

TBA810 Audio Power Amplifier with thermal shutdown

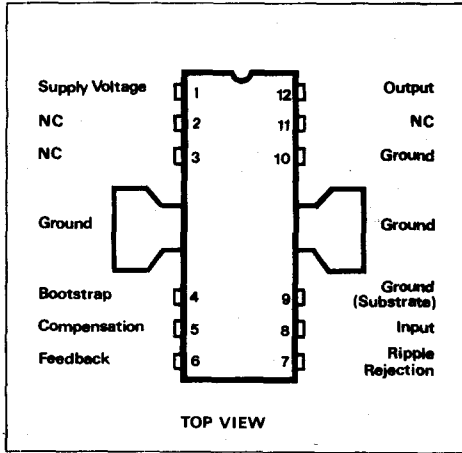
CONNECTION DIAGRAM

DESCRIPTION

The TBA 810 S is a monolithic integrated circuit in a 12-lead quad in-line plastic package intended for use as a low frequency class B amplifier.

The TBA 810 S provides 7W power output at 16V/4Ω, 6 W at 14.4V/4Ω, 2.5W at 9V/4Ω, 1W at 6V/4Ω and works with a wide range of supply voltages (4 to 20V); it gives high output current (up to 2.5A), high efficiency (75% at 6W output,) very low harmonic and cross-over distortion. In addition, the circuit is provided with a thermal limiting circuit which fundamentally changes the criteria normally used in determining the size of the heat sink.

The TBA 810 AS has the same electrical characteristics as the TBA 810 S, but its cooling tabs are flat and pierced so that an external heat sink can easily be attached.



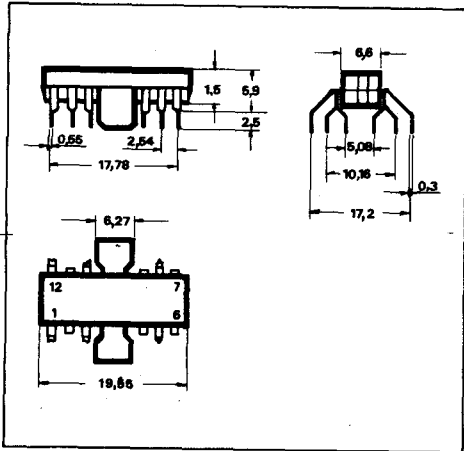
ABSOLUTE MAXIMUM RATINGS

Supply voltage	20V
Output peak current (non-repetitive)	3.5A
Output current (repetitive)	2.5A
Power dissipation:	
at $T_{amb} = 70^{\circ}\text{C}$	1W
at $T_{c,ab} = 100^{\circ}\text{C}$	5W
Storage and junction temperature	-40 to 150°C

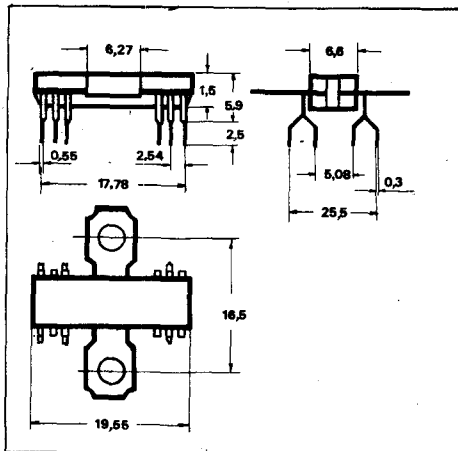
REFERENCE TABLE

Code	Stock No.
TBA 810S	31212G
TBA 810 AS	34581H

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PHYSICAL DIMENSIONS (TBA 810 S)



PHYSICAL DIMENSIONS (TBA 810 AS)

PLEASE QUOTE STOCK NO. AND MANUFACTURER'S CODE WHEN ORDERING

ELECTRICAL CHARACTERISTICS ($T_{amb} \leq 25^{\circ}\text{C}$)

Parameter	Test conditions	Min.	Typ.	Max.	Unit
V_s Supply voltage (pin 1)		4		20	V
V_o Quiescent output voltage (pin 12)		6.4	7.2	8	V
I_d Quiescent drain current	$V_s = 14.4\text{ V}$		12	20	mA
I_b Bias current (pin 8)			0.4		μA
P_o Power output	$d = 10\%$ $R_L = 4\Omega$ $f = 1\text{ kHz}$ $V_s = 16\text{ V}$ $V_s = 16\text{ V}$ $V_s = 14.4\text{ V}$ $V_s = 9\text{ V}$ $V_s = 6\text{ V}$		7 6 2.5 1		W W W W
$V_{i(rms)}$ Input voltage				220	mV
V_i Input sensitivity	$P_o = 6\text{ W}$ $V_s = 14.4\text{ V}$ $R_L = 4\Omega$ $f = 1\text{ kHz}$ $R_f = 56\Omega$ $R_f = 22\Omega$		80 35		mV mV
R_i Input resistance (pin 8)			5		M Ω
B Frequency response (-3 dB)	$V_s = 14.4\text{ V}$ $R_L = 4\Omega$ $C_3 = 820\text{ pF}$ $C_3 = 1500\text{ pF}$		40 to 20,000 40 to 10,000		Hz Hz
d distortion	$P_o = 50\text{ mW to } 3\text{ W}$ $V_s = 14.4\text{ V}$ $R_L = 4\Omega$ $f = 1\text{ kHz}$		0.3		%
G_v Voltage gain (open loop)	$V_s = 14.4\text{ V}$ $R_L = 4\Omega$ $f = 1\text{ kHz}$		80		dB
G_v Voltage gain (closed loop)	$V_s = 14.4\text{ V}$ $R_L = 4\Omega$ $f = 1\text{ kHz}$	34	37	40	dB
e_N Input noise voltage	$V_s = 14.4\text{ V}$ $R_o = 0$ $B(-3\text{ dB}) = 20\text{ Hz to } 20,000\text{ Hz}$		2		μV
i_N Input noise current	$V_s = 14.4\text{ V}$ $B(-3\text{ dB}) = 20\text{ Hz to } 20,000\text{ Hz}$		0.1		nA
η Efficiency	$P_o = 5\text{ W}$ $V_s = 14.4\text{ V}$ $R_L = 4\Omega$ $f = 1\text{ kHz}$		70		%
SVR Supply voltage rejection	$V_s = 14.4\text{ V}$ $R_L = 4\Omega$ $f_{ripple} = 100\text{ Hz}$		38		dB

THERMAL DATA

			TBA 810AS	TBA 810AS
$R_{th j-tab}$	Thermal resistance junction-tab	max	12 $^{\circ}\text{C/W}$	10 $^{\circ}\text{C/W}$
$R_{th j-amb}$	Thermal resistance junction-ambient	max	70* $^{\circ}\text{C/W}$	80 $^{\circ}\text{C/W}$

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

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