

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.

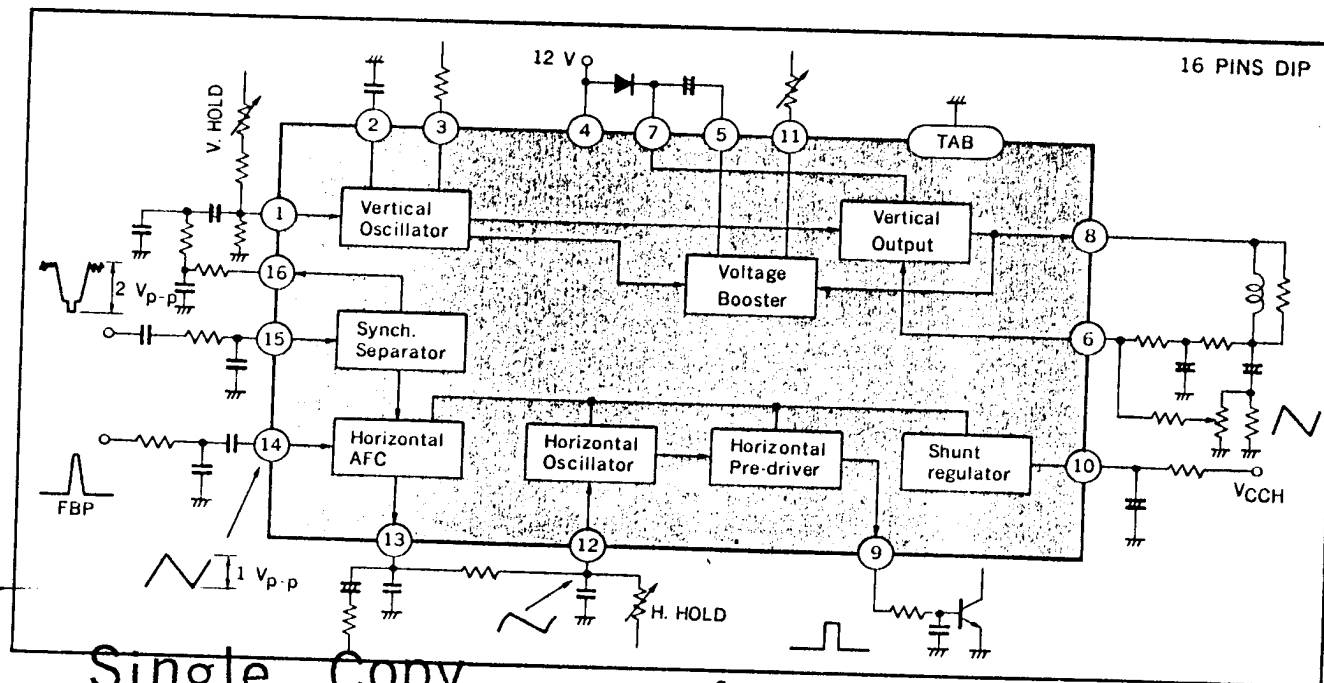
The package has a tab attaching to the end.

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

62

unres

orig

006104

Handle With Care

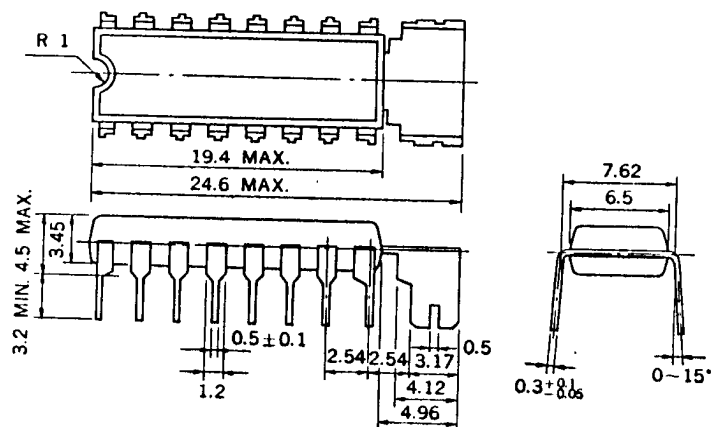
6104

NEC

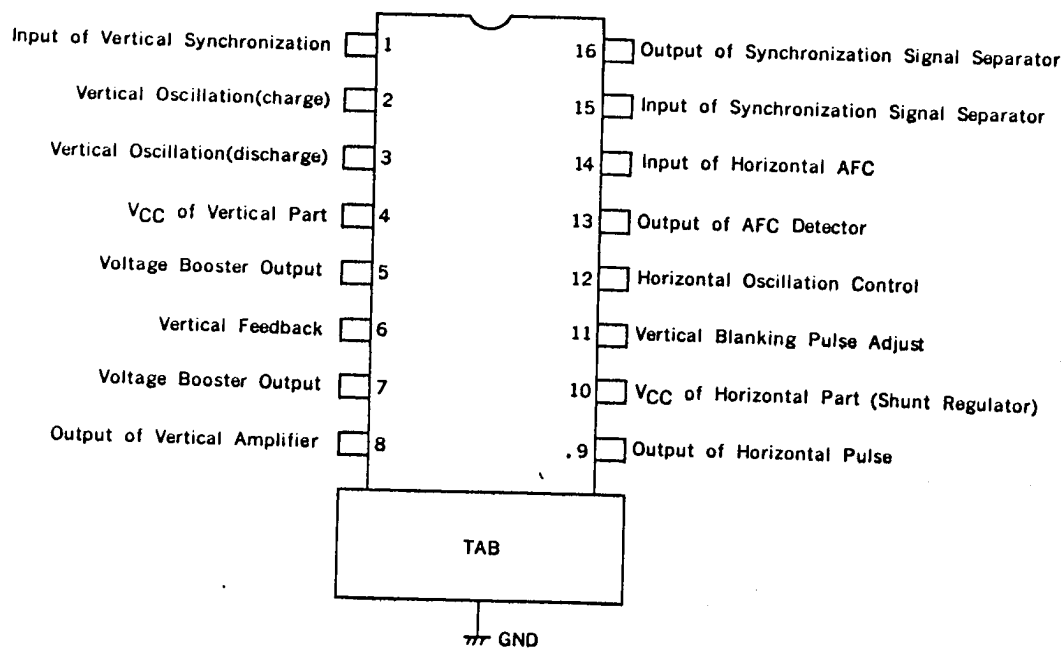
NEC cannot assume any responsibility for any circuits shown or represent that they are free from patent infringement.

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

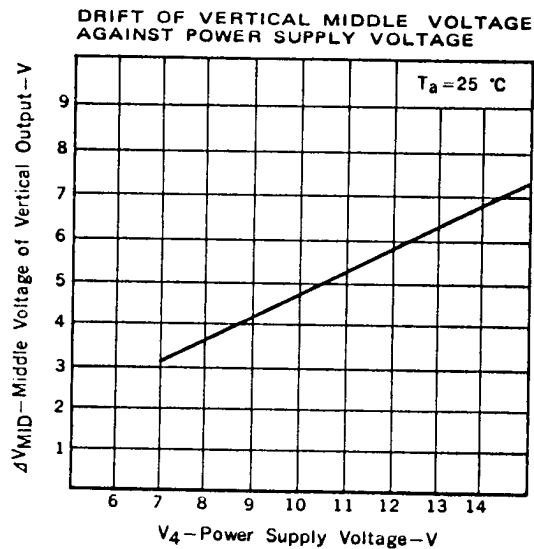
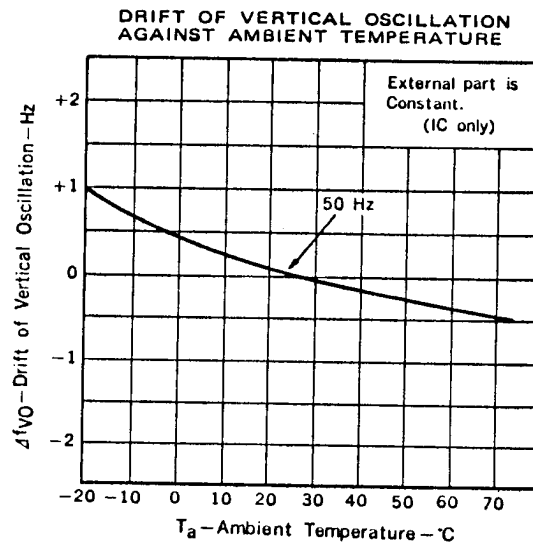
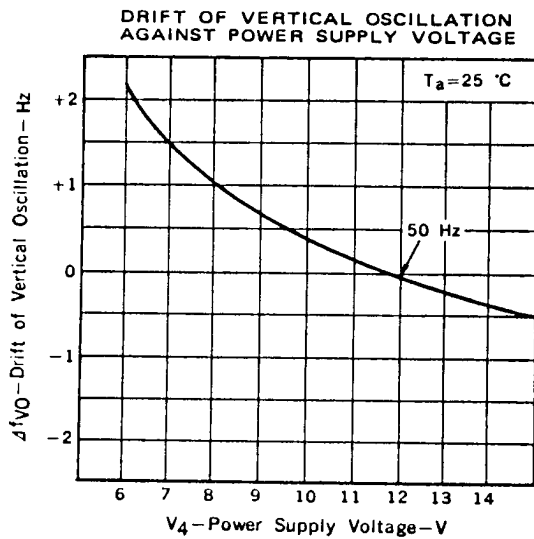
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Power Supply Voltage for the Vertical Part	V_4	9.6	12	14.4	V
Deflection Current	I_{DEF}	400	500	600	mA _{p-p}
Power Supply Current for Horizontal Part	I_{10}	6.5	12	18	mA

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

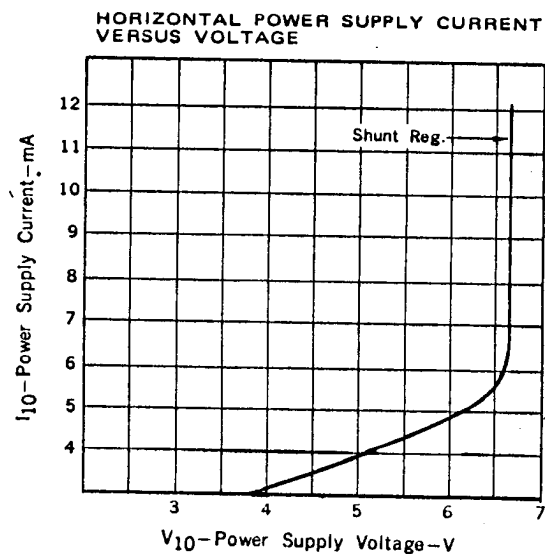
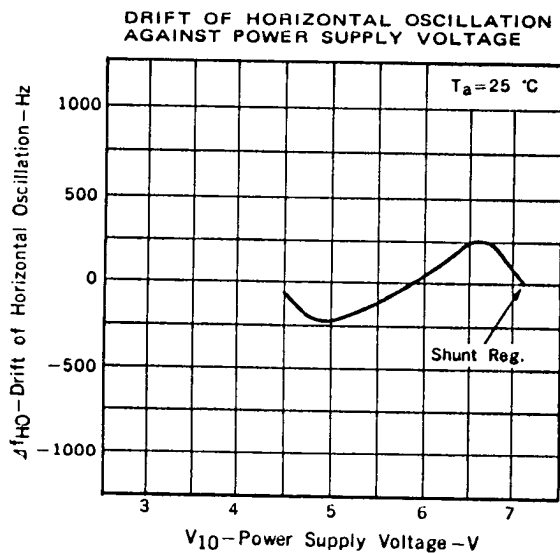
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Power Supply Current for Vertical Part	$I_{4(1)}$		85	100	mA	standard circuit
Power Supply Current for Vertical Part	$I_{4(2)}$	6	12	20	mA	standard circuit (Idling Current)
Vertical Free-running Frequency	f_{VO}	46	50	54	Hz	standard circuit
Drift of 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

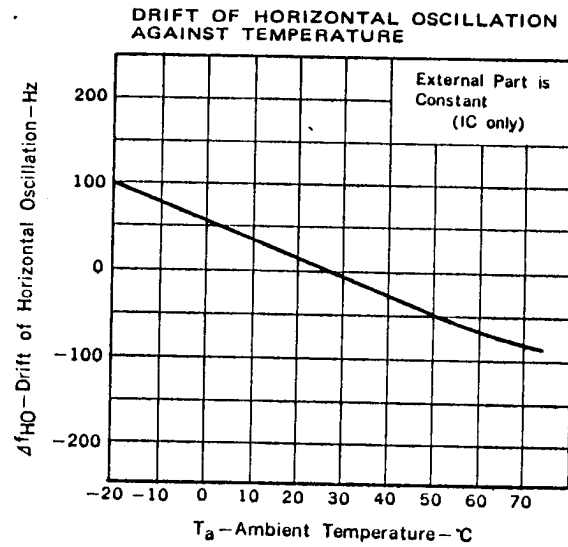
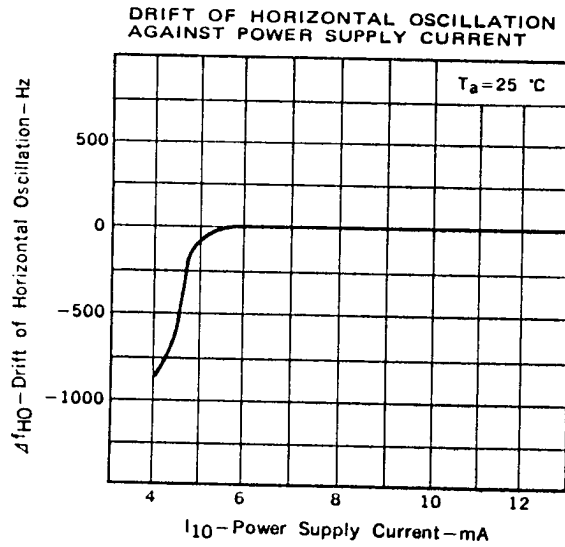
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

1. Vertical part

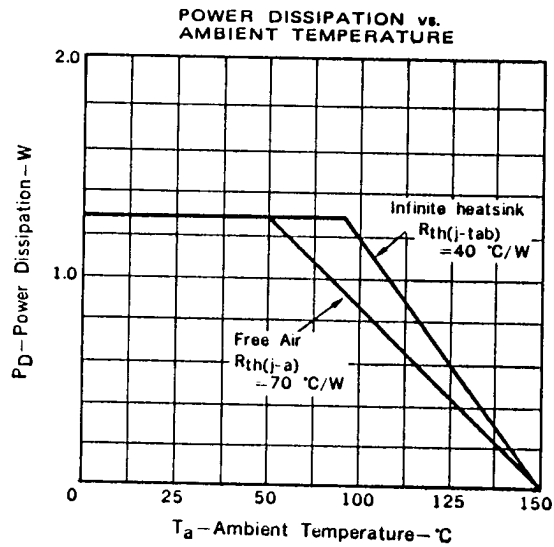


2. Horizontal part

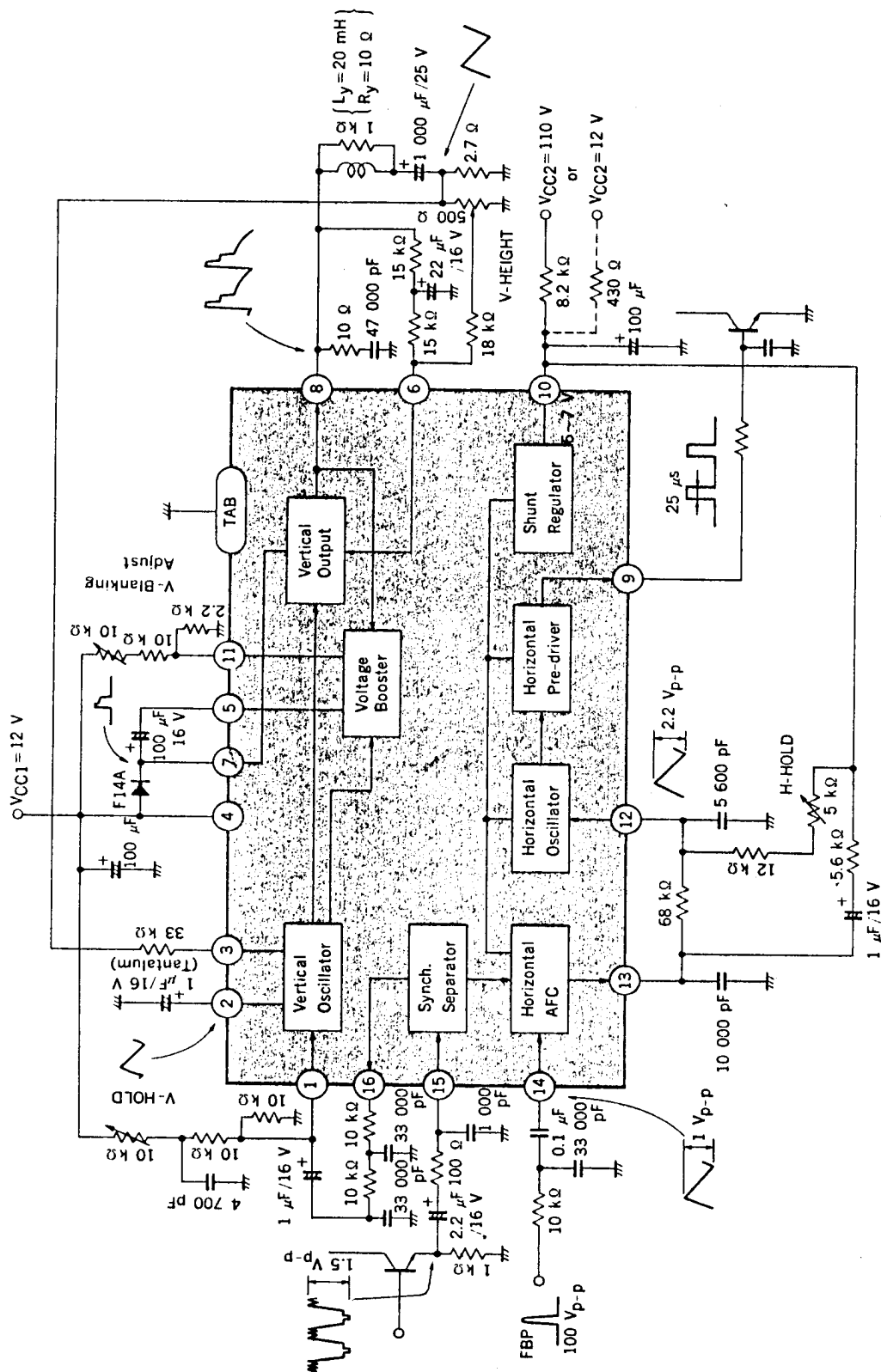




3. $P_D - T_a$ Characteristic



APPLICATION CIRCUIT



Nippon Electric Co., Ltd.

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

IN-1481
 DEC.-20-82M
 Printed in Japan