

BIPOLAR ANALOG INTEGRATED CIRCUIT

⁹⁹⁷⁷²⁷ μ PC1379C

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

μ 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.

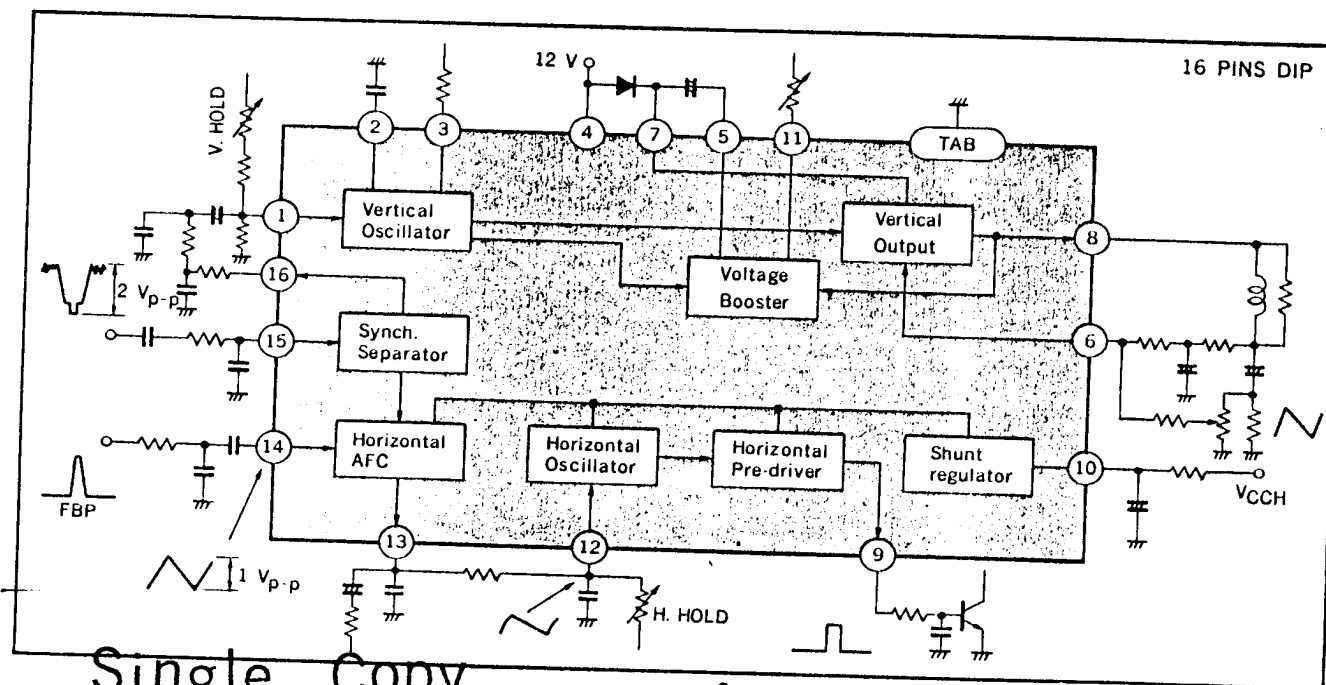
The package has a tab attaching to the end.

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

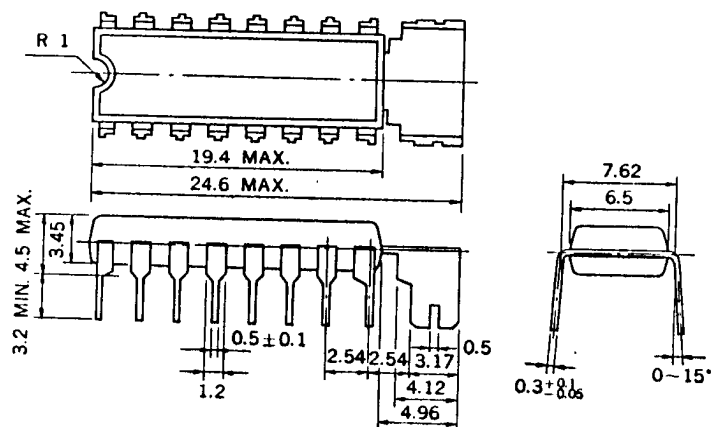
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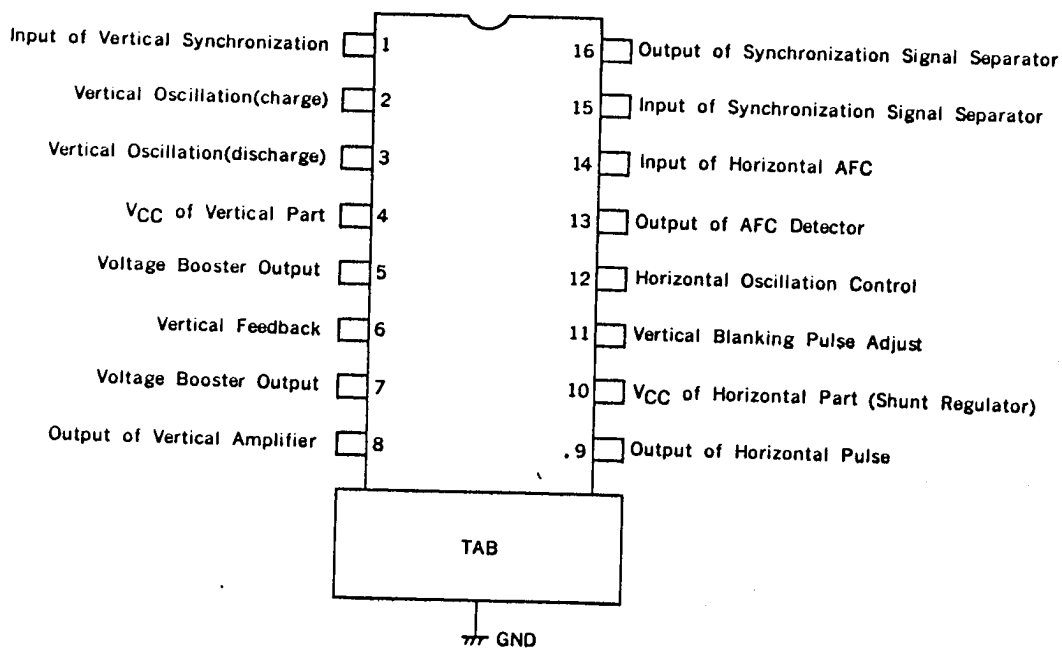
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Nippon Electric Co., Ltd.

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 _{peak}
Deflection Current	I_8	−500 to +150	mA _{peak}
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_{opt}	−20 to +75	$^\circ\text{C}$
Storage Temperature	T_{stg}	−40 to +150	$^\circ\text{C}$

RECOMMENDED OPERATING CONDITIONS

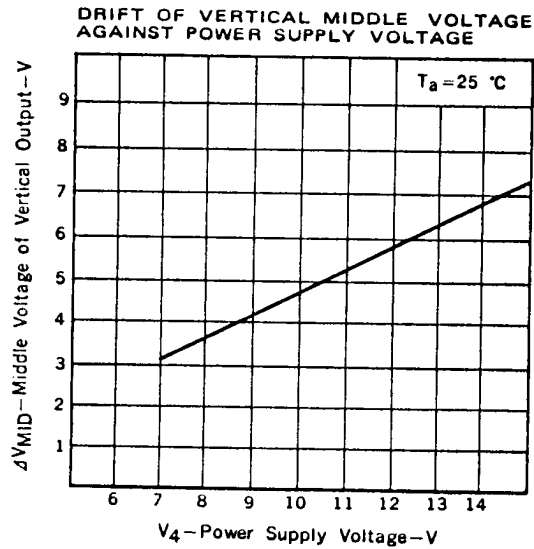
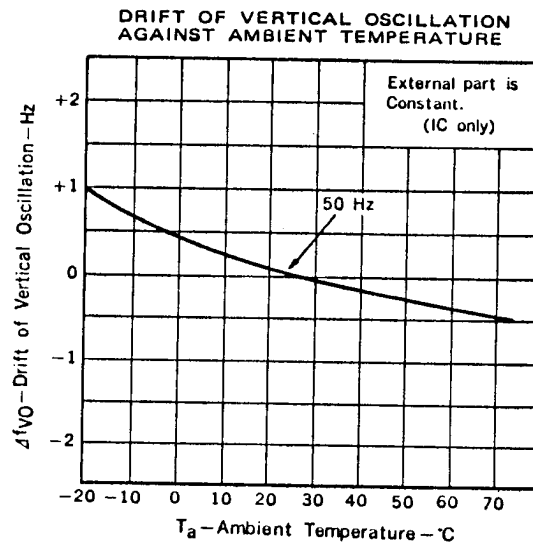
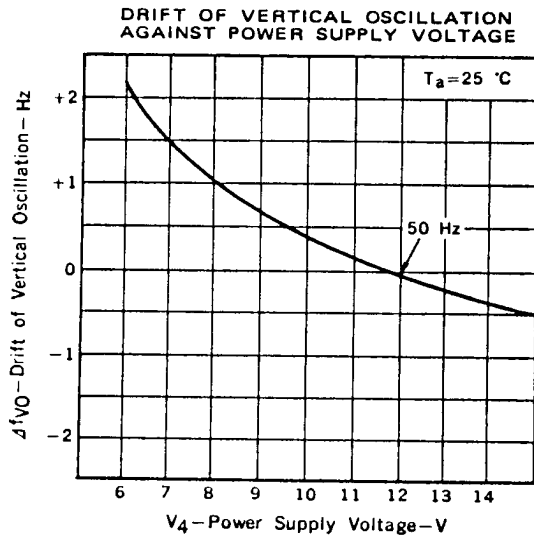
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Power Supply Voltage for the Vertical Part	V_4	9.6	12	14.4	V
Deflection Current	I_{DEF}	400	500	600	mA _{p-p}
Power Supply Current for Horizontal Part	I_{10}	6.5	12	18	mA

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

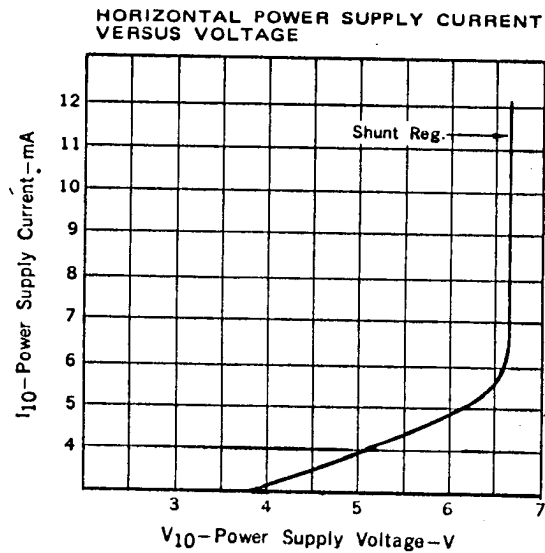
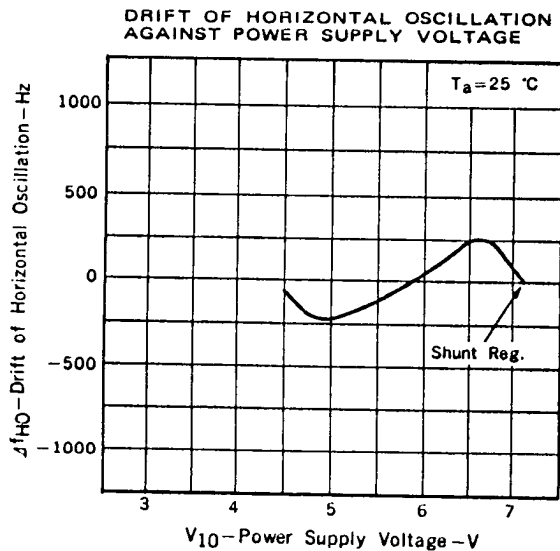
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Power Supply Current for Vertical Part	$I_{4(1)}$		85	100	mA	standard circuit
Power Supply Current for Vertical Part	$I_{4(2)}$	6	12	20	mA	standard circuit (Idling Current)
Vertical Free-running Frequency	f_{VO}	46	50	54	Hz	standard circuit
Drift of 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_{PV}	47	50		Hz	$f_{\text{V(in)}} = 60\text{ Hz}$
Middle Voltage of Vertical Output	V_{MID}	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_{DEF}	450	500	550	mA _{p-p}	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_{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	PWH	23	25	27	μs	standard circuit
Horizontal Output Current	I_9	0.8	1.3	2.0	mA	standard circuit
Horizontal Synchronizing Capture Freq.	f_{PH}	± 650	± 900	± 1150	Hz	standard circuit
Horizontal AFC Output Current	I_{13}	0.28	0.45	0.74	mA	standard circuit
Gain of AFC Detector	μ	89	143	236	$\mu\text{A/rad}$	standard circuit
Efficiency of Horizontal Oscillation Control	β	66	72	78	Hz/ μA	standard circuit

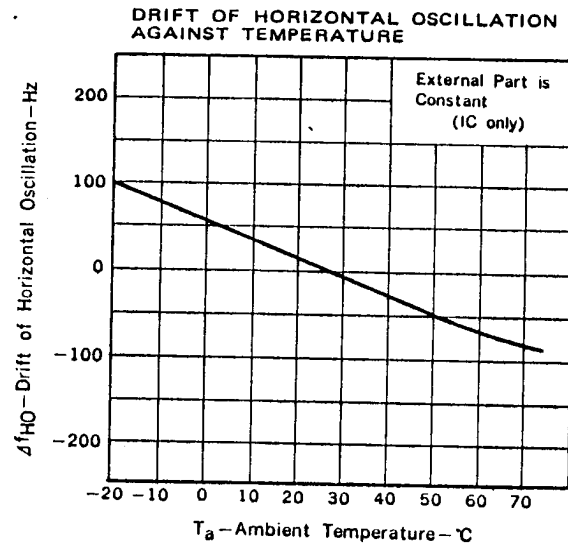
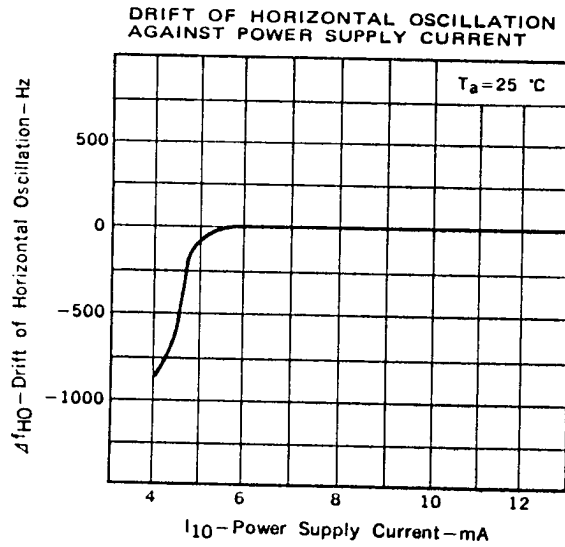
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

1. Vertical part

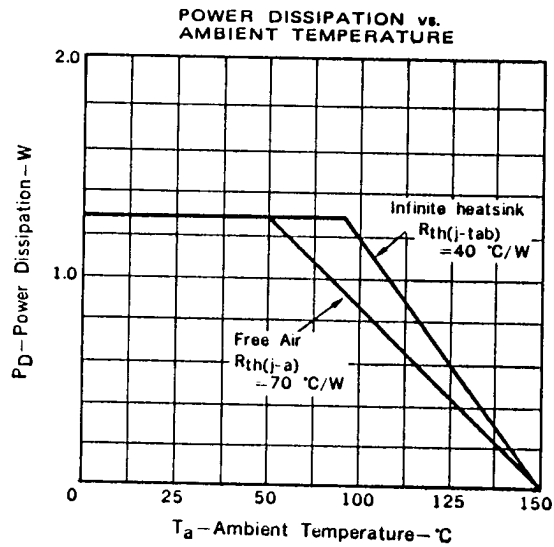


2. Horizontal part





3. $P_D - T_a$ Characteristic



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NEC Building, 33-1, Shiba Gochome, Minato-ku, Tokyo 108, Japan
Tel: Tokyo 454-1111
Telex Address: NECTOK J22686
Cable Address: MICROPHONE TOKYO

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