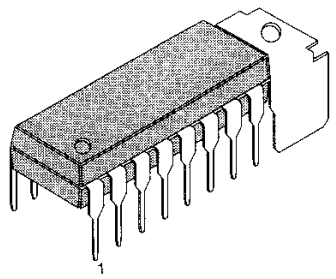
# 1-CHIP DEFLECTION SYSTEM

The KA2133 consists of a vertical system including an output function and a horizontal system including an AFC function. It is for use in small size color TVs, B/W TV receivers and monitors.

16 DIP H/S




## FUNCTIONS

(Horizontal Section)
- SYNC separators
- Horizontal oscillators
- Horizontal predrivers
- Horizontal predrivers
- Horizontal AFCs
- Shunt regulators (Typ.: 6.7V)

(Vertical Section)
- Vertical oscillators
- Vertical predrivers
- Vertical output
- Flyback generators

## FEATURES

- **Low power consumption, direct deflection coil driving capability (Flyback voltage two times as high as supply voltage is supplied during flyback period only)**
- **Variable circuit of vertical retrace time on chip.**

## ORDERING INFORMATION

| Device | Package | Operating Temperature |
|---|---|---|
| KA2133 | 16 DIP H/S | −20 ~ +75°C |

## BLOCK DIAGRAM

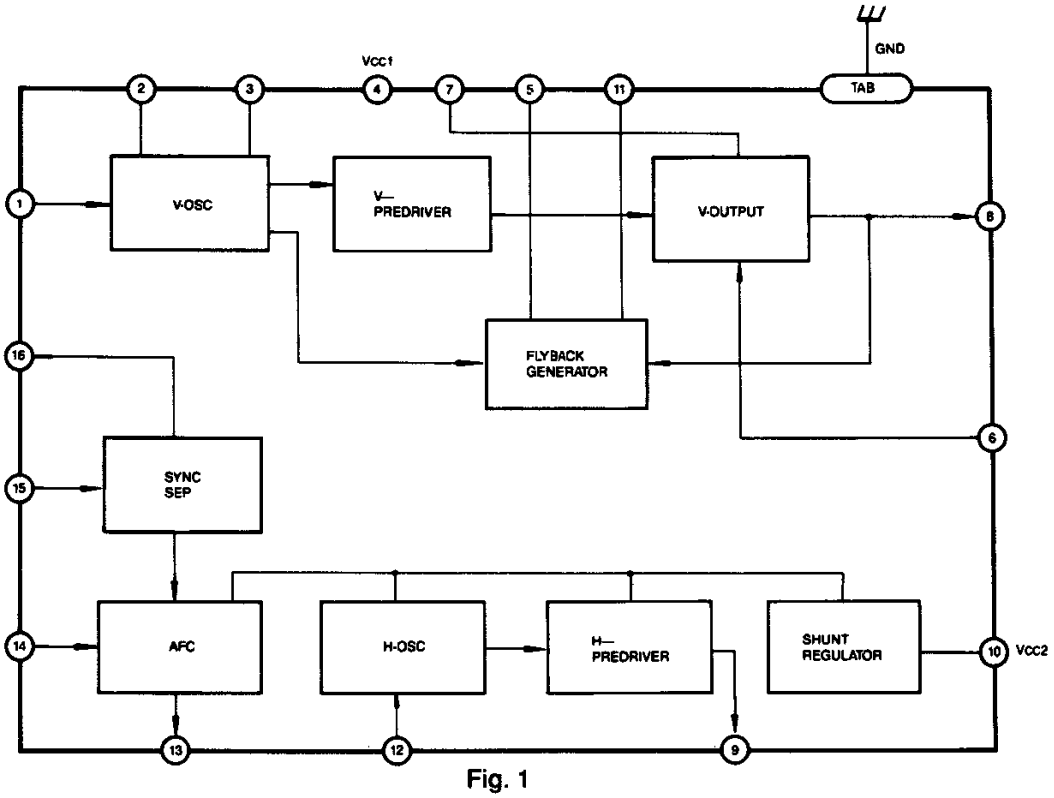



Fig. 1

## ABSOLUTE MAXIMUM RATINGS ($T_a = 25°C$)

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Vertical Supply Voltage | $V_{CC}$ | 15 | V |
| Horizontal Supply Current | $I_{10}$ | 30 | mA |
| Vertical Output Current | $I_8$ | −500 ~ +500 | mA peak |
| Horizontal Output Current (Pulse) | $I_9$ | 15 ~ +5 | mA |
| Flyback Generator Output Current | $I_5$ | −500 ~ +500 | mA peak |
| Power Dissipation | $P_D$ | 1.3 | W |
| Operating Temperature | $T_{OPR}$ | −20 ~ +75 | °C |
| Storage Temperature | $T_{STG}$ | −40 ~ +150 | °C |

## RECOMMENDED OPERATING CONDITIONS ($T_a = 25°C$)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Vertical Supply Voltage | $V_{CC}$ | 9.6 | 12.0 | 14.4 | V |
| Horizontal Supply Current | $I_{10}$ | 6.5 | 12 | 18 | mA |

## ELECTRICAL CHARACTERISTICS ($V_{CC} = 12V$, $I_{10} = 12mA$, $T_a = 25°C$)

| Characteristic | Symbol | Test Conditions | Min | Typ | Max | Unit | Test Fig |
|---|---|---|---|---|---|---|---|
| Vertical Supply Current | $I_{CC}$ (1) | $SW_A = 2$ | — | 85 | 100 | mA | 2 |
| Vertical Supply Current | $I_{CC}$ (2) | No Input Signal<br>$SW_A = 2$ | 6 | 12 | 20 | mA | 2 |
| Vertical Free Running Frequency | $f_{VO}$ | $SW_A = 1$ | 55 | 60 | 65 | Hz | 2 |
| Drift of Vertical Free-Running Frequency | $\Delta f_{VO}/V_{CC}$ | $\triangle f_{VO} = 1f_{VO}(14.4V)\text{-}f_{VO}(9.6V)1$<br>$SW_A = 2$ | — | 0.8 | 2 | Hz | 2 |
| | $\Delta f_{VO}/T_A$ | $\triangle f_{VO} = 1f_{VO}(-20°C) - f_{VO}(+70°C)$<br>$SW_A = 2$ | — | 1.5 | 2 | Hz | 2 |
| Vertical Output Center Voltage | $V_{MID}$ | $SW_A = 2$ | 5.3 | 5.8 | 6.3 | V | 2 |
| Vertical Output Current | $I_8$ | $SW_A = 2$ | 450 | 500 | 550 | $mA_{p\text{-}p}$ | 2 |
| Horizontal Supply Pin Voltage | $V_{10}$ | $SW_B = 2$ | 6.2 | 6.7 | 7.2 | V | 2 |
| Horizontal Free Running Frequency | $f_{HO}$ | $I_{10} = 12mA$<br>$SW_B = 1$ | 15.0 | 15.75 | 16.5 | KHz | 2 |
| Horizontal Output Pulse Width | $t_{HPW}$ | $f_{HO} = 15.75KHz$<br>$SW_B = 2$ | 23 | 25 | 27 | us | 2 |
| Horizontal Output Current | $I_9$ | $SW_B = 2$ | 0.8 | 1.3 | 2.0 | mA | 2 |

## TEST CIRCUIT

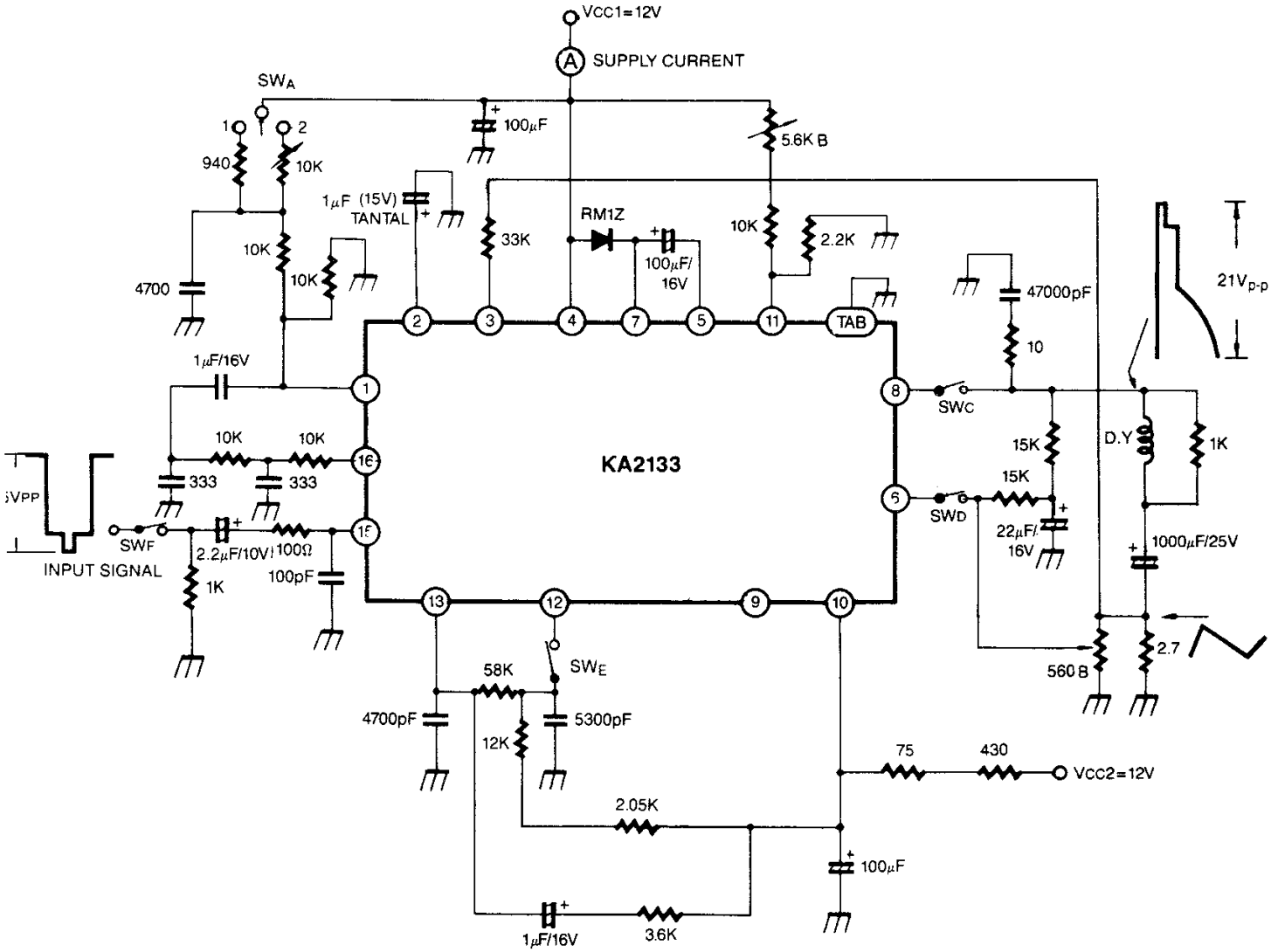



Fig. 2