SGS-THOMSON MICROELECTRONICS

TBA810P

7W AUDIO AMPLIFIER

NOT FOR NEW DESIGN

The TBS810P is an improvement of TBA810S.

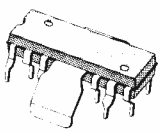
It offers:

- Higher output power (R_L = 4Ω and 2Ω)
- Low noise
- Polarity inversion protection
- Fortuitous open ground protection
- High supply voltage rejection (40dB min.)

The TBA810P 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 TBA810P provides 7W output power at 16V/4Ω; 7W at 14.4/2Ω.

It gives high output current (up to 3A), high efficiency (75% at 60W output) very low harmonic and crossover distortion. The circuit is provided with a thermal limiting circuit and can withstand a short-circuit on the load for supply voltages up to 15V.



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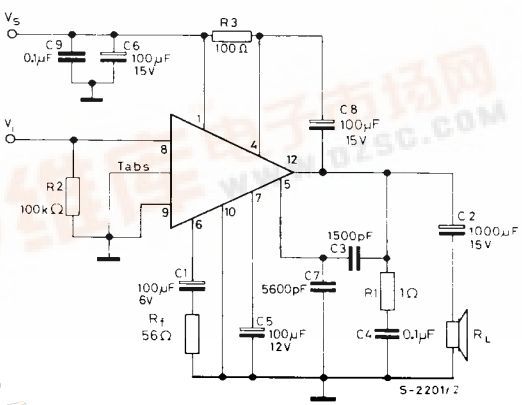
ORDER CODE: TBA810P

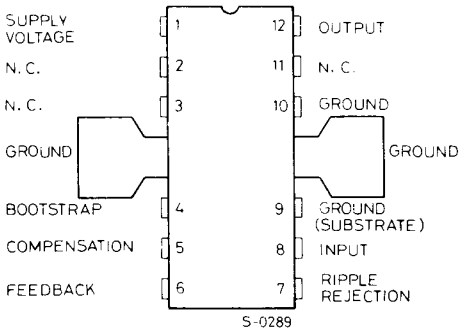
ABSOLUTE MAXIMUM RATINGS

V_s	Supply voltage	20	V
I_o	Output peak current (non repetitive)	4	A
I_o	Output peak current (repetitive)	3	A
P_{tot}	Power dissipation at $T_{amb} \leqslant 80°C$	1	W
	$T_{tab} \leqslant 90°C$	5	W
T_{stg}, T_j	Storage and junction temperature	-40 to 150	°C

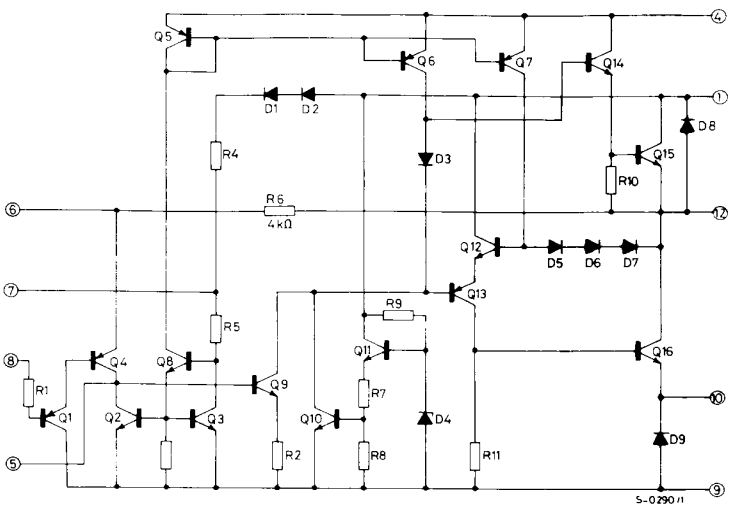
TEST AND APPLICATION CIRCUIT



CONNECTION DIAGRAM
(Top view)



SCHEMATIC DIAGRAM



THERMAL DATA

$R_{th\ j\text{-}tab}$	Thermal resistance junction-tab	max	12	°C/W
$R_{th\ j\text{-}amb}$	Thermal resistance junction-ambient	max	70*	°C/W

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

ELECTRICAL CHARACTERISTICS (Refer to the test circuit; V_s = 14.4V, T_{amb} = 25°C unless otherwise specified)

Parameter		Test Conditions	Min.	Typ.	Max.	Unit
V_s	Supply voltage (pin 1)		4		20	V
V_o	Quiescent output voltage (pin 2)		6.4	7.2	8	V
I_d	Quiescent drain current			12	20	mA
I_b	Input bias current			0.4		μA
P_o	Output power	d = 10% f = 1KHz R_L = 4Ω R_L = 2Ω	 5.5 5.5	 6 7		 W W
$V_{i\,(rms)}$	Input saturation voltage		220			mV
R_i	Input resistance (pin 8)			5		MΩ
B	Frequency response (-3dB)	R_L = 4Ω/2Ω C_3 = 820pF C_3 = 150pF	40 to 20,000 40 to 10,000			Hz Hz
d	Distortion	P_o = 50mW to 2.5W R_L = 4Ω/2Ω f = 1KHz		0.3		%
G_v	Voltage gain (open loop)	R_L = 4Ω f = 1KHz		80		dB
G_v	Voltage gain (closed loop)	R_L = 4Ω/2Ω f = 1KHz	34	37	40	dB
e_N	Input noise voltage	V_s = 16V B (-3dB) = 40 to 15,000Hz		2		μV
i_N	Input noise current			80		pA
η	Efficiency	P_o = 6W R_L = 4Ω f = 1KHz		75		%
SVR	Supply voltage rejection	R_L = 4Ω V_{ripple} = 1V_{rms} f_{ripple} = 10Hz	40	48		dB

Fig. 1 - Output power vs. supply voltage

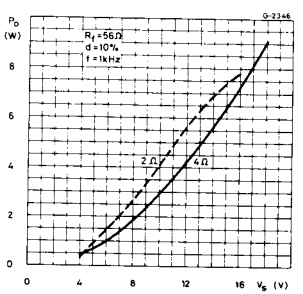


Fig. 2 - Maximum power dissipation vs. supply voltage (sine wave operation)

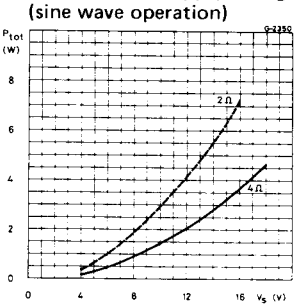


Fig. 3 - Value of C3 vs. feedback resistance for various values of B