Toshiba **INTEGRATED CIRCUIT**

TECHNICAL DATA

TA7205P

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT

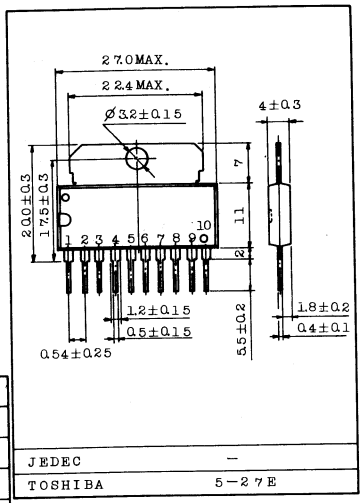
SILICON MONOLITHIC

5,8W AUDIO POWER AMPLIFIER

FOR CAR STEREO, CAR RADIO OUTPUT

- Output Power : P_{OUT}=5.8W(Typ.) at V_{CC}=13.2V, R_L=4Ω, THD=10%
- Maximum Output Power : P_{OM}=9.5W(Typ.) at V_{CC}=13.2V, R_L=4Ω
- Low Distortion : THD=0.2% at P_{OUT}=1W, G_V=55dB
  THD=0.08% at P_{OUT}=1W, G_V=44dB
- Wide Operating Supply Voltage Range : V_{CC}=10.5 ~ 18V
- Low Noise.
- High Ripple Rejection Achieved Internal Zener Diode : 44dB(Typ.) at G_V=44dB
- Current Limiting for Short-Circuit Protection
- Built in Turn-on Muting Circuit.

Unit in mm



MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	18	V
Output Current (Peak)	$I_{O(peak)}$	2	A
Power Dissipation	P_D	6	W
Operating Temperature	T_{opr}	-20 ~ 75	°C
Storage Temperature	T_{stg}	-55 ~ 150	°C

(Minimum Operating Voltage is 10.5V)

ELECTRICAL CHARACTERISTICS

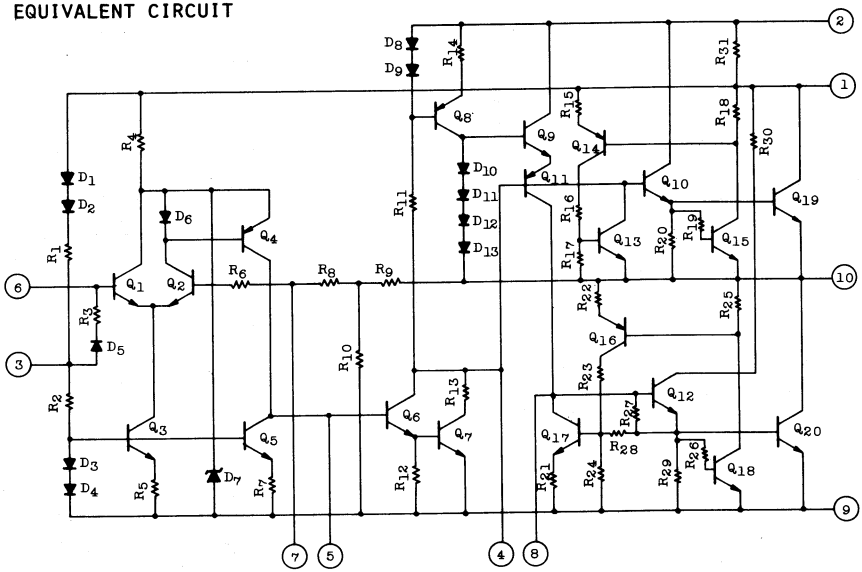
(Unless otherwise specified V_{CC}=12.5V, R_L=4Ω, R_g=600Ω, R_f=82Ω, f=1kHz, Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_{CCQ}	-	-	-	-	80	mA
			V_{CC}=18V	-	-	100	
Output Power	P_{OUT}	-	THD=10%	4.5	5	-	W
			V_{CC}=13.2V, THD=10%	-	5.8	-	
Maximum Output Power	P_{OM}	-	V_{CC}=13.2V	-	9.5	-	W
Total Harmonic Distortion	THD	-	P_{OUT}=1W	-	0.2	1.0	%
			P_{OUT}=100mW	-	0.3	1.0	
Voltage Gain (NOTE)	G_V	-	V_{IN}=2.45mV_{rms}	52	-	58	dB
Input Resistance	R_{IN}	-	V_{OUT}=2V_{rms}	30	40	-	kΩ
Output Noise Voltage	V_{NO}	-	R_g=10kΩ, BW=50 ~ 20kHz	-	-	4.5	mV

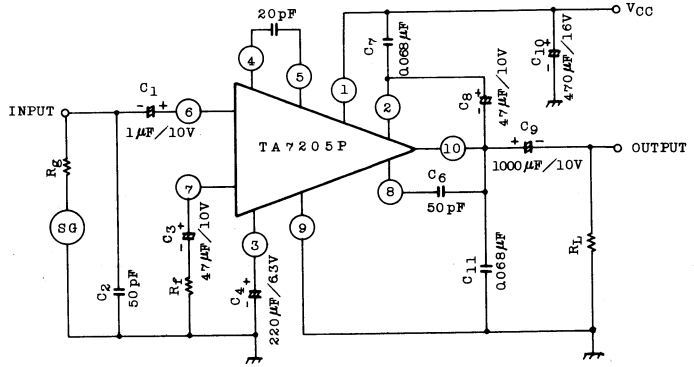
Note: In regard to the voltage gain (closed loop), it is possible to be classified.

TA 7205

EQUIVALENT CIRCUIT



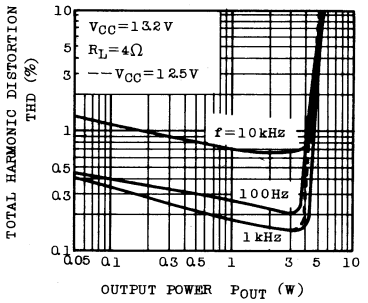
TEST AND APPLICATION



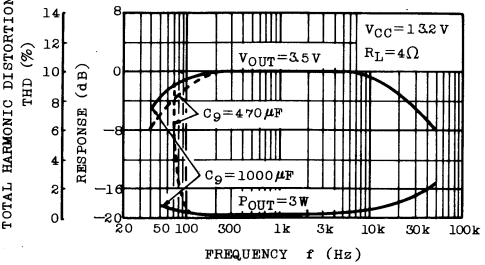
Note: Metal Tab must be connected to GND level or Non-connection.

C_7 and C_{11} are polyester film capacitors.

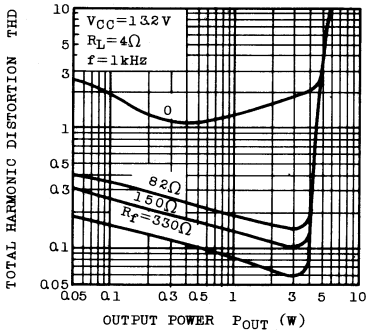
THD – P_{OUT}



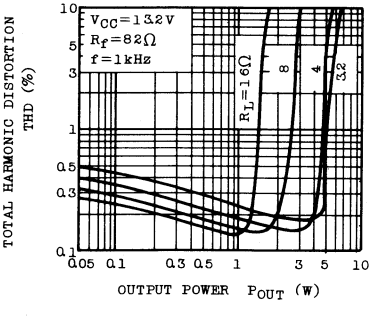
THD, RESPONSE – f



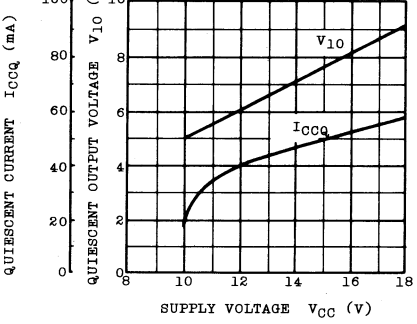
THD – P_{OUT}



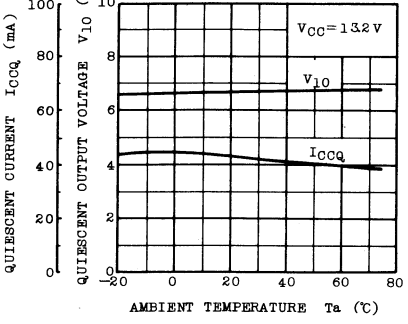
THD – P_{OUT}

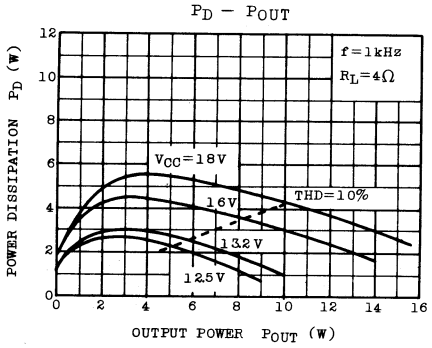


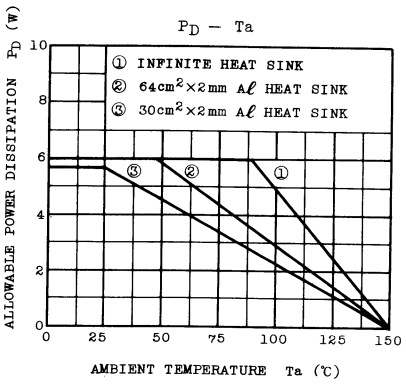
I_{CCQ}, V_{10} – V_{CC}



I_{CCQ}, V_{10} – Ta




$P_D - P_{OUT}$
f = 1kHz
R_L = 4Ω
V_{CC} = 18V
16V
13.2V
12.5V
THD = 10%
POWER DISSIPATION P_D (W)
OUTPUT POWER P_{OUT} (W)
0
2
4
6
8
10
12
14
16


P_D – Ta
① INFINITE HEAT SINK
② 64cm² × 2mm Aℓ HEAT SINK
③ 30cm² × 2mm Aℓ HEAT SINK
ALLOWABLE POWER DISSIPATION P_D (W)
AMBIENT TEMPERATURE Ta (°C)
0
25
50
75
100
125
150

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TA7205AP

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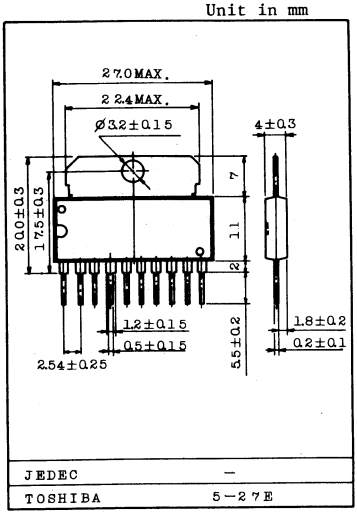
SILICON MONOLITHIC

5.8W AUDIO POWER AMPLIFIER

FOR CAR-STEREO, CAR-RADIO OUTPUT

Unit in mm



- Output Power:
  - P_{OUT}=5.8W(Typ.) at V_{CC}=13.2V, R_L=4Ω, THD=10%
  - P_{OUT}=9.2W(Typ.) at V_{CC}=13.2V, R_L=2Ω, THD=10%
- Maximum Output Power:
  - P_{OM}=9.5W(Typ.) at V_{CC}=13.2V, R_L=4Ω
- Low Distortion:
  - THD=0.15% at P_{OUT}=1W, G_V=55dB
  - THD=0.07% at P_{OUT}=1W, G_V=44dB
- Wide Operating Supply Voltage Range : V_{CC}=9~18V
- Low Noise.
- Current Limiting for Short-Circuit Protection.
- Built in Thermal Short-down Circuit.
- Built in Surge Voltage Protection Circuit.

MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Operating Supply Voltage	V_{CC}	18	V
Quiescent Supply Voltage	V_{CCQ}	25	V
Output Current (Peak)	$I_{O(peak)}$	4.5	A
Power Dissipation	P_D	7.5	W
Operating Temperature	Topr	-20~75	°C
Storage Temperature	Tstg	-55~150	°C

(Minimum Operating Voltage is 9V)

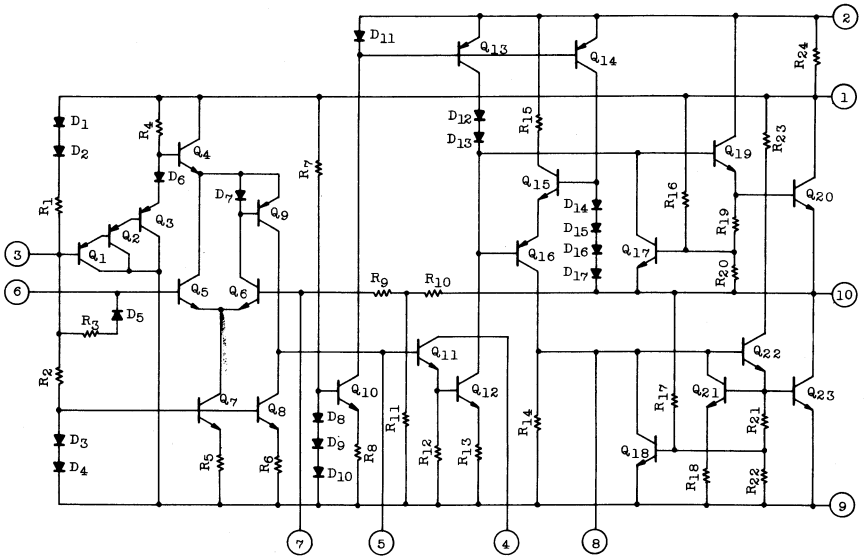
ELECTRICAL CHARACTERISTICS

(Unless otherwise specified V_{CC}=12.5V, R_L=4Ω, R_g=600Ω, R_f=82Ω, f=1kHz, Ta=25°C)

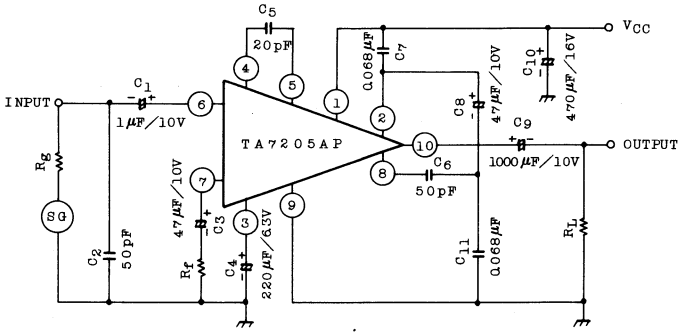
CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_{CCQ}	-	-	-	-	60	mA
			V_{CC}=18V	-	-	80	
Output Power	P_{OUT}	-	THD=10%	4.5	5	-	W
		-	V_{CC}=13.2V, THD=10%	-	5.8	-	
			V_{CC}=13.2V, R_L=2Ω, THD=10%	-	9.2	-	
Maximum Output Power	P_{OM}	-	V_{CC}=13.2V	-	9.5	-	W
Total Harmonic Distortion	THD	-	P_{OUT}=1W	-	0.15	1.0	%
			P_{OUT}=100mW	-	0.2	1.0	
			P_{OUT}=1W, R_L=2Ω	-	0.25	1.0	
Voltage Gain (Note)	G_V	-	V_{IN}=2.45mV$_{rms}$	52	-	58	dB
Input Resistance	R_{IN}	-	V_{OUT}=2V$_{rms}$	30	40	-	kΩ
Output Noise Voltage	V_{NO}	-	R_g=10kΩ, BW=50 ~ 20kHz	-	-	3.5	mV

Note: In regard to the value of voltage gain (closed loop), it is possible to be classified.

EQUIVALENT CIRCUIT

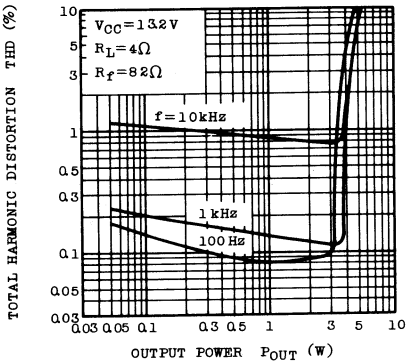


TEST AND APPLICATION CIRCUIT

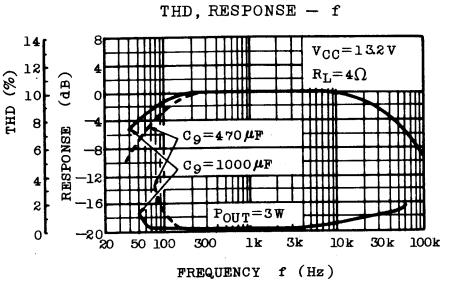


Note: Metal Tab must be connected to GND level or Non-connection.
C_7 and C_{11} are polyester film capacitors.

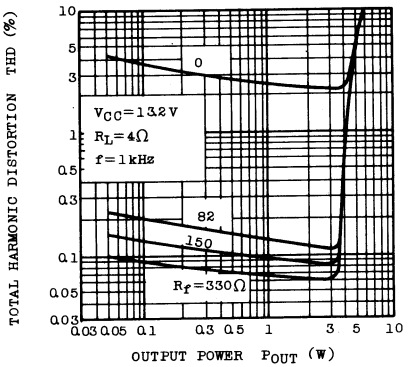
THD – P_{OUT}



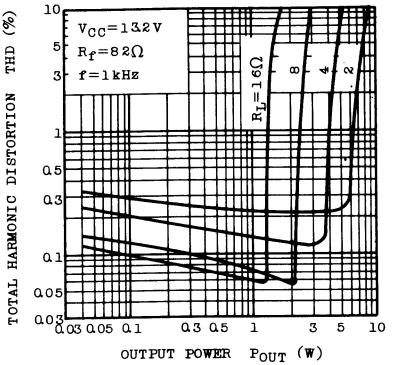
THD, RESPONSE – f



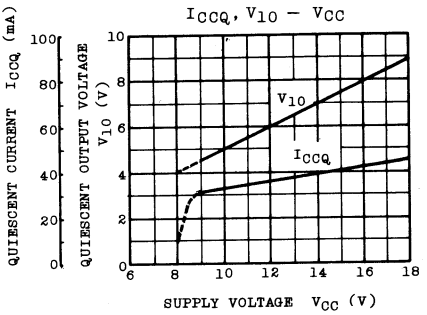
THD – P_{OUT}



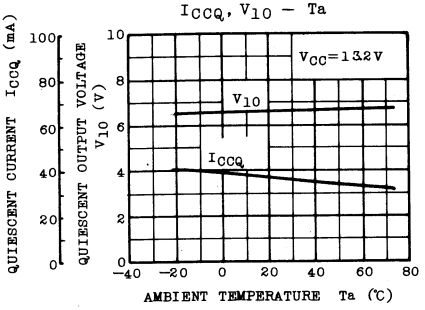
THD – P_{OUT}

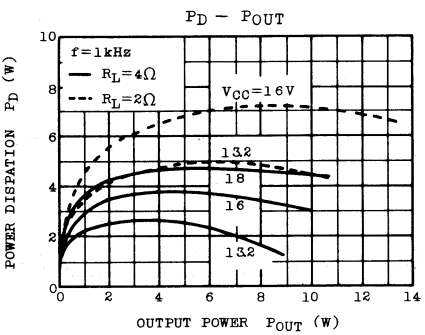


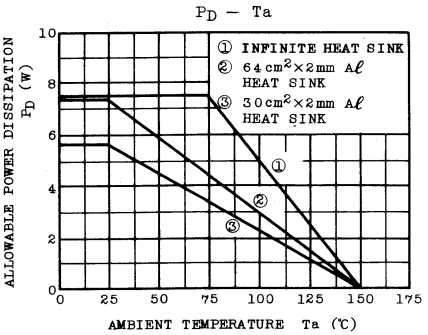
I_{CCQ}, V_{10} – V_{CC}



I_{CCQ}, V_{10} – Ta




$P_D - P_{OUT}$
f=1kHz
R_L=4Ω
R_L=2Ω
V_{CC}=16V
13.2
18
16
13.2
POWER DISPATION P_D (W)
OUTPUT POWER P_{OUT} (W)
0
2
4
6
8
10
12
14


$P_D - Ta$
① INFINITE HEAT SINK
② 64cm²×2mm Aℓ HEAT SINK
③ 30cm²×2mm Aℓ HEAT SINK
ALLOWABLE POWER DISSIPATION P_D (W)
AMBIENT TEMPERATURE Ta (℃)
0
25
50
75
100
125
150
175