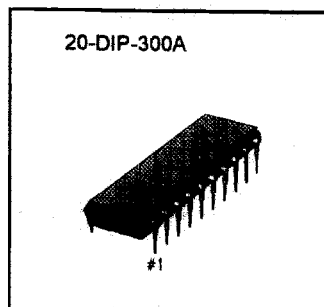


DEFLECTION PROCESSOR

The KA2138 is a monolithic integrated circuit encapsulate in a 20 dual-in-line package designed for vertical, horizontal deflection signal processing for a CRT display.

This IC can be connected to the KA2131 (for vertical output) to form a deflection processing system for CRT display.



FUNCTIONS

(Vertical Block)

- Vertical oscillator & Ramp generator
- Sampling type DC voltage control within retrace time

(Horizontal Block)

- Horizontal oscillator & AFC
- X-Ray protector
- AFC sawtooth wave generator
- Horizontal pulse duty setting
- Horizontal phase shifter

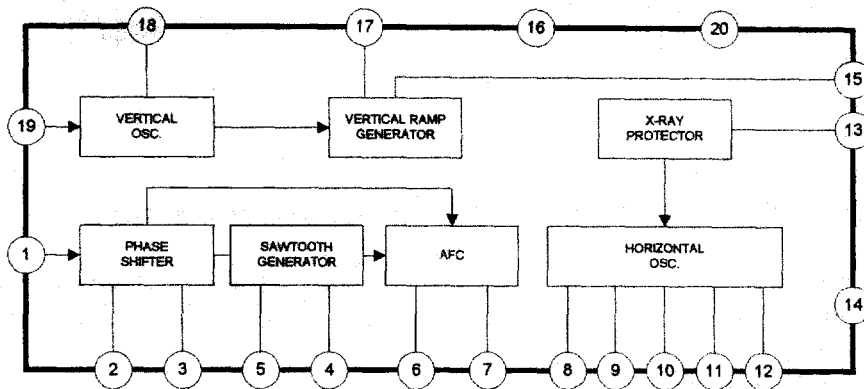
ORDERING INFORMATION

Device	Package	Operating Temperature
KA2138	20-DIP-300A	-20 °C ~ +70 °C

FEATURES

- Vertical pull-in range 20Hz permits non-adjusting at vertical synchronizing 50Hz or 60Hz.
- Good vertical linearity because DC supply at the vertical output stage is subjected to sampling type control during retrace time
- The horizontal oscillation frequency is stable from 15kHz to 100kHz.
- The horizontal display can be shifted right or left
- The horizontal/vertical synchronizing pulse input can be used intact regardless of the difference in pulse polarity and pulse width.
- The AFC feedback sawtooth wave can be obtained by simply applying a flyback pulse to the IC as a trigger pulse
- Any duty of horizontal pulse can be set

BLOCK DIAGRAM

ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^\circ\text{C}$)

Item	Symbol	Value	Unit
Supply Voltage	$V_{10}(\text{max}), V_{20}(\text{max})$	14	V
Power Dissipation	P_D	780	mW
Operation Temperature	T_{opr}	-20 ~ +70	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 ~ +150	$^\circ\text{C}$

RECOMMENDED OPERATION CONDITIONS ($T_A = 25\text{ }^\circ\text{C}$)

Item	Symbol	Min	Typ	Max	Unit
Supply Voltage	V_{10}, V_{20}	9	12	13.5	V
Vertical Pulse Voltage	V_V	2.0	5.0	6.0	V_{p-p}
Horizontal Pulse Voltage	V_H	2.0	5.0	6.0	V_{p-p}

ELECTRICAL CHARACTERISTICS ($V_{CC10} = V_{CC20} = 12V$, $T_A = 25^\circ C$)

Table 1. Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Quiescent Current	I_{10}	$V_{CC10} = 12V$	12	-	37	mA
	I_{20}	$V_{CC20} = 12V$	5	-	19	mA
Vertical Part						
Pull-in Range	$f_V(PULL)$	Synchronizing Pulse Frequency 60Hz	40	-	-	Hz
Free-Running Frequency	f_V	-	55	60	65	Hz
Frequency Drift with Supply Voltage	$\Delta f_V/V_{CC}$	$V_{20} = 12 \pm 1V$	-0.1	0	0.1	Hz
Center Voltage Control Threshold Level	-	-	3.8	-	4.4	V
Frequency Drift with Ambient Temperature	$\Delta f_{T(V)}$	$T_a = -10 \text{ to } +60^\circ C$	-0.028	-	0.028	Hz/ $^\circ C$
Oscillation Start Voltage	$V_{OSC(V)}$	-	-	-	4.0	V
Driver Amplification Factor	ΔA_V	-	12	-	18	dB
Horizontal Part						
Oscillation Start Voltage	$V_{OSC(H)}$	-	-	-	4.0	V
Free-running Frequency	f_H	$f_H = 15.734kHz$	-750	-	750	Hz
AFC DC Loop Current	I_{AFC}	-	± 0.85	-	± 1.6	mA
Frequency Drift with Supply Voltage	$\Delta f_H/V_{CC}$	$V_{10} = 12 \pm 1V$ $15.734kHz \text{ at } 12V$	-50	-	50	Hz
Frequency Drift with Ambient Temperature	$\Delta f_{V/T_A}$	$T_a = -10 \text{ to } +60^\circ C$	-2.9	-	2.9	Hz/ $^\circ C$
Comparison wave Shaping Input Voltage	V_4	-	0.6	-	0.9	V
X-Ray Protector Starting Voltage	V_{13}	-	0.5	-	0.8	V
Horizontal Drive Current	I_{12}	-	6.0	-	12.0	mA

TYPICAL APPLICATION CIRCUIT

