

**BIPOLAR ANALOG INTEGRATED CIRCUIT**  
 **$\mu$ PC1379C**

**SYNCHRONIZATION SIGNAL PROCESSOR FOR B/W TV**  
**AND SMALL-SIZED COLOR TV**

$\mu$ PC 1379C is a bipolar analog integrated circuit designed for mono-chrome TV and small size color TV.

It contains synchronous signal separator, vertical deflection signal generator, vertical power stage, and horizontal deflection signal generator in a molded 16 pins dual in-line package.

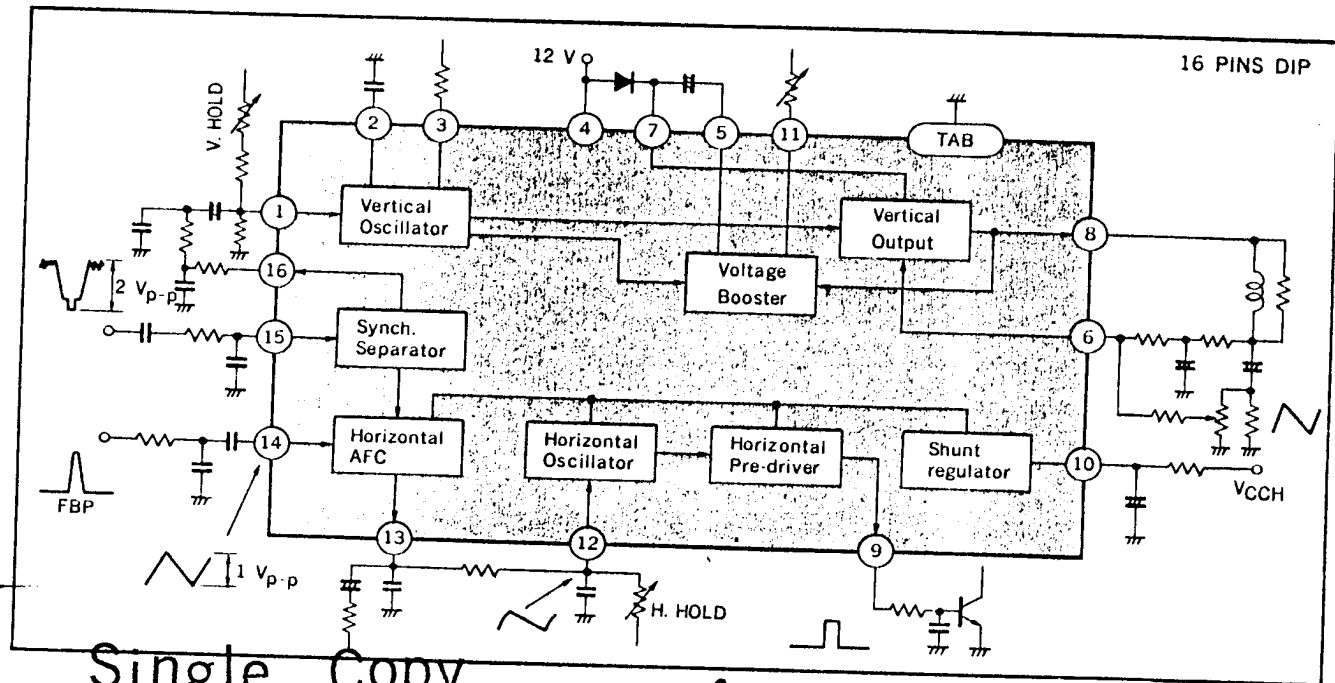
The package has a tab attaching to the end.

The vertical stage reduces the power consumption remarkably by the built-in voltage booster circuit. The horizontal signal part can take the working power from any voltage power supply higher than 8 volts, as it equips shunt type power regulator itself. So, it can take the power even from 110 volt power line through only one resistor.

**FEATURES**

- Built-in vertical power stage remarkably low power vertical deflection realized by the built-in voltage booster.
- Vertical fly-back pulse width is freely adjustable by the exclusive terminal.
- Any supply voltage is available for the horizontal part, as it equips shunt type power regulator itself.

**BLOCK DIAGRAM**



Single Copy

62 UNITS orig

Handle With Care

006104

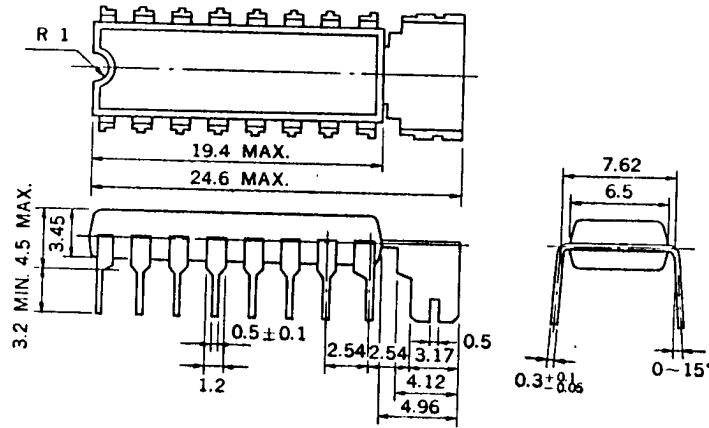
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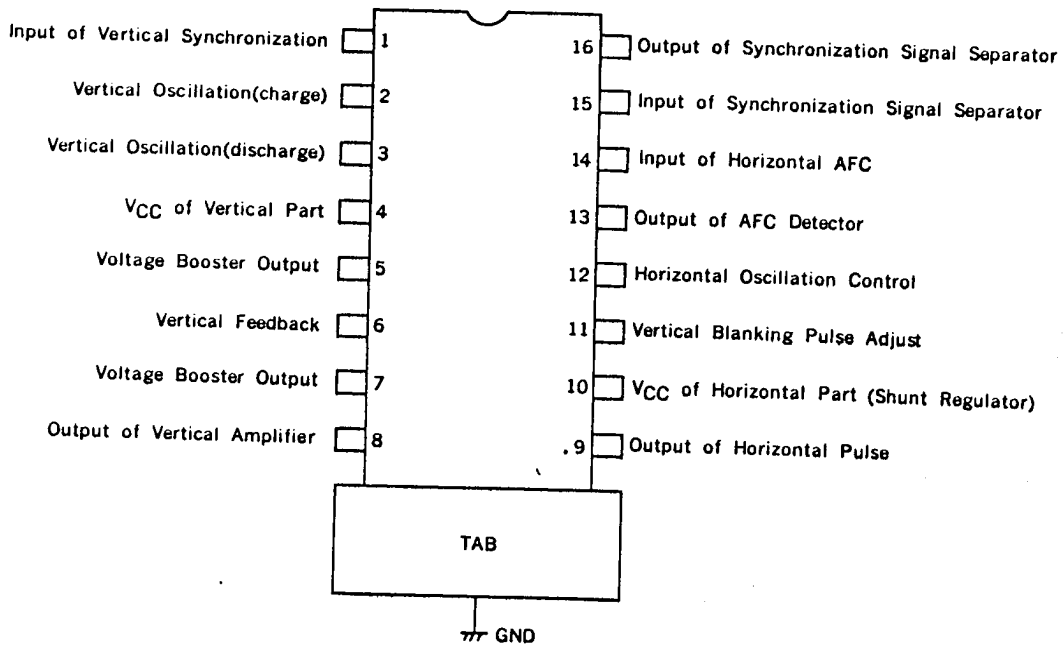
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Nippon Electric Co., Ltd.

PACKAGE DIMENSIONS (Unit : mm)



CONNECTION DIAGRAM (Top View)



**ABSOLUTE MAXIMUM RATINGS (T<sub>a</sub> = 25 °C)**

(Mark(+)) of current expresses that the current is flowing into the terminal. Mark(-) of current expresses that the current is flowing out from the terminal.

|  |                        |                                |                    |
|--|------------------------|--------------------------------|--------------------|
| Power Supply Voltage for Vertical Part   | V <sub>4</sub>         | 15                             | V                  |
| Power Supply Current for Horizontal Part | I <sub>10</sub>        | 30                             | mA                 |
| Video Input Voltage                      | V <sub>15</sub>        | V <sub>4</sub>                 | V                  |
| Synch Output Current                     | I <sub>16</sub>        | -10 to +10                     | mA                 |
| Voltage Booster Charge Voltage           | V <sub>11</sub>        | V <sub>4</sub>                 | V                  |
| Booster Output Current                   | I <sub>5</sub>         | -500 to +150                   | mA <sub>peak</sub> |
| Deflection Current                       | I <sub>8</sub>         | -500 to +150                   | mA <sub>peak</sub> |
| Vertical Feedback Voltage                | V <sub>6</sub>         | V <sub>4</sub>                 | V                  |
| AFC Input Voltage                        | V <sub>14</sub>        | V <sub>10</sub>                | V                  |
| Horizontal Output Current (Pulse)        | I <sub>9</sub>         | -5 to +5                       | mA                 |
| Power Dissipation                        | P <sub>D</sub>         | 1.3 (T <sub>tab</sub> = 98 °C) | W                  |
| Thermal Resistance (J-tab)               | R <sub>th(j-tab)</sub> | 40 (T <sub>tab</sub> = 25 °C)  | °C/W               |
| Thermal Resistance (J-a)                 | R <sub>th(j-a)</sub>   | 70 (T <sub>a</sub> = 25 °C)    | °C/W               |
| Operating Temperature                    | T <sub>opt</sub>       | -20 to +75                     | °C                 |
| Storage Temperature                      | T <sub>stg</sub>       | -40 to +150                    | °C                 |

**RECOMMENDED OPERATING CONDITIONS**

| CHARACTERISTIC                             | SYMBOL           | MIN. | TYP. | MAX. | UNIT              |
|--|------------------|------|------|------|-------------------|
| Power Supply Voltage for the Vertical Part | V <sub>4</sub>   | 9.6  | 12   | 14.4 | V                 |
| Deflection Current                         | I <sub>DEF</sub> | 400  | 500  | 600  | mA <sub>p-p</sub> |
| Power Supply Current for Horizontal Part   | I <sub>10</sub>  | 6.5  | 12   | 18   | mA                |

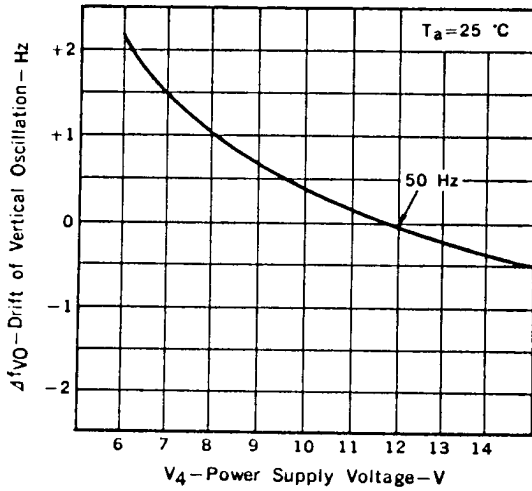
**ELECTRICAL CHARACTERISTICS (T<sub>a</sub> = 25 °C, V<sub>4</sub> = 12 V, I<sub>DEF</sub> = 500 mA<sub>p-p</sub>, I<sub>10</sub> = 12 mA)**

| CHARACTERISTIC                               | SYMBOL                              | MIN. | TYP.  | MAX.  | UNIT              | CONDITIONS  |
|--|-------------------------------------|------|-------|-------|-------------------|---|
| Power Supply Current for Vertical Part       | I <sub>4</sub> (1)                  |      | 85    | 100   | mA                | standard circuit  |
| Power Supply Current for Vertical Part       | I <sub>4</sub> (2)                  | 6    | 12    | 20    | mA                | standard circuit (Idling Current)   |
| Vertical Free-running Frequency              | f <sub>VO</sub>                     | 46   | 50    | 54    | Hz                | standard circuit  |
| Drift of Vertical Free-running Frequency     | Δf <sub>VO</sub> (V <sub>CC</sub> ) |      | 0.8   | 2.0   | Hz                | Δf <sub>VO</sub> (V <sub>CC</sub> ) =  f <sub>VO</sub> (9.6 V) - f <sub>VO</sub> (14.4 V) |
| Drift of Vertical Free-running Frequency     | Δf <sub>VO</sub> (T <sub>a</sub> )  |      | 1.5   | 2.0   | Hz                | Δf <sub>VO</sub> (T <sub>a</sub> ) =  f <sub>VO</sub> (-20 °C) - f <sub>VO</sub> (+75 °C) |
| Vertical Synchronizing Capture Frequency     | f <sub>PV</sub>                     | 47   | 50    |       | Hz                | f <sub>V(in)</sub> = 60 Hz  |
| Middle Voltage of Vertical Output            | V <sub>MID</sub>                    | 5.3  | 5.8   | 6.3   | V                 | standard circuit  |
| Flyback Pulse Peak Voltage                   | RPV                                 | 20   | 23    | 26    | V                 | standard circuit  |
| Flyback Pulse Width                          | RPW                                 | 790  | 850   | 910   | μs                | standard circuit  |
| Deflection Current                           | I <sub>DEF</sub>                    | 450  | 500   | 550   | mA <sub>p-p</sub> | standard circuit  |
| Supply Voltage for Horizontal Part           | V <sub>10</sub>                     | 6.2  | 6.7   | 7.2   | V                 | I <sub>10</sub> = 12 mA   |
| Horizontal Free-running Frequency            | f <sub>HO</sub>                     | 15.0 | 15.75 | 16.5  | kHz               | standard circuit  |
| Drift of Horizontal Free-running Frequency   | Δf <sub>HO</sub> (T <sub>a</sub> )  |      | 190   | 250   | Hz                | Δf <sub>HO</sub> (T <sub>a</sub> ) =  f <sub>HO</sub> (-20 °C) - f <sub>HO</sub> (+75 °C) |
| Horizontal Output Pulse Width                | PWH                                 | 23   | 25    | 27    | μs                | standard circuit  |
| Horizontal Output Current                    | I <sub>9</sub>                      | 0.8  | 1.3   | 2.0   | mA                | standard circuit  |
| Horizontal Synchronizing Capture Freq.       | f <sub>PH</sub>                     | ±650 | ±900  | ±1150 | Hz                | standard circuit  |
| Horizontal AFC Output Current                | I <sub>13</sub>                     | 0.28 | 0.45  | 0.74  | mA                | standard circuit  |
| Gain of AFC Detector                         | μ                                   | 89   | 143   | 236   | μA/rad            | standard circuit  |
| Efficiency of Horizontal Oscillation Control | β                                   | 66   | 72    | 78    | Hz/μA             | standard circuit  |

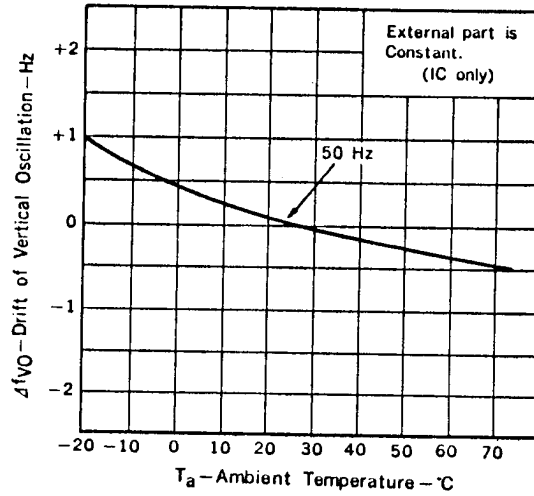
TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

1. Vertical part

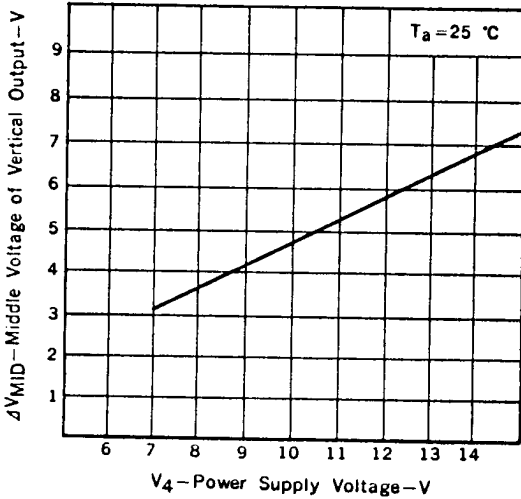
DRIFT OF VERTICAL OSCILLATION AGAINST POWER SUPPLY VOLTAGE



DRIFT OF VERTICAL OSCILLATION AGAINST AMBIENT TEMPERATURE

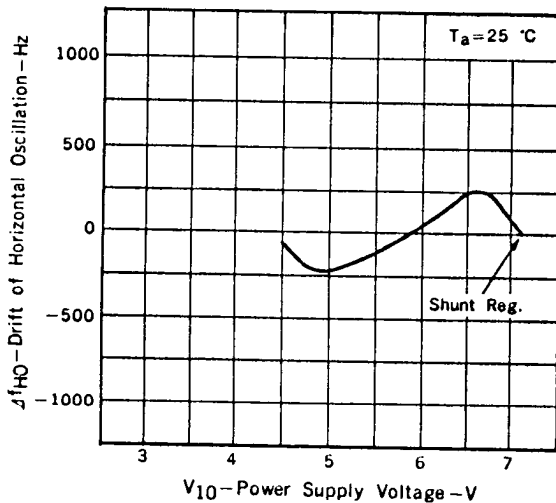


DRIFT OF VERTICAL MIDDLE VOLTAGE AGAINST POWER SUPPLY VOLTAGE

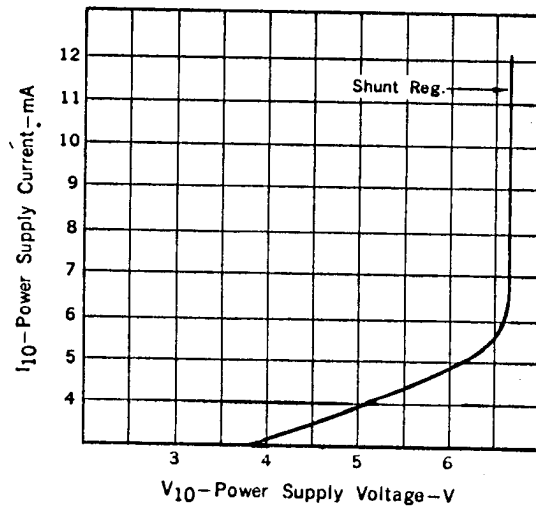


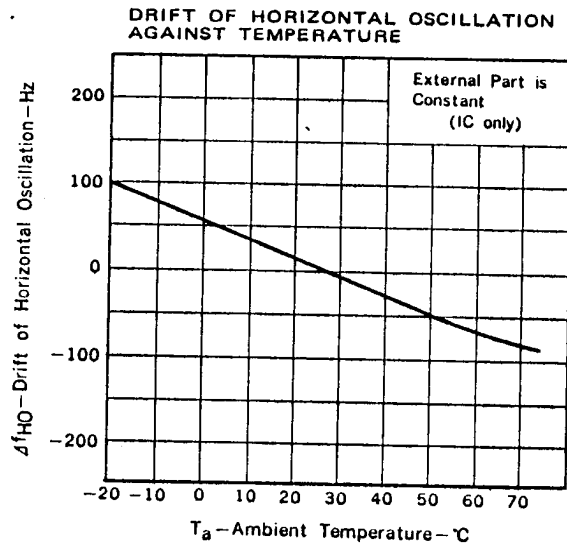
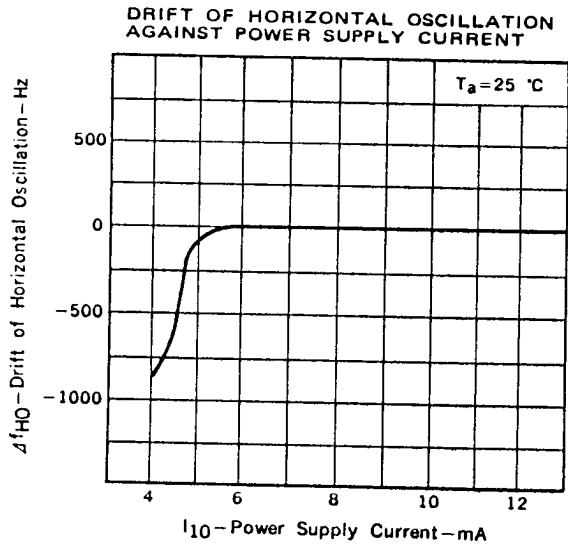
2. Horizontal part

DRIFT OF HORIZONTAL OSCILLATION AGAINST POWER SUPPLY VOLTAGE



HORIZONTAL POWER SUPPLY CURRENT VERSUS VOLTAGE





3.  $P_D - T_a$  Characteristic

