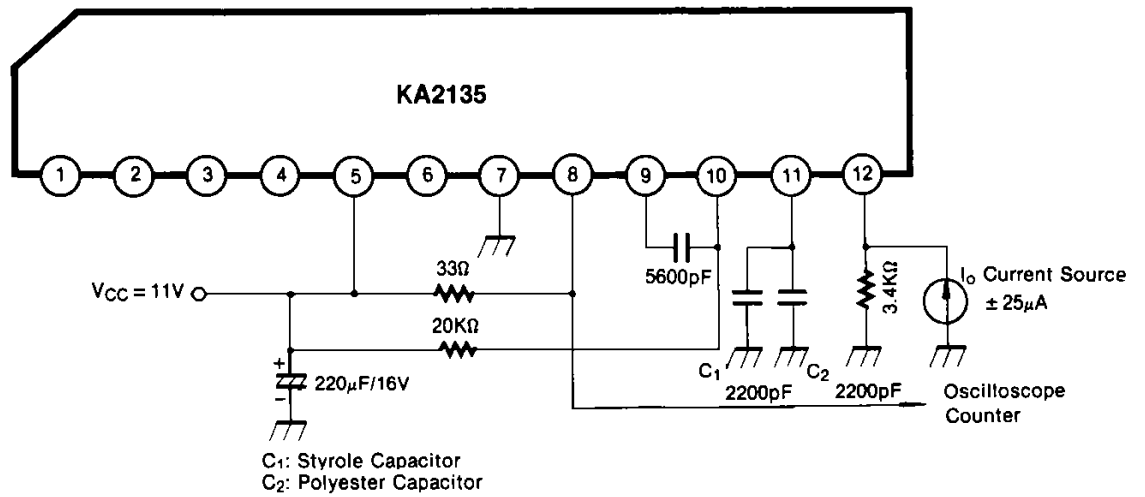
Test Circuit 2 ( $V_{\text{OSC-S(H)}}$ ,  $f_{\text{HO(1)}}$ ,  $f_{\text{HO(2)}}$ ,  $\Delta f_{\text{HO}}/V_{\text{CC}}$ ,  $\Delta f_{\text{HO}}/T_a$ ,  $V_{6.7}$ )



**Test Circuit 3 ( $f_{HO(2)}$ )**



**Test Circuit 4 (B)**



**Test Circuit 5 ( $\Delta V_{CC}/\Delta T_a$ )**

