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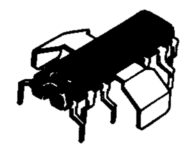
TBA800

5W AUDIO POWER AMPLIFIER

■ FEATURES

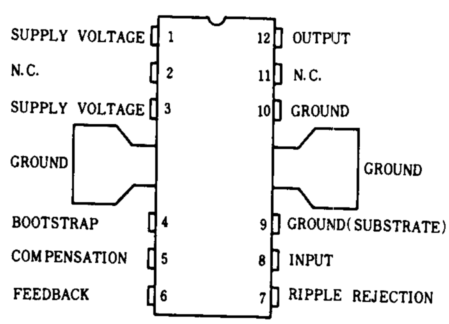
- High Output Power
  5W typ. (Vcc = 24V, R_L = 16Ω, T.H.D. = 10%)
  3.5W typ. (Vcc = 20V, R_L = 16Ω, T.H.D. = 10%)
  3.4W type. (Vcc = 16V, R_L = 8Ω, T.H.D. = 10%)

- Wide Range of Supply Voltage from 5 to 30V
- High Output Current up to 1.5A
- High Efficiency 75% at 5W Output
- Very Low Harmonic and Crossover Distortion
- TBA800 is provided with a thermal-limiting circuit which fundamentally changes the criteria normally used in determining the heat sink size.

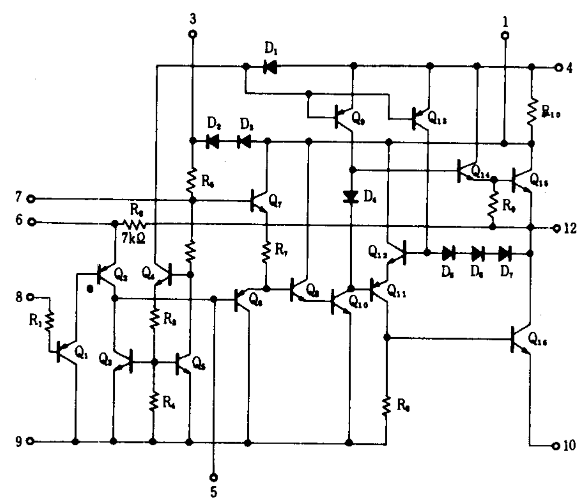


(QP-12T)

■ PIN CONNECTION



■ CIRCUIT SCHEMATIC



■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

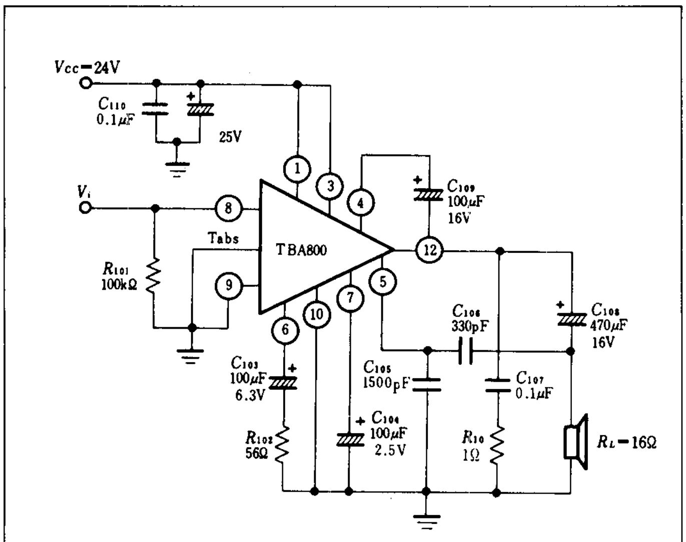
Item		Symbol	Rating	Unit
Supply Voltage		V_{cc}	30	V
Output Peak Current (nonrepetitive)		$I_{O(peak)}$	2	A
Output Current (repetitive)		I_O	1.5	A
Power Dissipation	when Ta=80°C	P_T	1	W
	when T_{tab}=90°C		5	
Storage and Junction Temperature		T_{stg}, T_j	−40 to +150	°C
Thermal Resistance	junction-to-tab (max)	θ_{j-tab}	12	°C/W
	juncticn-to-ambient (max)	θ_{j-a}*	70	°C/W

*Obtained with tabs soldered to printed circuit with minimized copper area

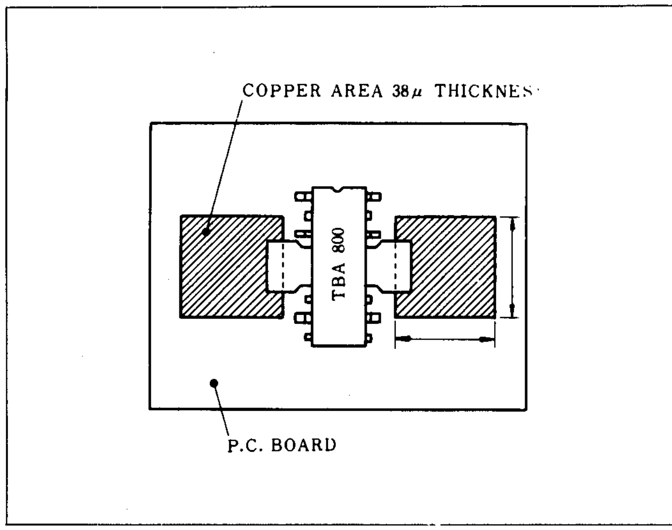
■ ELECTRICAL CHARACTERISTICS (V_{cc}=24V, R_L=16Ω, Ta=25°C)

Parameter	Symbol	Test Condition		min	typ	max	Unit
Quiescent Output Voltage	V_{out}			11	12	13	V
Quiescent Current Drain	I_d			—	9	20	mA
Bias Current	I_b			—	1	5	μA
Output Power	P_{out}	T.H.D=10%, f=1kHz		4.4	5	—	W
Input Saturation Voltage	$V_{(rms)}$			—	—	220	mV
Input Sensitivity	V_{in}	P_{out}=5W, f=1kHz		—	80	—	mV
Input Resistance	R_{in}			—	5	—	MΩ
Frequency Response (−3dB)	B	C_3=330pF		—	40 to 20,000	—	Hz
Total Harmonic Distortion	T.H.D	P_{out}=50mW to 2.5W, f=1kHz		—	0.5	—	%
Voltage Gain (open loop)	Gv	f=1kHz		—	80	—	dB
Voltage Gain (closed loop)	Gv	f=1kHz		39	42	45	dB
Input Noise Voltage	e_N	R_g=0, B=40 to 20,000Hz		—	5	—	μV
Efficiency	η	P_{out}=5W, f=1kHz		—	75	—	%
Supply Voltage Rejection Ratio	SVR	f_{ripple}=100Hz	C_5=22μF	—	35	—	dB
			C_5=100μF	—	38	—	
Total Current Drain	I_T	P_{out}=5W		—	280	—	mA

■ TEST CIRCUIT



■ MAXIMUM POWER DISSIPATION VS. COPPER AREA OF P.C. BOARD



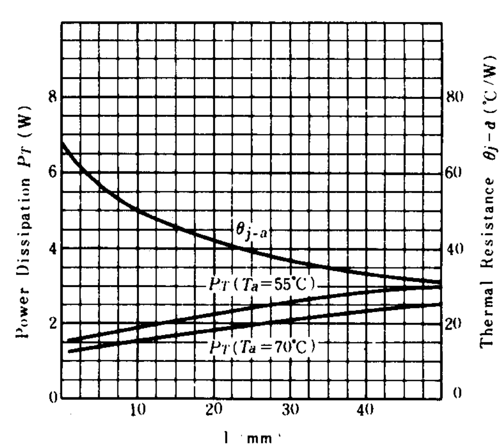
■ MOUNTING INSTRUCTIONS

The tabs on the TBA800 can be used to conduct away the heat generated in the integrated in the integrated circuit so that the junction temperature does not exceed the permissible maximum 150°C).

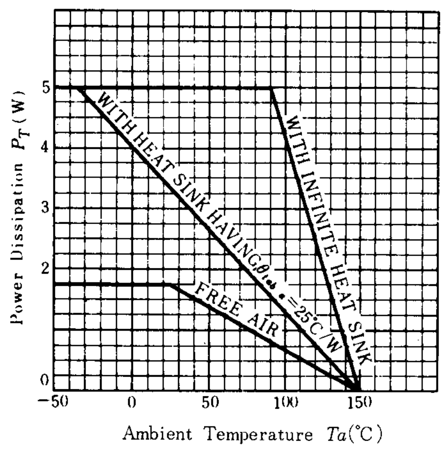
This may be done by connecting tabs to an external heat sink, or by soldering them to a suitable copper area of the printed circuit board.

External heat sink or printed circuit copper area must be connected to electrical ground.

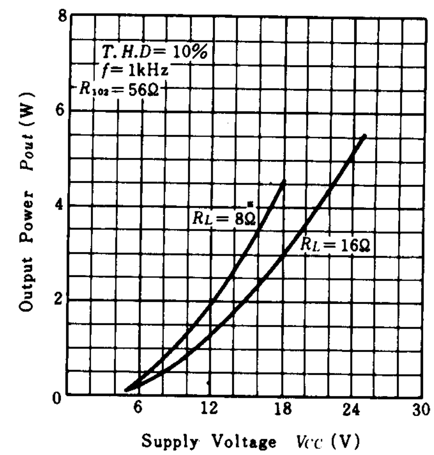
POWER DISSIPATION VS. "ℓ"



POWER RATING CHARACTERISTICS

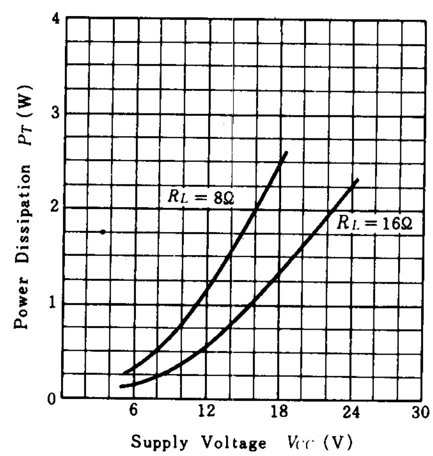


OUTPUT POWER VS. SUPPLY VOLTAGE

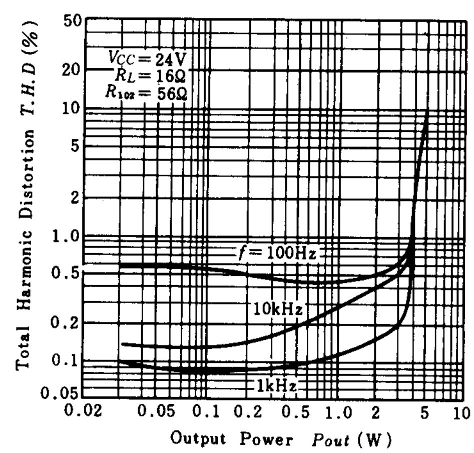


* 220Ω is recommended to be bridged between ①pin and ④pin when R_L is 8Ω.

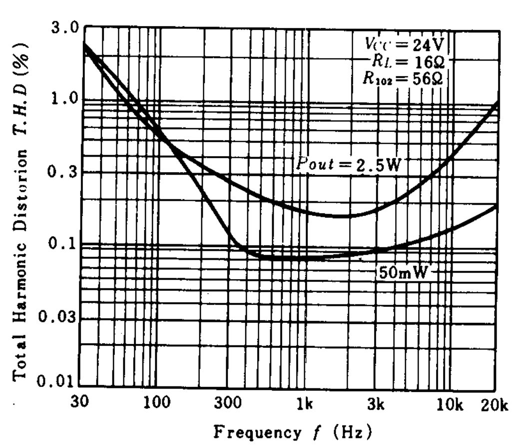
POWER DISSIPATION VS. SUPPLY VOLTAGE



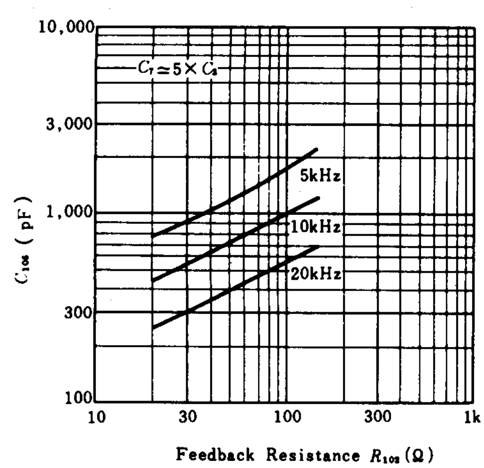
TOTAL HARMINIC DISTORTION VS. OUTPUT POWER



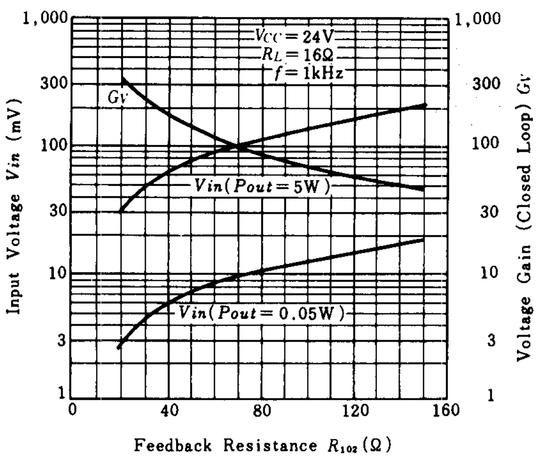
TOTAL HARMINIC DISTORTION VS. FREQUENCY



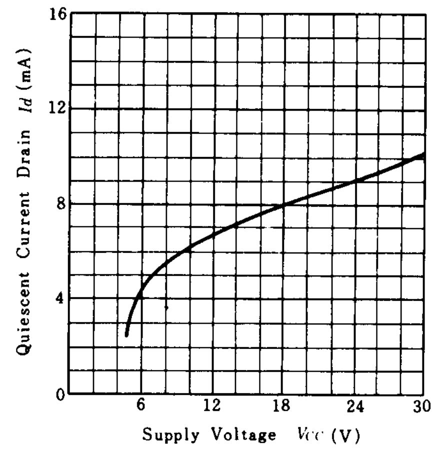
VALUE OF C_{106} VS. R_{102} FOR VARIOUS VALUE OF B



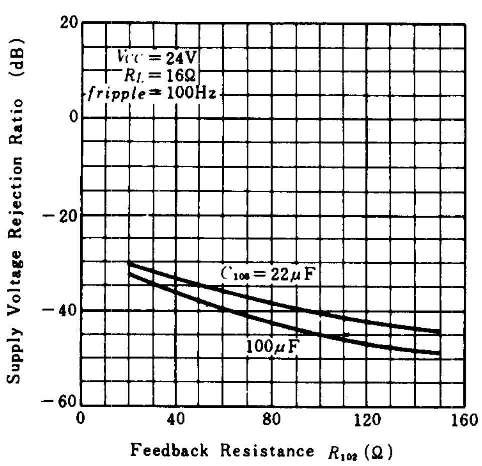
INPUT VOLTAGE AND VOLTAGE GAIN VS. FEEDBACK RESISTANCE



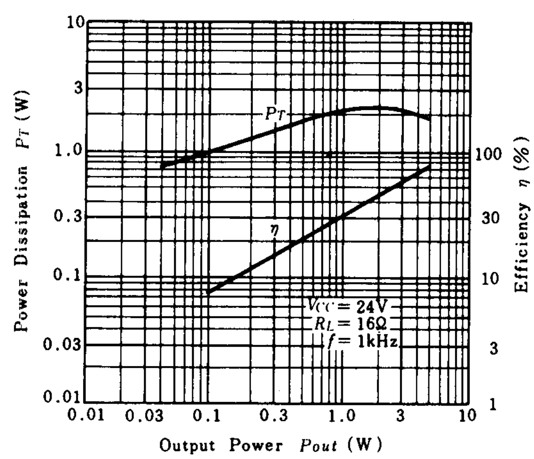
QUIESCENT CURRENT DRAIN VS. SUPPLY VOLTAGE



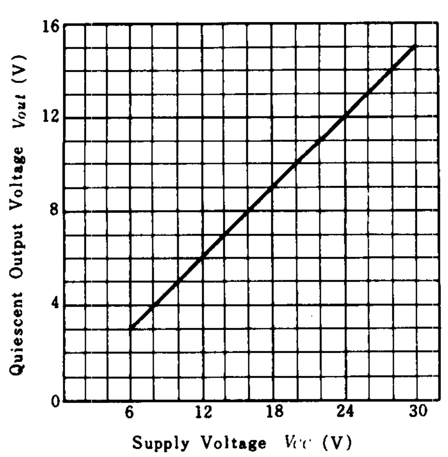
SUPPLY VOLTAGE REJECTION RATIO VS. FEEDBACK RESISTANCE



POWER DISSIPATION AND EFFICIENCY VS. OUTPUT POWER



QUIESCENT OUTPUT VOLTAGE VS. SUPPLY VOLTAGE



The following figure shows a method, of mounting the TBA800 that is satisfactory both from the point of view of heat dissipation and from mechanical considerations.