SGS-THOMSON MICROELECTRONICS

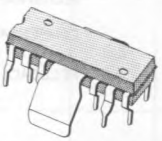
TBA810S

7W AUDIO AMPLIFIER

NOT FOR NEW DESIGN

The TBA810S 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 TBA810A provides 7W power output at 16V/4Ω, 6W at 14.4V/4Ω, 2.5W at 9V/4Ω, 1W at 6V/4Ω and works with a wide range of supply voltage (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 protection circuit.



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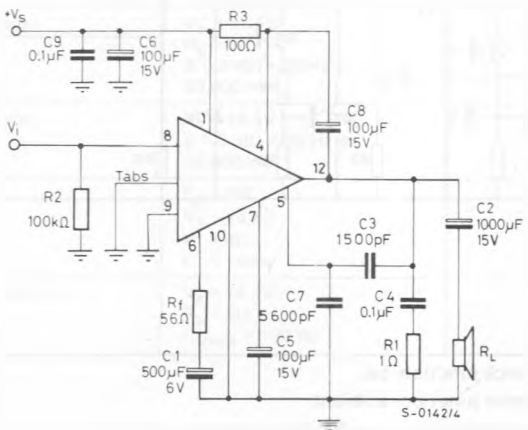
ORDERING NUMBER: TBA810S

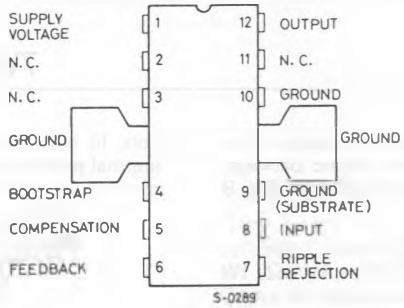
ABSOLUTE MAXIMUM RATINGS

V_s	Supply voltage	20	V
I_o	Output peak current (non-repetitive)	3.5	A
I_o	Output current (repetitive)	2.5	A
P_{tot}	Power dissipation: at $T_{amb} \leqslant 70°C$	1	W
	at $T_{tab} \leqslant 90°C$	5	W
T_{stg}, T_j	Storage and junction temperature	-40 to 150	°C

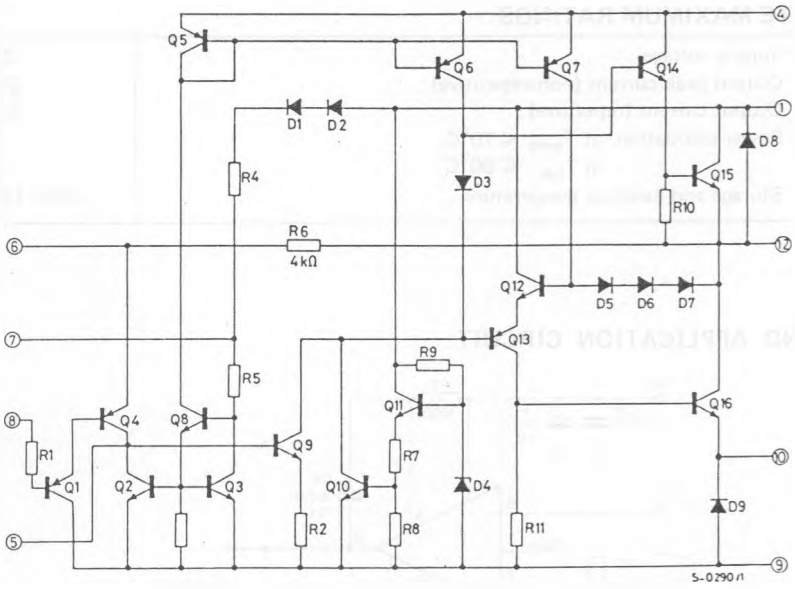
TEST AND APPLICATION CIRCUIT



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; $T_{amb} = 25\,^{\circ}C$)

Parameter		Test conditions	Min.	Typ.	Max.	Unit
V_s	Supply voltage (pin 1)		4		20	V
V_o	Quiescent output voltage (pin 12)	V_s = 14.4V	6.4	7.2	8	V
I_d	Quiescent drain current			12	20	mA
I_b	Bias current (pin 8)			0.4		μA
P_o	Power output	d = 10% R_L = 4Ω f = 1 kHz V_s = 16V V_s = 14.4V V_s = 9V V_s = 6V	 5.5	 7 6 2.5 1		 W W W W
$V_{i(rms)}$	Input voltage				220	mV
V_i	Input sensitivity	P_o = 6W V_s = 14.4V R_L = 4Ω f = 1kHz R_f = 56Ω R_f = 22Ω		 80 35		 mV mV
R_i	Input resistance (pin 8)			5		MΩ
B	Frequency response (-3 dB)	V_s = 14.4V R_L = 4Ω C3 = 820 pF C3 = 1500 pF		 40 to 20,000 40 to 10,000		 Hz Hz
d	Distorsion	P_o = 50mW to 3W V_s = 14.4V R_L = 4Ω f = 1kHz		 0.3		 %
G_v	Voltage gain (open loop)	V_s = 14.4V R_L = 4Ω f = 1kHz		 80		 dB
G_v	Voltage gain (closed loop)	V_s = 14.4V R_L = 4Ω f = 1kHz	 34	 37	 40	 dB
e_N	Input noise voltage	V_s = 14.4V R_g = 0 B (-3 dB) = 20Hz to 20,000 Hz		 2		 μV
i_N	Input noise current	V_s = 14.4V B (-3 dB) = 20 Hz to 20,000 Hz		 0.1		 nA
η	Efficiency	P_o = 5W V_s = 14.4V R_L = 4Ω f = 1kHz		 70		 %
SVR	Supply voltage rejection	V_s = 14.4V R_L = 4Ω f_{ripple} = 100 Hz		 38		 dB