



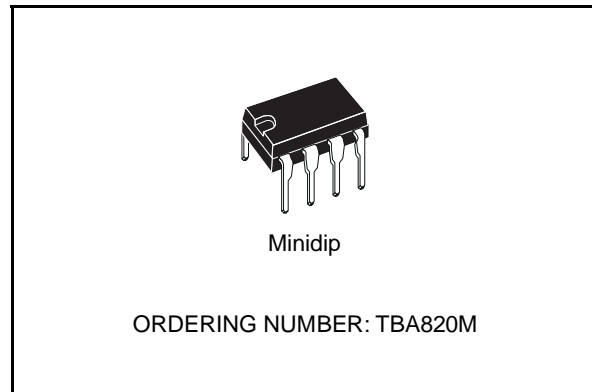
TBA820M

1.2W AUDIO AMPLIFIER

DESCRIPTION

The TBA820M is a monolithic integrated audio amplifier in a 8 lead dual in-line plastic package. It is intended for use as low frequency class B power amplifier with wide range of supply voltage: 3 to 16V, in portable radios, cassette recorders and players etc. Main features are: minimum working supply voltage of 3V, low quiescent current, low number of external components, good ripple rejection, no cross-over distortion, low power dissipation.

Output power: $P_o = 2W$ at $12V/8\Omega$, $1.6W$ at $9V/4\Omega$ and $1.2W$ at $9V/8\Omega$.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_s	Supply voltage	16	V
I_o	Output peak current	1.5	A
P_{tot}	Power dissipation at $T_{amb} = 50^\circ C$	1	W
T_{stg}, T_j	Storage and junction temperature	-40 to 150	$^\circ C$

TEST AND APPLICATION CIRCUITS

Figure 1. Circuit diagram with load connected to the supply voltage

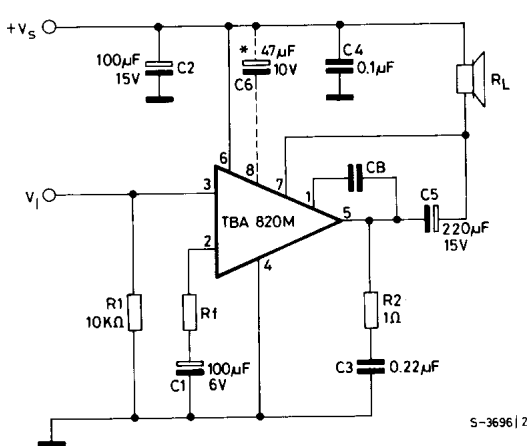
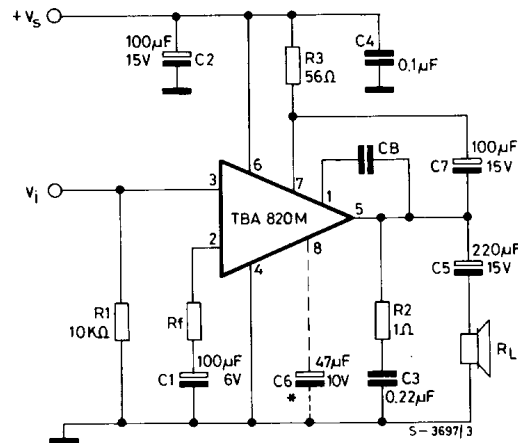


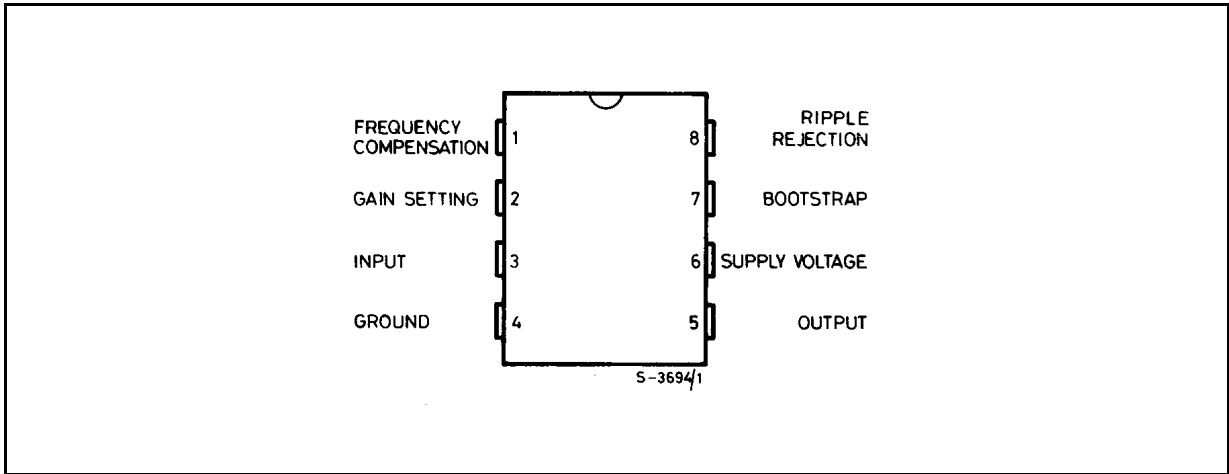
Figure 2. Circuit diagram with load connected to ground



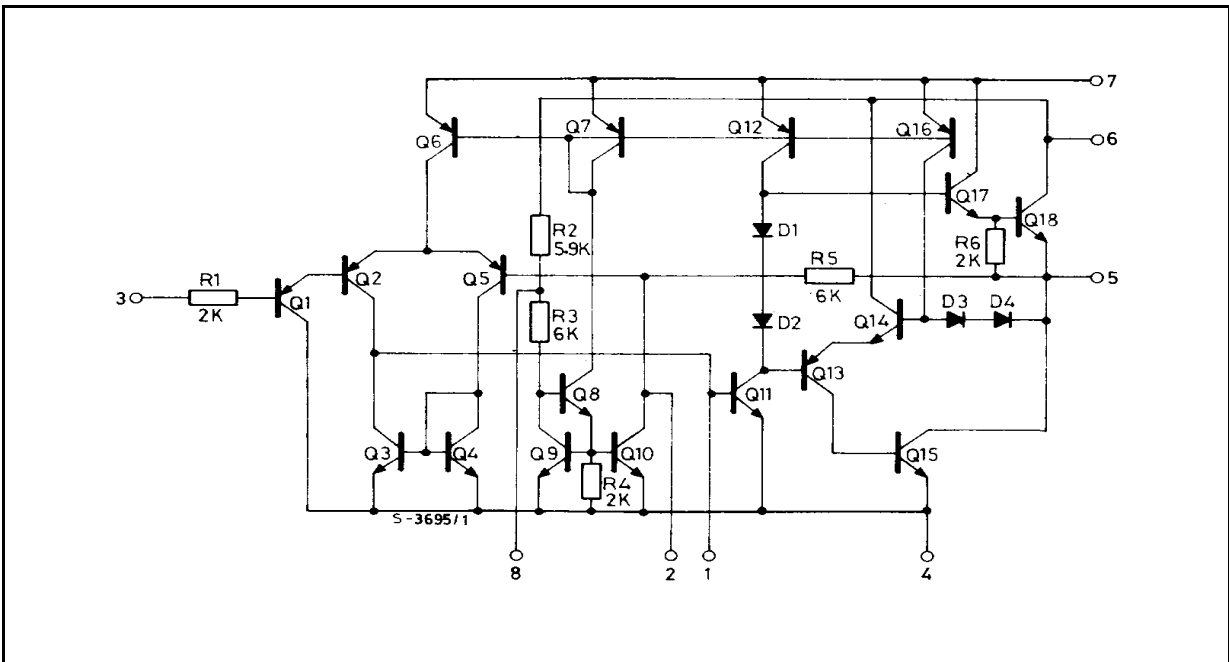
* Capacitor C6 must be used when high ripple rejection is requested.

TBA820M

PIN CONNECTION (top view)



SCHEMATIC DIAGRAM



THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th-j-amb}$	Thermal resistance junction-ambient	max 100	$^{\circ}C/W$

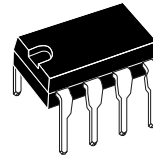
ELECTRICAL CHARACTERISTICS (Refer to the test circuits $V_s = 9V$, $T_{amb} = 25\text{ }^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
V_s	Supply voltage		3		16	V
V_o	Quiescent output voltage (pin 5)		4	4.5	5	V
I_d	Quiescent drain current			4	12	mA
I_b	Bias current (pin 3)			0.1		μA
P_o	Output power	$d = 10\%$ $R_f = 120\Omega$ $V_s = 12V$ $V_s = 9V$ $V_s = 9V$ $V_s = 6V$ $V_s = 3.5V$	$f = 1\text{ kHz}$ $R_L = 8\Omega$ $R_L = 4\Omega$ $R_L = 8\Omega$ $R_L = 4\Omega$ $R_L = 4\Omega$	0.9	2 1.6 1.2 0.75 0.25	W W W W W
R_i	Input resistance (pin 3)	$f = 1\text{ kHz}$		5		$M\Omega$
B	Frequency response (-3 dB)	$R_L = 8\Omega$ $C_S = 1000\ \mu\text{F}$ $R_f = 120\Omega$	$C_B = 680\ \text{pF}$ $C_B = 220\ \text{pF}$	25 to 7,000 25 to 20,000		Hz
d	Distortion	$P_o = 500\ \text{mW}$ $R_L = 8\Omega$ $f = 1\text{ kHz}$	$R_f = 33\Omega$ $R_f = 120\Omega$	0.8 0.4		%
G_v	Voltage gain (open loop)	$f = 1\text{ kHz}$ $R_L = 8\Omega$		75		dB
G_v	Voltage gain (closed loop)	$R_L = 8\Omega$ $f = 1\text{ kHz}$	$R_f = 33\Omega$ $R_f = 120\Omega$	45 34		dB
e_N	Input noise voltage (*)			3		μV
i_N	Input noise current (*)			0.4		nA
$\frac{S+N}{N}$	Signal to noise ratio (*)	$P_o = 1.2W$ $R_L = 8\Omega$ $G_v = 34\ \text{dB}$	$R_1 = 10K\Omega$ $R_1 = 50\ \text{k}\Omega$	80 70		dB
SVR	Supply voltage rejection (test circuit of fig. 2)	$R_L = 8\Omega$ $f_{(\text{ripple})} = 100\ \text{Hz}$ $C_6 = 47\ \mu\text{F}$ $R_f = 120\Omega$		42		dB

(*) B = 22 Hz to 22 KHz

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		3.32			0.131	
a1	0.51			0.020		
B	1.15		1.65	0.045		0.065
b	0.356		0.55	0.014		0.022
b1	0.204		0.304	0.008		0.012
D			10.92			0.430
E	7.95		9.75	0.313		0.384
e		2.54			0.100	
e3		7.62			0.300	
e4		7.62			0.300	
F			6.6			0.260
I			5.08			0.200
L	3.18		3.81	0.125		0.150
Z			1.52			0.060

OUTLINE AND MECHANICAL DATA



Minidip

