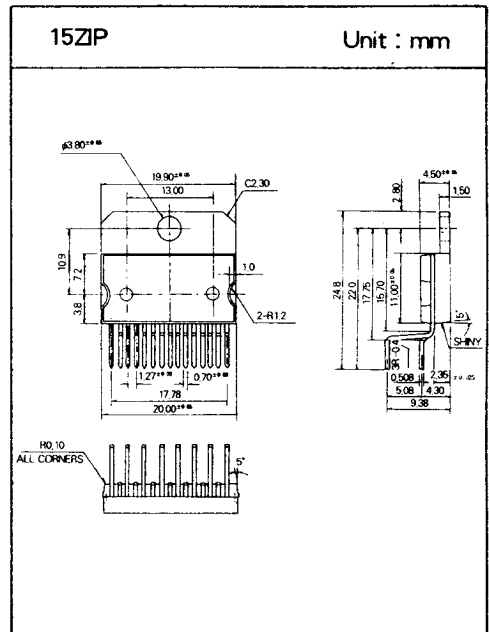


DBL 2054-D

ONE CHIP VERTICAL DEFLECTION OUTPUT CIRCUIT

The DBL 2054-D is a monolithic integrated circuit containing the vertical deflection output circuit. This housed in a 15pin plastic molded ZIP/HS



FUNCTIONS

- Blanking pulses and Flyback generator
- CRT Screen and Thermal shut down protection
- Synchronization circuit
- Precision oscillator and Ramp generator
- Voltage regulator
- Power output Amp. with high current capability

USE

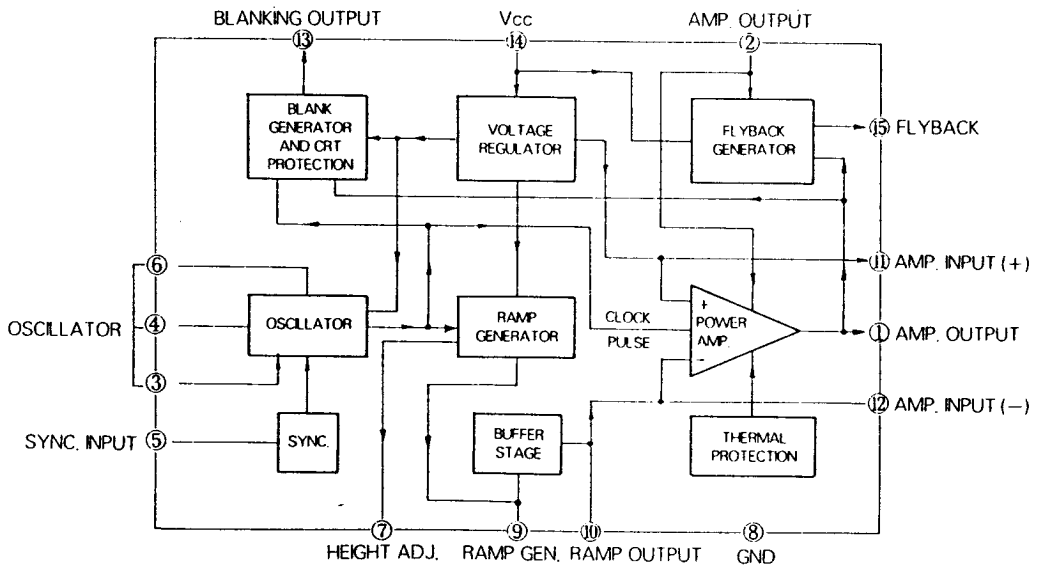
- C-TVs, B/W TVs, Monitors and Displays

DBL 2054-D

MAXIMUM RATINGS (Ta=25°C)

Characteristic	Symbol	Rating	Unit
Supply Voltage	V _{cc}	35	V
Circuit Voltage	V ₁ , V ₂	65	V _{p-p}
	V ₅	20	V
	V ₁₁ , V ₁₂	V _{cc} -10	V
	V ₁₃	V _{cc}	V
Output Current	I _o (t=2ms)	3	A
Circuit Current	I _o (t>10 μs)	2	Ap-p
	I _o (t≤10 μs)	3.5	Ap-p
	I _o (t _{fly} ≤1.5ms)	3	Ap-p
	I ₁₅ (DC)	100	mA
Power Dissipation	P _D	30	W
Storage and Junction Temp.	T _{stg} , T _j	-40~150	°C
Thermal Resistance	R _{th(j-c)}	3	°C/W
	R _{th(j-a)}	40	°C/W

BLOCK DIAGRAM



DBL 2054-D

□ ELECTRICAL CHARACTERISTICS

1. DC (Unless otherwise specified, $T_a=25^\circ\text{C}$; $V_{cc}=35\text{V}$)

Characteristic	Symbol	Test Circuit	Test Condition	Min.	Typ.	Max.	Unit
Quiescent current	I_2	1-b	$I_1=0$	—	16	36	mA
Ramp generator bias current	$-I_9$	1-b	$V_9=0$	—	0.02	1	μA
Ramp generator current	$-I_9$	1-b	$V_9=0, -I_7=20\mu\text{A}$	18.5	2.0	21.5	μA
Ramp generator nonlinearity	$\frac{ \Delta I_9 }{I_9}$	1-b	$\Delta V_9=0\sim 15\text{V}$ $-I_7=20\mu\text{A}$	—	0.2	1	%
Quiescent Current	I_{14}	1-b	—	—	25	45	mA
Quiescent output voltage	V_1	1-a	$V_{cc}=35\text{V},$ $R_a=2.2\text{K}\Omega$ $R_b=1\text{K}\Omega$	16.4	17.8	19.5	V
			$V_{cc}=15\text{V},$ $R_a=390\Omega$ $R_b=1\text{K}\Omega$	6.9	7.5	8.1	
Quiescent output voltage	V_{L1}	1-c	$I_1=1.2\text{A}$	—	1	1.4	V
	V_{H1}	1-d	$-I_2=1.2\text{A}$	—	1.6	2.2	
Oscillator virtual ground	V_4	1-b	—	—	0.45	—	V
Regulated voltage	V_7	1-b	$-I_7=20\mu\text{A}$	6.3	6.6	7	V
Regulated voltage drift	$\frac{\Delta V_7}{\Delta V_{cc}}$	1-b	$\Delta V_{cc}=15\sim 35\text{V}$	—	1	2	mV/V
Amp. input(+) reference voltage	V_{11}	1-b	—	4.1	4.4	4.7	V
Blanking output saturation voltage	V_{13}	1-a	$I_{13}=10\text{mA}$	—	0.35	0.5	V
Saturation voltage (to GND)	V_{15}	1-a	$I_{15}=20\text{mA}$	—	1	1.5	V

DBL 2054-D

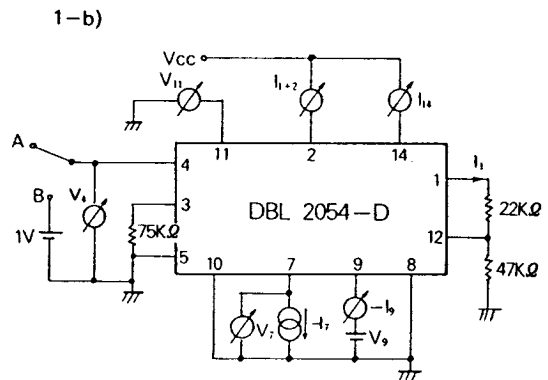
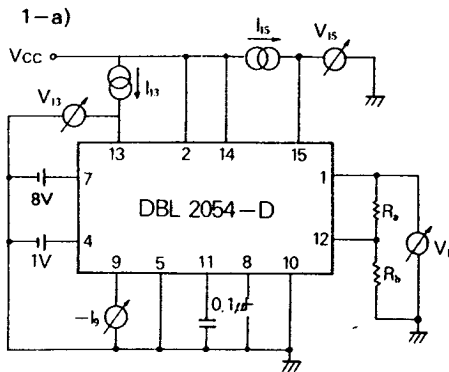
ELECTRICAL CHARACTERISTICS(Continued)

2. AC(Unless otherwise specified, $T_a=25^\circ\text{C}$, $V_{cc}=24\text{V}$, $f=50\text{Hz}$)

Characteristic	Symbol	Test Circuit	Test Condition	Min.	Typ.	Max.	Unit
Supply current	I_{cc}	2	$I_v=2A_{p-p}$	260	295	330	mA
Sync input current	I_s		—	100	—	—	μA
Flyback voltage	V_1		$I_v=2A_{p-p}$	49	50	51	V
Oscillator sawtooth Voltage	V_3		$I_s=0$	3.1	3.6	4.1	V
			$I_s=100\mu\text{A}$	3.0	3.4	3.8	
Start scan level	$V_{10TH(L)}$		—	1.6	1.85	2.0	V
Flyback time	T_{fv}		$I_v=2A_{p-p}$	—	0.6	0.8	ms
Blanking pulse duration	T_B		$f_o=50\text{Hz}$ $T_j=75^\circ\text{C}$	1.33	1.4	1.47	ms
			$f_o=60\text{Hz}$ $T_j=75^\circ\text{C}$	—	1.17	—	
Free running frequency	f_o		$R_o=7.5K\Omega$ $C_o=330\text{nF}$ $T_j=75^\circ\text{C}$	42	43.5	46	Hz
			$R_o=6.5K\Omega$ $C_o=330\text{nF}$ $T_j=75^\circ\text{C}$	50	52.5	55	
Synchronization range	Δf		$I_s=100\mu\text{A}$ $T_j=75^\circ\text{C}$	14	18	—	Hz
Junction Temp.	T_j		—	—	165	—	$^\circ\text{C}$
Output noise	V_{on}		—	—	—	35	mVp-p

TEST CIRCUIT

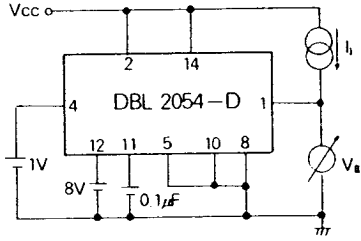
1. DC Characteristic



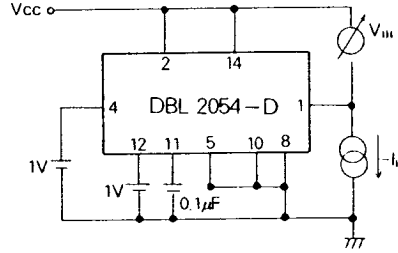
DBL 2054-D

□ TEST CIRCUIT (Continued)

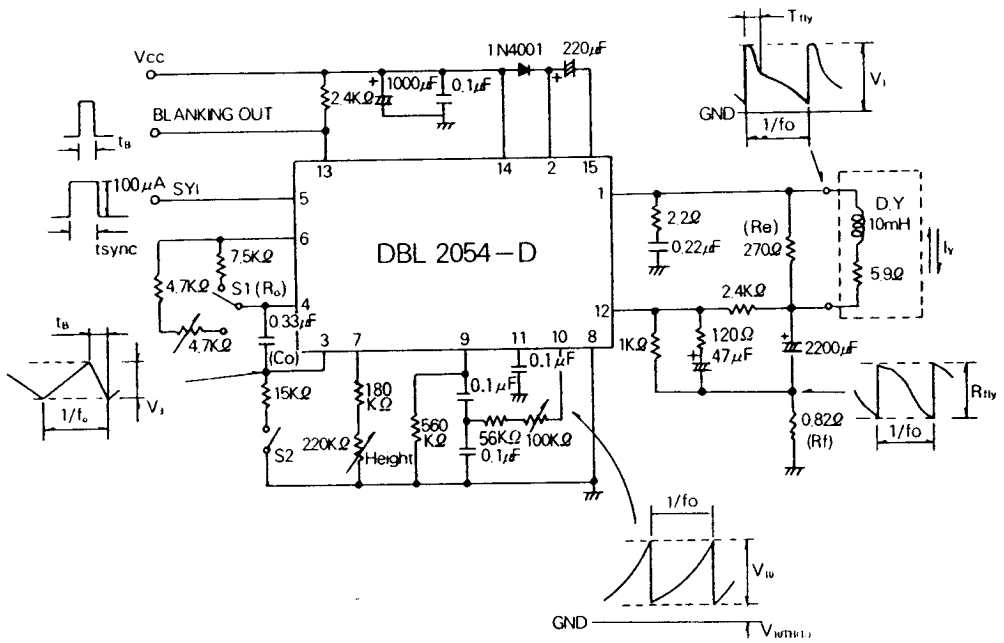
1-c)



1-d)

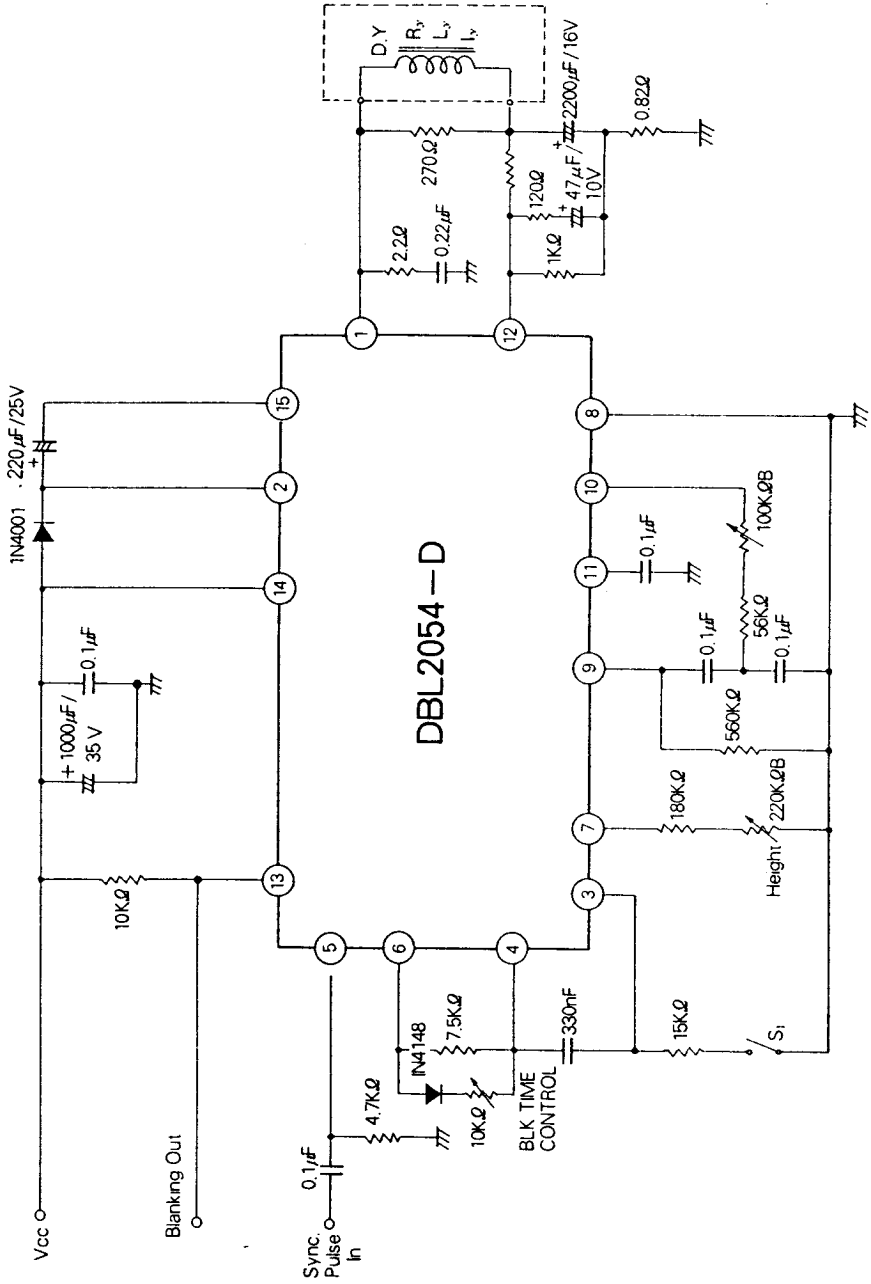


2. AC Characteristic



DBL 2054-D

APPLICATION CIRCUIT



Note) The value depends on the characteristics of the CRT

DBL 2054-D

□ TYPICAL PERFORMANCE CHARACTERISTICS

