

# BIPOLAR ANALOG INTEGRATED CIRCUIT

## <sup>997727</sup> $\mu$ 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.

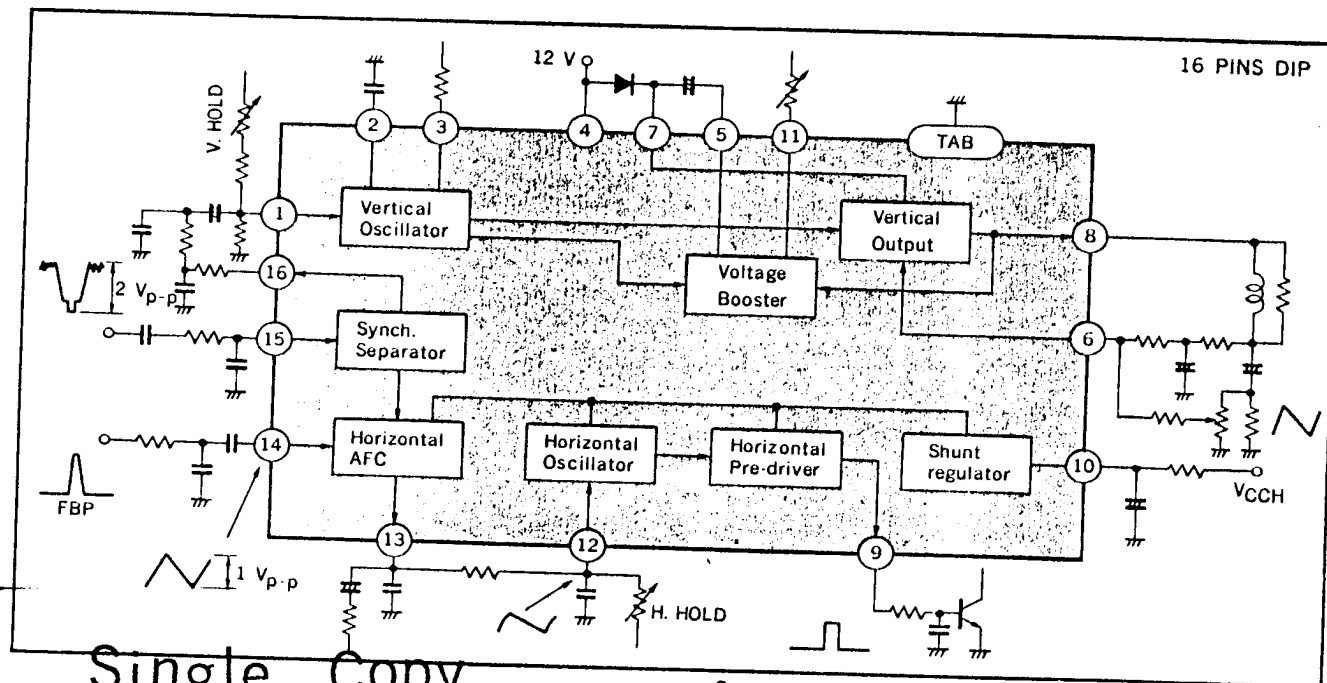
The package has a tab attaching to the end.

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

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orig

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Handle With Care

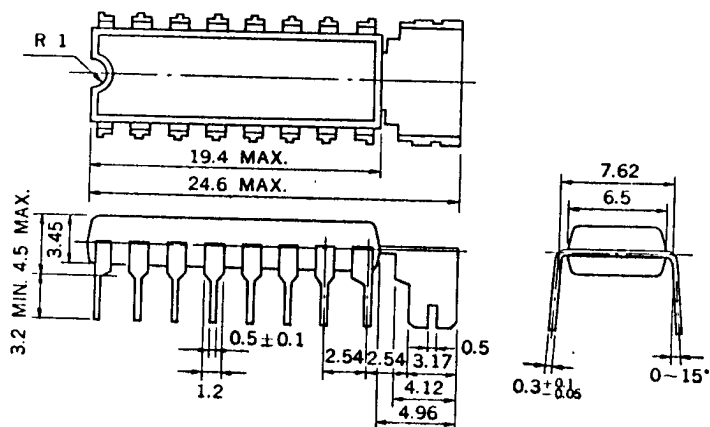
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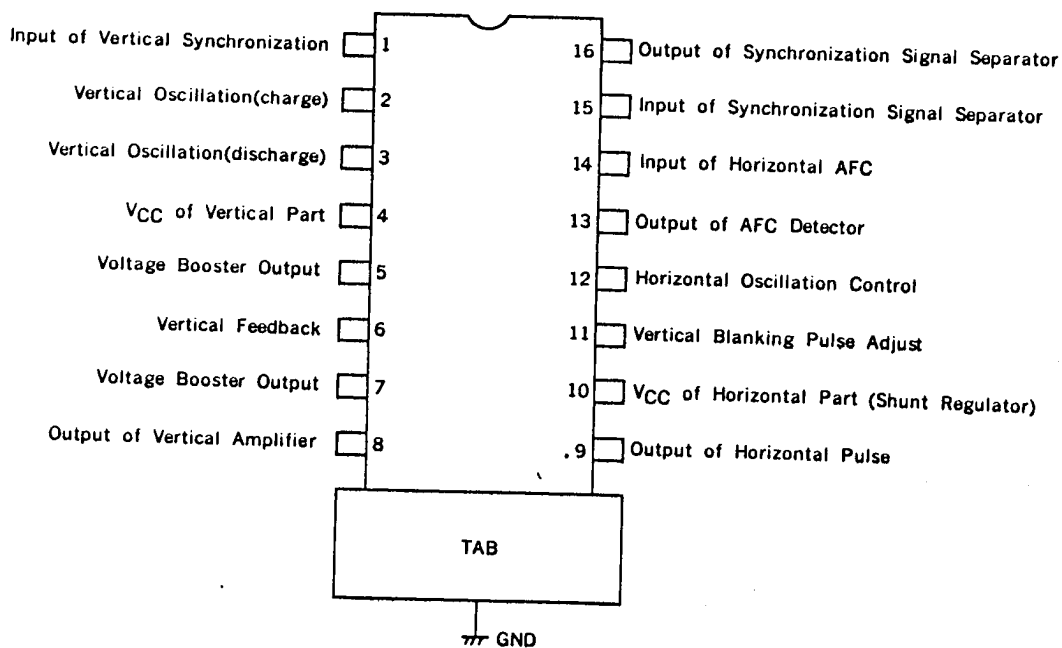
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Nippon Electric Co., Ltd.

## PACKAGE DIMENSIONS (Unit : mm)



## CONNECTION DIAGRAM (Top View)



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

(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	$V_4$	15	V
Power Supply Current for Horizontal Part	$I_{10}$	30	mA
Video Input Voltage	$V_{15}$	$V_4$	V
Synch Output Current	$I_{16}$	−10 to +10	mA
Voltage Booster Charge Voltage	$V_{11}$	$V_4$	V
Booster Output Current	$I_5$	−500 to +150	mA <sub>peak</sub>
Deflection Current	$I_8$	−500 to +150	mA <sub>peak</sub>
Vertical Feedback Voltage	$V_6$	$V_4$	V
AFC Input Voltage	$V_{14}$	$V_{10}$	V
Horizontal Output Current (Pulse)	$I_9$	−5 to +5	mA
Power Dissipation	$P_D$	1.3 ( $T_{\text{tab}} = 98^\circ\text{C}$ )	W
Thermal Resistance (J-tab)	$R_{\text{th(j-tab)}}$	40 ( $T_{\text{tab}} = 25^\circ\text{C}$ )	$^\circ\text{C/W}$
Thermal Resistance (J-a)	$R_{\text{th(j-a)}}$	70 ( $T_a = 25^\circ\text{C}$ )	$^\circ\text{C/W}$
Operating Temperature	$T_{\text{opt}}$	−20 to +75	$^\circ\text{C}$
Storage Temperature	$T_{\text{stg}}$	−40 to +150	$^\circ\text{C}$

## RECOMMENDED OPERATING CONDITIONS

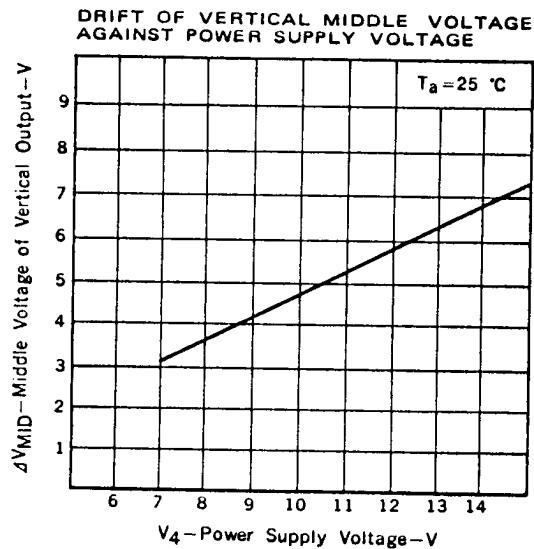
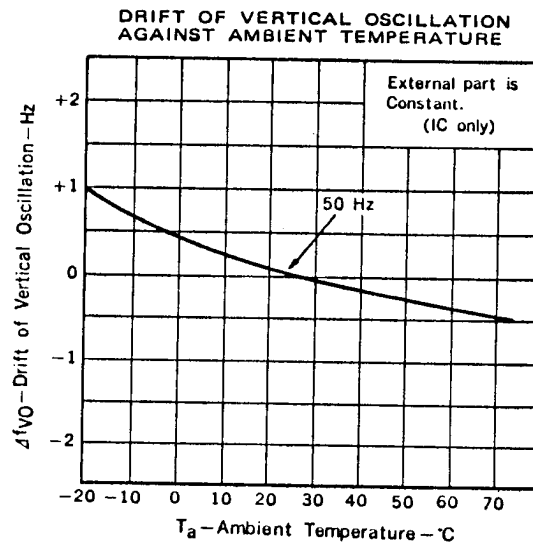
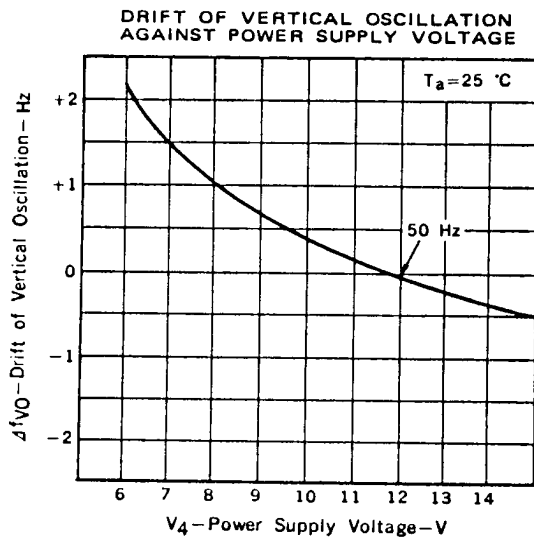
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Power Supply Voltage for the Vertical Part	$V_4$	9.6	12	14.4	V
Deflection Current	$I_{\text{DEF}}$	400	500	600	mA <sub>p-p</sub>
Power Supply Current for Horizontal Part	$I_{10}$	6.5	12	18	mA

ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ ,  $V_4 = 12\text{ V}$ ,  $I_{\text{DEF}} = 500\text{ mA}_{\text{p-p}}$ ,  $I_{10} = 12\text{ mA}$ )

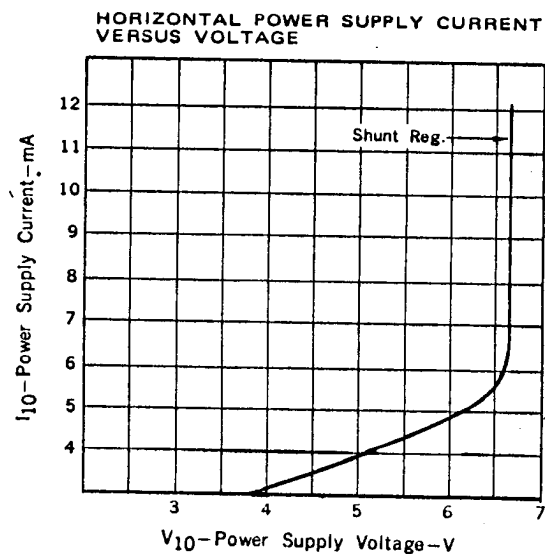
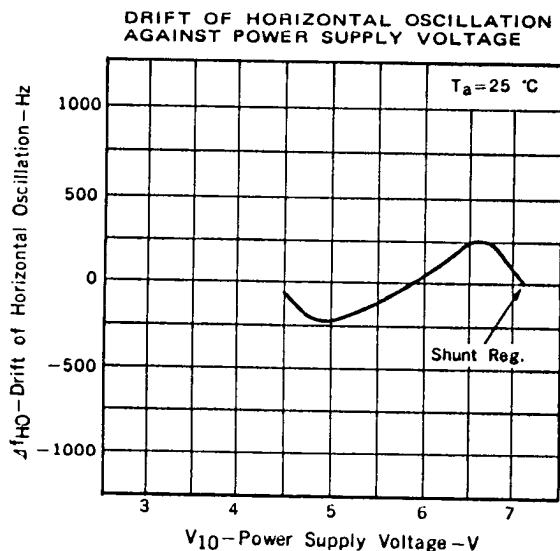
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Power Supply Current for Vertical Part	$I_{4(1)}$		85	100	mA	standard circuit
Power Supply Current for Vertical Part	$I_{4(2)}$	6	12	20	mA	standard circuit (Idling Current)
Vertical Free-running Frequency	$f_{\text{VO}}$	46	50	54	Hz	standard circuit
Drift of Vertical Free-running Frequency	$\Delta f_{\text{VO}}(V_{\text{CC}})$		0.8	2.0	Hz	$\Delta f_{\text{VO}}(V_{\text{CC}}) =  f_{\text{VO}}(9.6\text{ V}) - f_{\text{VO}}(14.4\text{ V}) $
Drift of Vertical Free-running Frequency	$\Delta f_{\text{VO}}(T_a)$		1.5	2.0	Hz	$\Delta f_{\text{VO}}(T_a) =  f_{\text{VO}}(-20^\circ\text{C}) - f_{\text{VO}}(+75^\circ\text{C}) $
Vertical Synchronizing Capture Frequency	$f_{\text{PV}}$	47	50		Hz	$f_{\text{V(in)}} = 60\text{ Hz}$
Middle Voltage of Vertical Output	$V_{\text{MID}}$	5.3	5.8	6.3	V	standard circuit
Flyback Pulse Peak Voltage	$\text{RPV}$	20	23	26	V	standard circuit
Flyback Pulse Width	$\text{RPW}$	790	850	910	$\mu\text{s}$	standard circuit
Deflection Current	$I_{\text{DEF}}$	450	500	550	mA <sub>p-p</sub>	standard circuit
Supply Voltage for Horizontal Part	$V_{10}$	6.2	6.7	7.2	V	$I_{10} = 12\text{ mA}$
Horizontal Free-running Frequency	$f_{\text{HO}}$	15.0	15.75	16.5	kHz	standard circuit
Drift of Horizontal Free-running Frequency	$\Delta f_{\text{HO}}(T_a)$		190	250	Hz	$\Delta f_{\text{HO}}(T_a) =  f_{\text{HO}}(-20^\circ\text{C}) - f_{\text{HO}}(+75^\circ\text{C}) $
Horizontal Output Pulse Width	$\text{PWH}$	23	25	27	$\mu\text{s}$	standard circuit
Horizontal Output Current	$I_9$	0.8	1.3	2.0	mA	standard circuit
Horizontal Synchronizing Capture Freq.	$f_{\text{PH}}$	$\pm 650$	$\pm 900$	$\pm 1150$	Hz	standard circuit
Horizontal AFC Output Current	$I_{13}$	0.28	0.45	0.74	mA	standard circuit
Gain of AFC Detector	$\mu$	89	143	236	$\mu\text{A/rad}$	standard circuit
Efficiency of Horizontal Oscillation Control	$\beta$	66	72	78	Hz/ $\mu\text{A}$	standard circuit

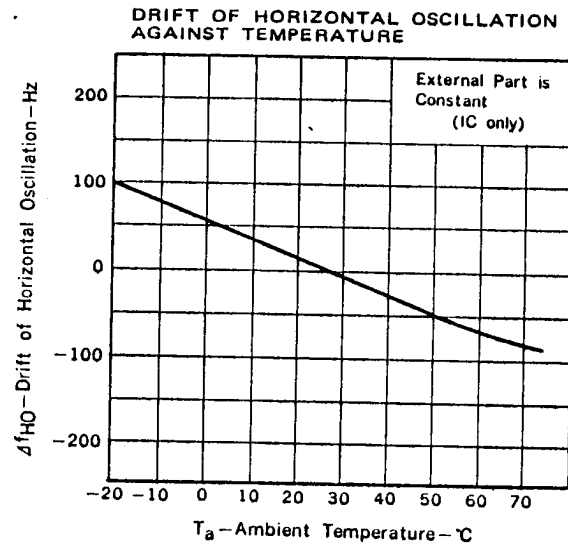
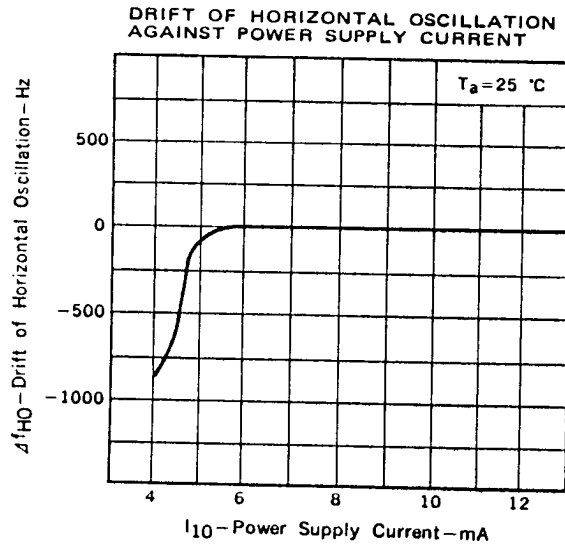
TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

1. Vertical part

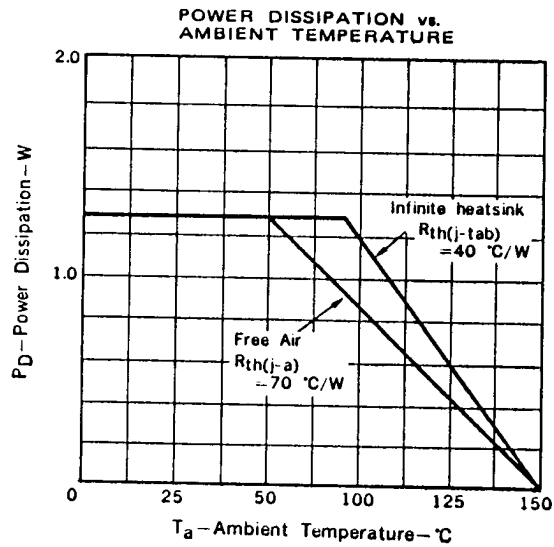


2. Horizontal part





### 3. $P_D - T_a$ Characteristic



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IN-1481  
DEC.-20-82M  
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