INTEGRATED CIRCUIT

TECHNICAL DATA

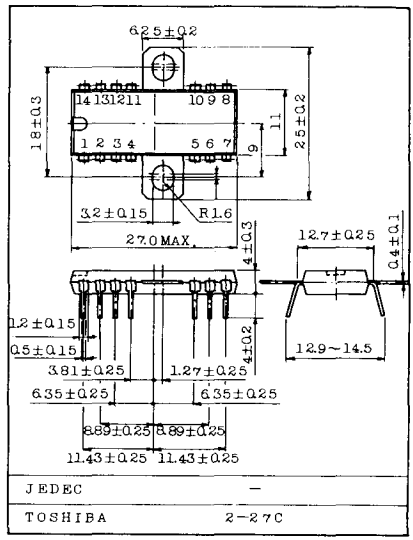
TA7243P

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT

SILICON MONOLITHIC

TENTATIVE

Unit in mm



TV SOUND IF AND AUDIO OUTPUT SUBSYSTEM

The TA7243P combines the sound IF and audio Output Subsystem on a single monolithic integrated circuit to provide a Television Sound System.

This device includes a multistage IF amplifier-limiter, and FM detector with electronic volume control, and an audio power amplifier that is designed to drive an 8, 16, 32Ω speaker.

FEATURES

- Nominal Power Output : 3W
- Power Amplifier with Current Limiting and Thermal Shutdown.
- Wide Power Supply Range : 16V to 30V
- Low Quiescent Current : 33mA Typ.
- Limiting Sensitivity : 300μV Typ.
- Excellent AM Rejection : 50dB Typ.
- Differential Peak Detector-Requires One Tuned Coil
- Optional Unattenuated Audio Output
- Optional Power Supply Ripple By-pass

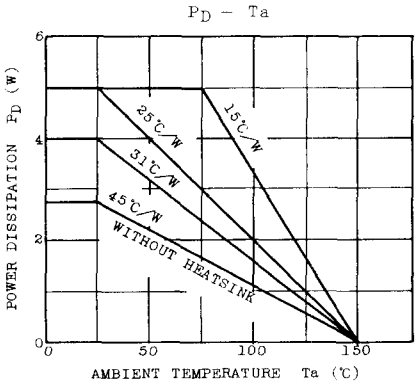
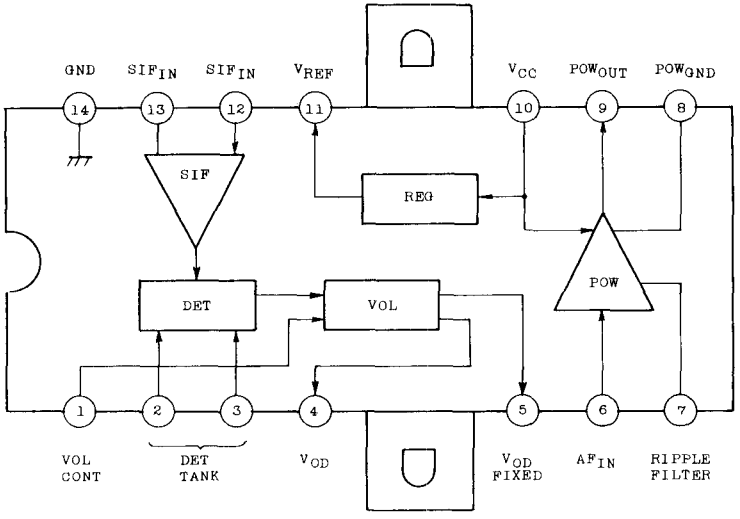


Fig. 1 TA7243P BLOCK DIAGRAM



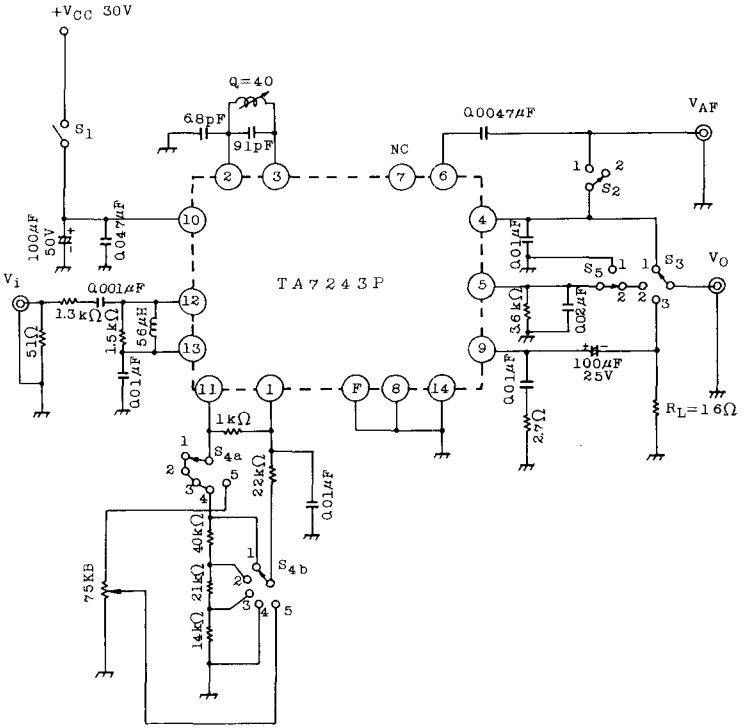
MAXIMUM RATINGS ($Ta=25^{\circ}C$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	33	V
Input Signal Level	e_{in}	±3	V
Power Dissipation ($Ta=75^{\circ}C$) with Infinite Heatsink	P_D	5.0	W
Operating Temperature	T_{opr}	-20 ~ 75	$^{\circ}C$
Storage Temperature	T_{stg}	-20 ~ 150	$^{\circ}C$

ELECTRICAL CHARACTERISTICS ($Ta=25^{\circ}C$, $V_{CC}=30V$, Reffer to Test Circuit)

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_{CCQ}	2	$P_o=0$	15	33	50	mA
Detector Output Voltage (Pin 4)	V_{OD4}	2	Note 1	-	0.45	1.4	V_{rms}
Total Harmonic Distortion (Pin 4)	THD4	2	Note 1	-	0.8	2.0	%
Detector Output Voltage (Pin 5)	V_{OD5}	2	Note 2	-6	-1.5	-	dB
AM Rejection	AMR	2	Note 3	38	50	-	dB
Volume Control -20dB	ATT20	2	Note 4	-23	-20	-15	dB
Volume Control -40dB	ATT40	2	Note 4	-44	-40	-33	dB
Maximum Attenuation	ATT MAX	2	Note 4	-	-70	-	dB
Limitting Sensitivity	V_{lim}	2	Note 5	-	300	-	μV_{rms}
Audio Amplifier Voltage Gain	G_V	2	f=1kHz Pin 6 to Pin 9	-	35	-	dB
Power Output	P_o	2	f=1kHz, THD=10%	3	-	-	W
Refference Voltage	V_{ref}	2	Measure Pin 11	5.4	6.0	6.6	V

Fig.2 AC TEST CIRCUIT



Test temperature is 25°C at a supply voltage of 30±1 volts.
Switch S_1 is closed, S_2 in position "1", S_3 in position "3", and S_5 in position "1" unless otherwise specified.

Alignment Procedure

1. Remove input signal, set S_4 in position "1".
2. Read DC voltage on Pin 4.
3. Apply a 50mV$_{rms}$ 4.5MHz CW signal to input.
4. Adjust detector coil so the DC voltage on Pin 4 is equal to the voltage read in step 2.

Note 1

V_i: f=4.5MHz 25kHz deviation 400Hz 50mV$_{rms}$ at Pin 12.S_2 in position "2", S_3 in position "1".Measure V_O.

Note 2

V_i,S_2: Same as Note 1
S_3 in position "2", S_5 in position "2".Measure V_O

Note 3

Same as Note 1, measure V_O (V_{FM})
Then change modulation to 30% AM, measure V_O (V_{AM})
$AMR=20 \times \log (V_{FM}/V_{AM})$ (dB)

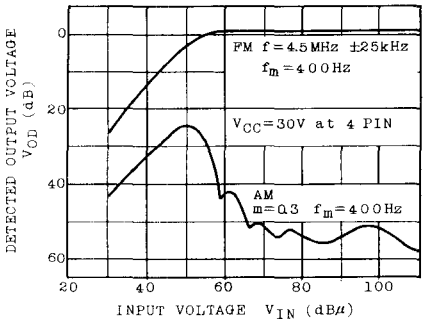
Note 4

Same as Note 1
Set S_4 in position "2", measure $V_{O(ATT2)}$
$ATT2O=20 \times \log (V_{O(ATT2)}/V_{OD})$ (dB)
Set S_4 in position "3", measure $V_{O(ATT3)}$
$ATT4O=20 \times \log (V_{O(ATT3)}/V_{OD})$ (dB)
Set S_4 in position "4", measure $V_{O(ATT4)}$
$ATT\ MAX=20 \times \log (V_{O(ATT4)}/V_{OD})$ (dB)

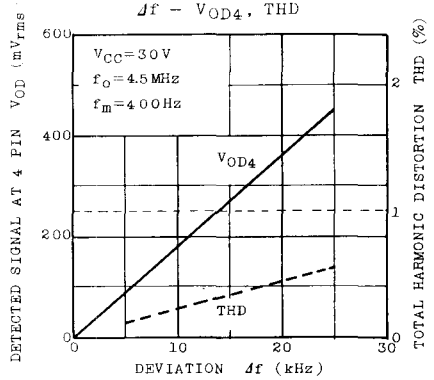
Note 5

Same as Note 1,then reduce input signal so that the output voltage on Pin 4 will be -3dB of the V_{OD4}. Measure signal level on Pin 12.

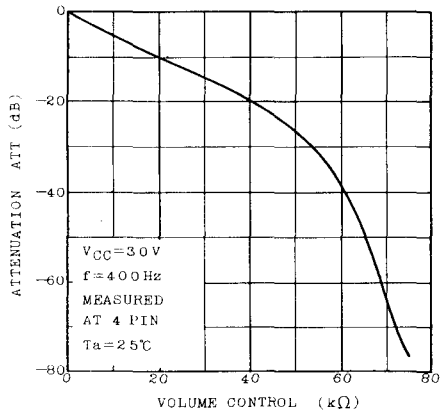
AMR CHARACTERISTICS



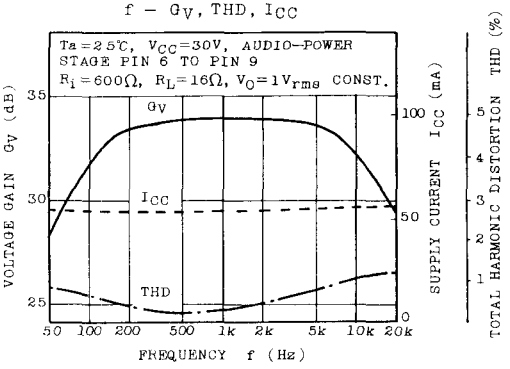
Δf – V_{OD4}, THD



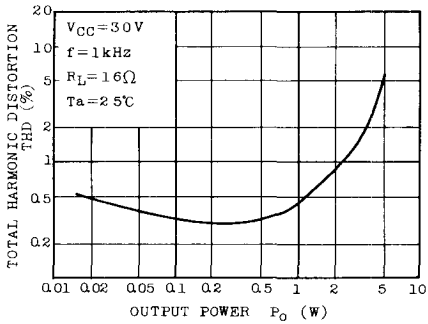
ELECTRONIC VOLUME CONTROL TYP



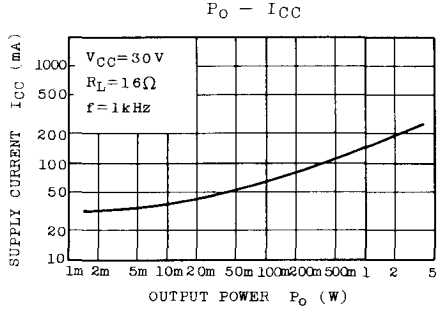
f – G_V, THD, I_{CC}



P_O – THD



P_O – I_{CC}



P_D, η – P_O