Toshiba **INTEGRATED CIRCUIT**

TECHNICAL DATA

TA7223P

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT

SILICON MONOLITHIC

AMPLIFIER SYSTEM

FOR CASSETTE TAPE RECORDER

- Recording, Playback for Pre-Amplifier
- Buffer Amplifier (Recording Output Amplifier)
- Power Amplifier
- Output Power :

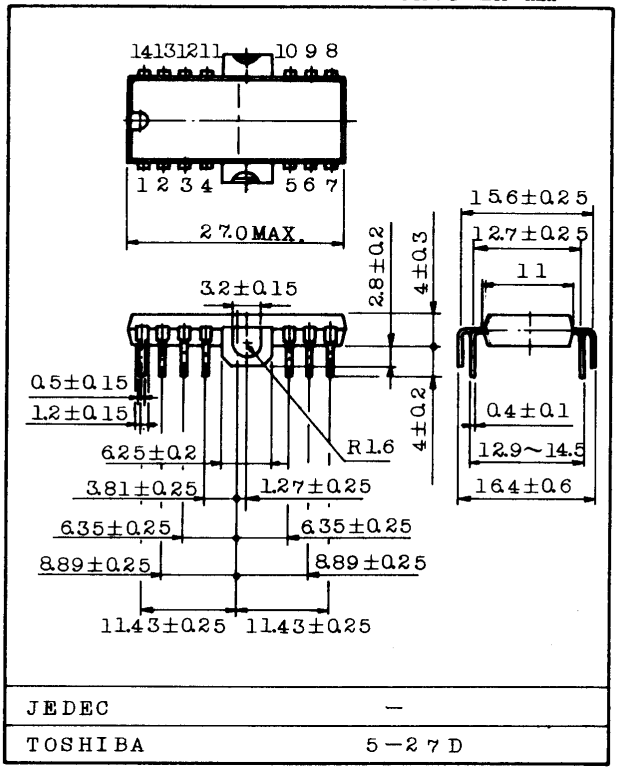
  P_{OUT}=1.0W(Typ.) at V_{CC}=6V, R_L=4Ω, THD=10%

  P_{OUT}=0.6W(Typ.) at V_{CC}=6V, R_L=8Ω, THD=10%
- Low Distortion and Wide Dynamic Range
- Negligible Small Turn-on "POP" Noise
- Wide Operating Supply Voltage Range :

  V_{CC}=3.9 ~ 9V
- Recommended Operating Supply Voltage :

  V_{CC}=6V, 7.5V, 9V

Unit in mm

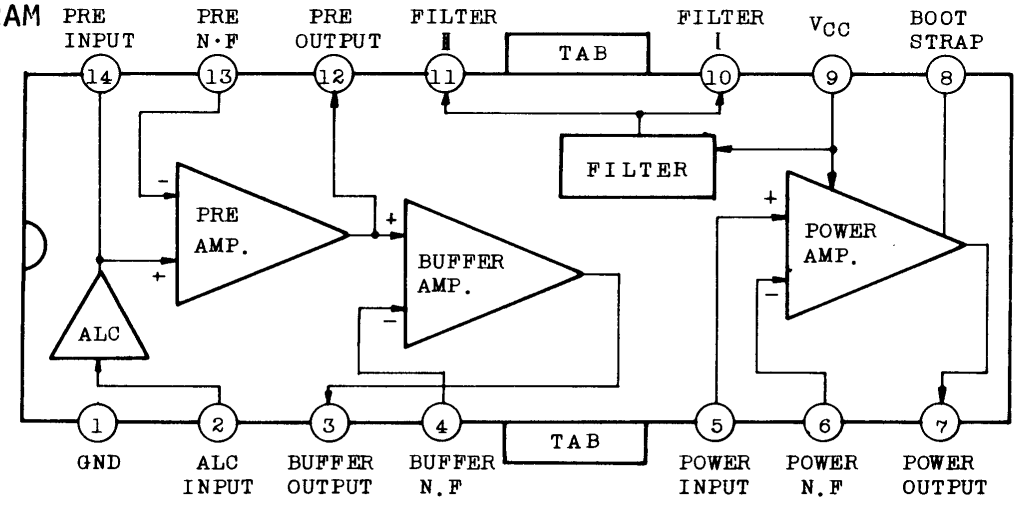


JEDEC	—
TOSHIBA	5-27D

MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	14	V
Output Current (Peak)	$I_{O(peak)}$	1.8	A
Power Dissipation	P_D	2.8	W
Operating Temperature	T_{opr}	-20 ~ 75	°C
Storage Temperature	T_{stg}	-55 ~ 150	°C

BLOCK DIAGRAM



ELECTRICAL CHARACTERISTICS

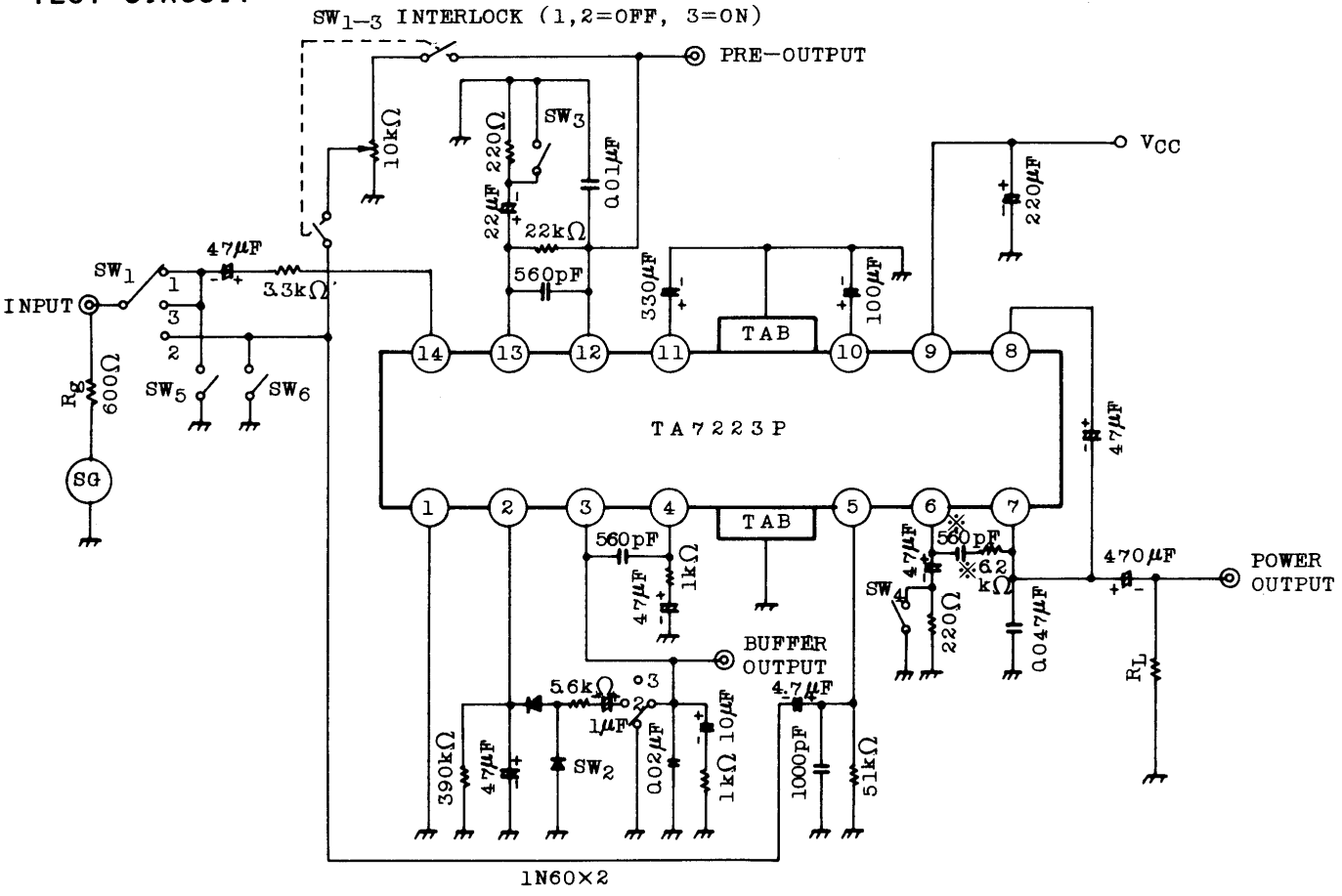
(Unless otherwise specified, V_{CC}=6V, f=1kHz, Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
OVERALL							
Quiescent Current	$I_{CCQ(1)}$	-	V_{CC}=3.5V	7	-	-	mA
	$I_{CCQ(2)}$	-	V_{CC}=6V	9	-	36	mA
	$I_{CCQ(3)}$	-	V_{CC}=9V	-	-	45	mA
PRE AMP.							
Open Loop Voltage Gain	G_{VO1}	-	-	60	70	-	dB
Closed Loop Voltage Gain	G_{V1}	-	-	-	40	-	dB
Maximum Output Voltage	V_{OUT1}	-	THD≦1%	-	0.7	-	V_{rms}
Input Resistance	R_{IN1}	-	-	24	30	-	kΩ
Equivalent Input Noise Voltage	e_{n1}	-	R_g=0	-	1.4	2.5	μV_{rms}
PRE AMP.+ BUFFER AMP.							
Closed Loop Voltage Gain	G_{V2}	-	PRE AMP. G_V=40dB BUFFER AMP. G_V=20dB	-	60	-	dB
Maximum Output Voltage	V_{OUT2}	-	THD=3%	1.5	1.7	-	V_{rms}
Output Noise Voltage	V_{NO2}	-	R_g=0, G_{V2}=60dB	-	1.2	2.5	mV_{rms}
ALC Effect	ALC1	-	V_{IN}=-60dBm ~ 20dBm	-	2	-	dB
ALC Range	ALC2	-	THD≦1%	-	60	-	dB
POWER AMP.							
Open Loop Voltage Gain	G_{VO3}	-	-	60	70	-	dB
Closed Loop Voltage Gain	G_{V3}	-	-	-	40	-	dB
Maximum Output Power	P_{OUT}	-	R_L=8Ω, THD=10%	0.5	0.6	-	W
		-	R_L=4Ω, THD=10%	0.9	1.0	-	W
Output Noise Voltage	V_{NO3}	-	R_g=0, G_V=40dB	-	0.3	1.0	mV_{rms}

SWITCH FUNCTION

MEASURING ITEM	SW_1	SW_2	SW_3	SW_4	SW_5	SW_6
G_{VO1}	1	1	ON	OFF	OFF	OFF
G_{V1}	1	1	OFF	OFF	OFF	OFF
V_{OUT1}	1	1	OFF	OFF	OFF	OFF
G_{V2}	1	3	OFF	OFF	OFF	OFF
V_{OUT2}	1	3	OFF	OFF	OFF	OFF
V_{NO2}	1	3	OFF	OFF	ON	OFF
ALC	1	2	OFF	OFF	OFF	OFF
G_{VO3}	2	1	OFF	ON	OFF	OFF
G_{V3}	2	1	OFF	OFF	OFF	OFF
P_O	2	1	OFF	OFF	OFF	OFF
V_{NO3}	2	1	OFF	OFF	OFF	ON

TEST CIRCUIT



※ Use in measuring the output noise voltage.

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FIG.1 V_7, I_{CC} – V_{CC}

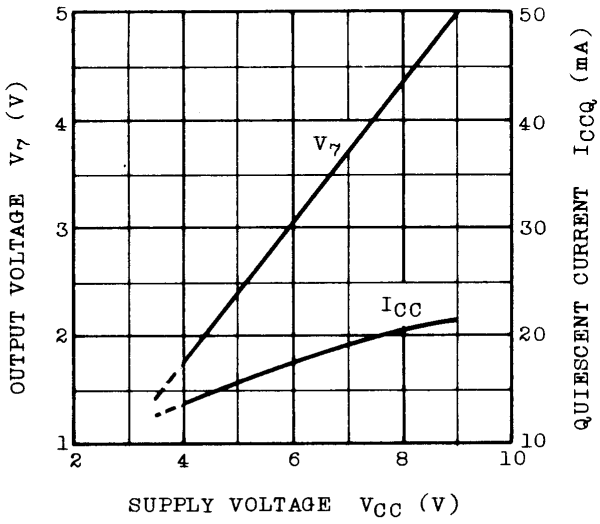

FIG.2 THD – V_{OUT}

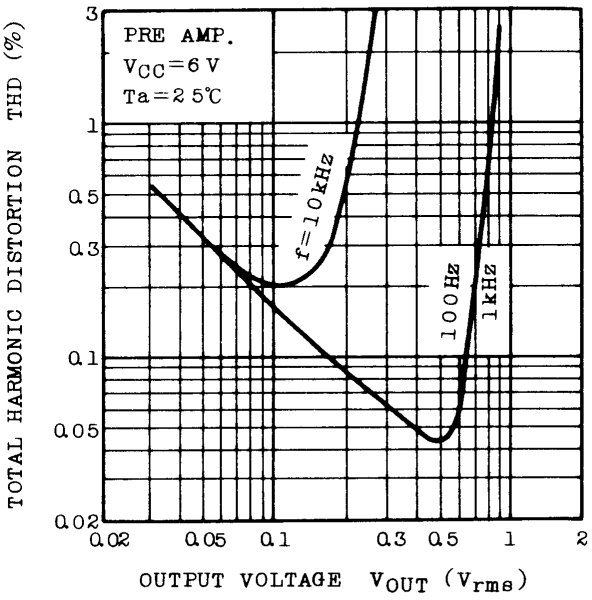

FIG.3 V_7, I_{CCQ} – Ta

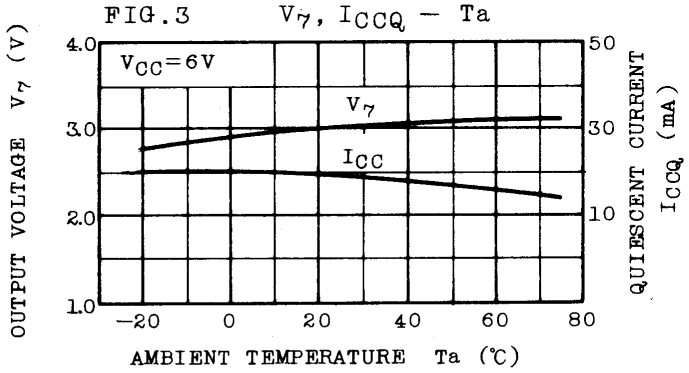

FIG.4 G_{VO}, G_V – f

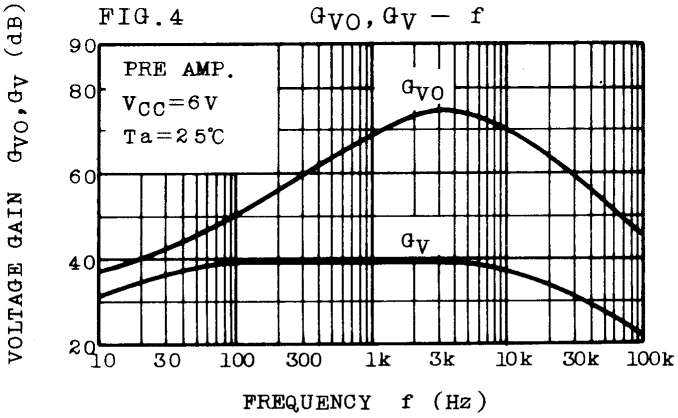

FIG.5 V_O, THD – V_I

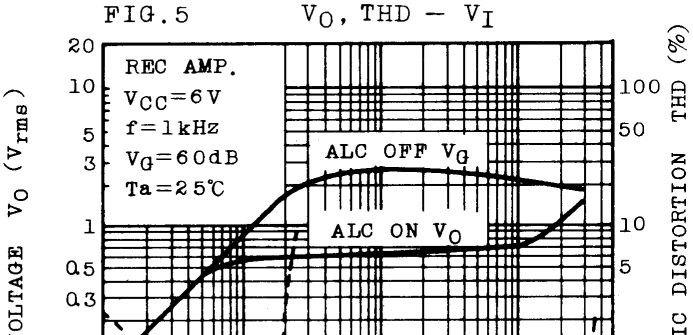

FIG.6 G_V – f

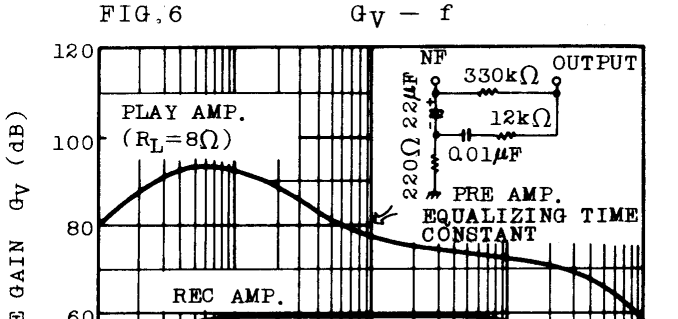

FIG. 7 $G_{VO}, G_V - f$

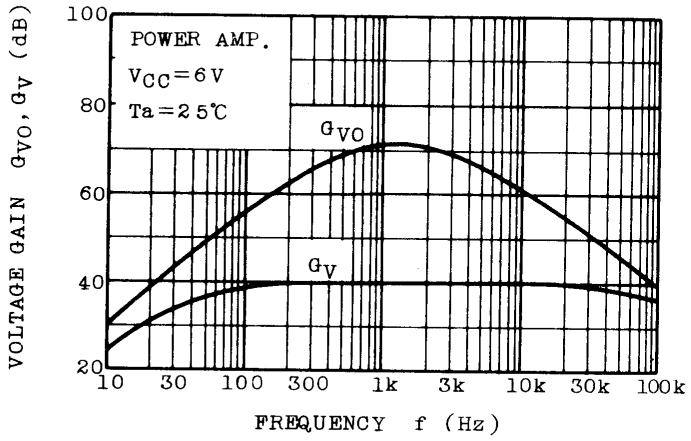

FIG. 8 THD – P_O

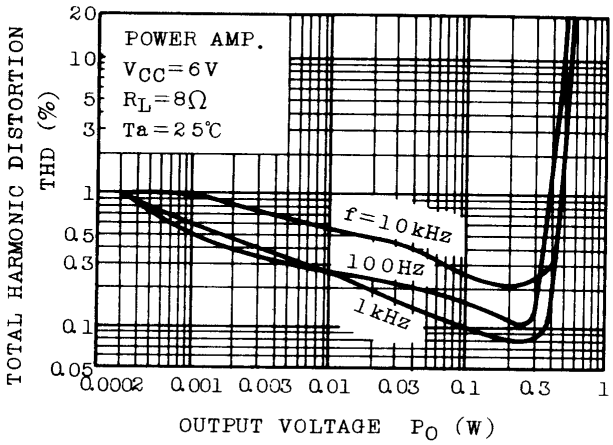

FIG. 9 THD – P_O

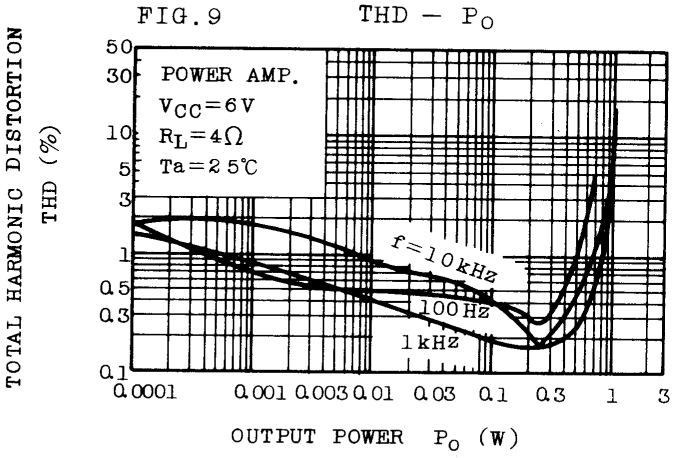

FIG. 10 $P_O - V_{CC}$

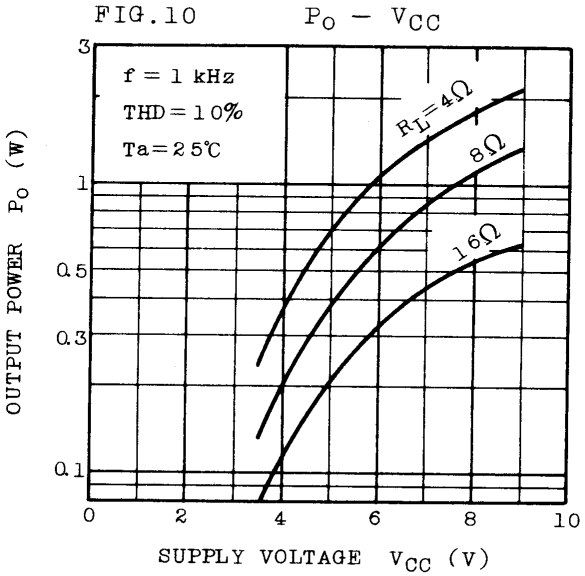

FIG. 11 $P_D - V_{CC}$

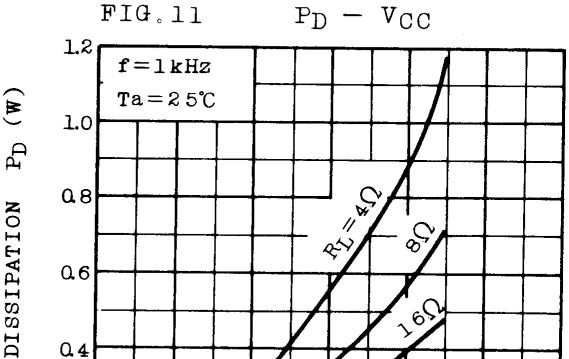

FIG. 12 $P_D - Ta$