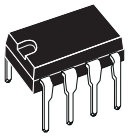
TBA820M

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/8Ω, 1.6W at 9V/4Ω and 1.2W at 9V/8Ω.



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ORDERING NUMBER: TBA820M

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°C	1	W
T_{stg}, T_j	Storage and junction temperature	-40 to 150	°C

TEST AND APPLICATION CIRCUITS

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

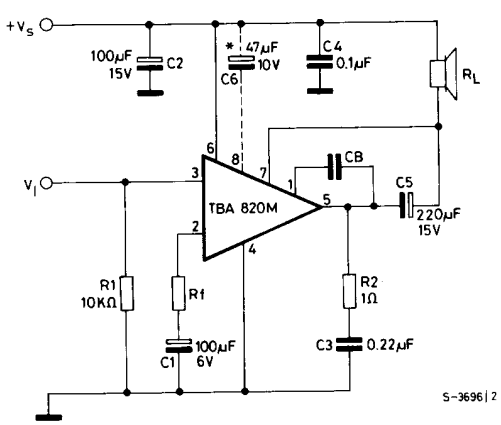
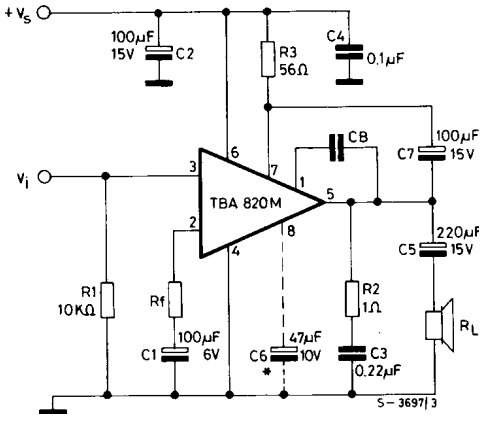
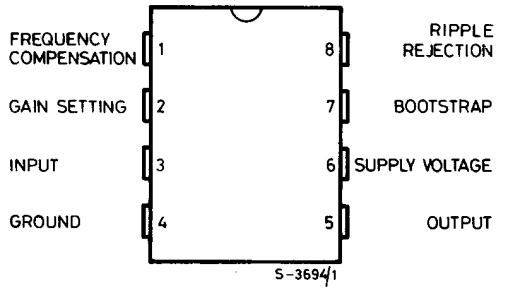


Figure 2. Circuit diagram with load connected to ground

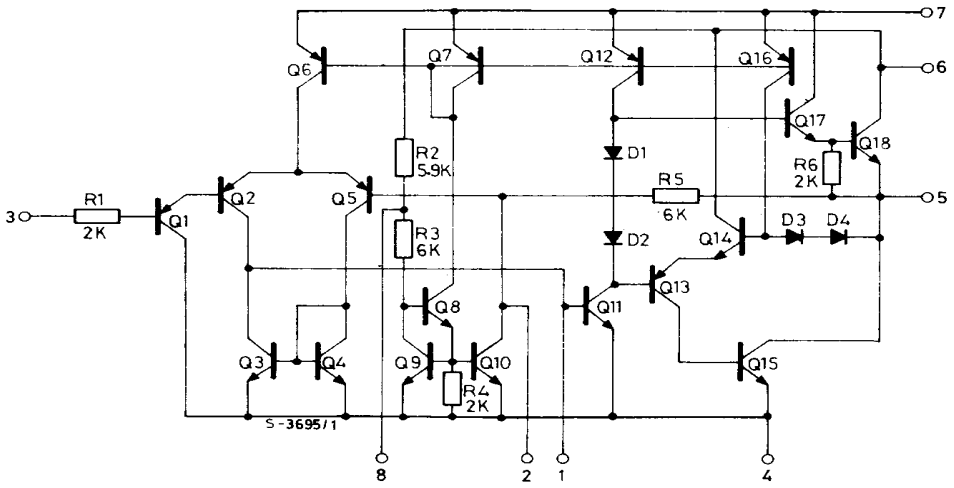


* Capacitor C6 must be used when high ripple rejection is requested.

PIN CONNECTION (top view)



SCHEMATIC DIAGRAM



THERMAL DATA

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

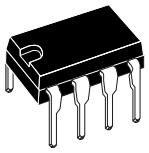
ELECTRICAL CHARACTERISTICS (Refer to the test circuits Vs = 9V, T_{amb} = 25 °C unless otherwise specified)

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 = 120Ω V_s = 12V V_s = 9V V_s = 9V V_s = 6V V_s = 3.5V	f = 1 kHz R_L = 8Ω R_L = 4Ω R_L = 8Ω R_L = 4Ω R_L = 4Ω	0.9	2 1.6 1.2 0.75 0.25		W W W W W
Ri	Input resistance (pin 3)	f = 1 kHz			5		MΩ
B	Frequency response (-3 dB)	R_L = 8Ω C_5 = 1000 µF R_f = 120Ω	C_B = 680 pF	25 to 7,000			Hz
			C_B = 220 pF	25 to 20,000			
d	Distortion	P_o = 500 mW R_L = 8Ω f = 1 kHz	R_f = 33Ω		0.8		%
			R_f = 120Ω		0.4		
G_v	Voltage gain (open loop)	f = 1 kHz	R_L = 8Ω		75		dB
G_v	Voltage gain (closed loop)	R_L = 8Ω	R_f = 33Ω		45		dB
		f = 1 kHz	R_f = 120Ω		34		
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 = 8Ω G_v = 34 dB	R1 = 10KΩ		80		dB
			R1 = 50 kΩ		70		
SVR	Supply voltage rejection (test circuit of fig. 2)	R_L = 8Ω $f_{(ripple)}$ = 100 Hz C6 = 47 µF R_f = 120Ω			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



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