

LINEAR INTEGRATED CIRCUIT

AUDIO AMPLIFIER

- OUTPUT POWER 2.1 W (12 V - 8 Ω)
- LOW DISTORTION
- LOW QUIESCENT CURRENT
- HIGH INPUT IMPEDANCE

The TAA 611 B is a monolithic integrated circuit in a 14-lead quad in-line plastic package.

It is particularly designed for use in radio receivers and record-players as audio amplifier. The usable range of supply voltage varies from 6 V to 15 V and the circuit requires a minimum number of external components.

ABSOLUTE MAXIMUM RATINGS

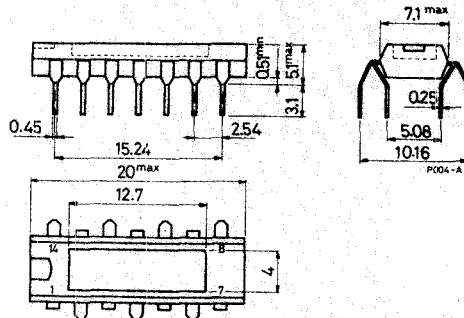
V_s	Supply voltage	15	V
V_i^*	Input voltage	-0.5 to 15	V
I_o	Output peak current	1	A
P_{tot}	Power dissipation at $T_{amb} \leq 25^\circ\text{C}$	1.35	W
$\rightarrow T_{stg}, T_j$	Storage and junction temperature	-40 to 150	$^\circ\text{C}$

* For $V_s < 15$ V, $V_{i\ max} = V_s$

ORDERING NUMBER: TAA 611 B12

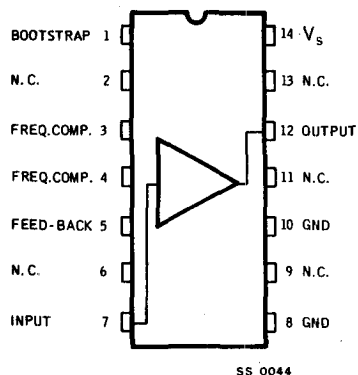
MECHANICAL DATA

Dimensions in mm

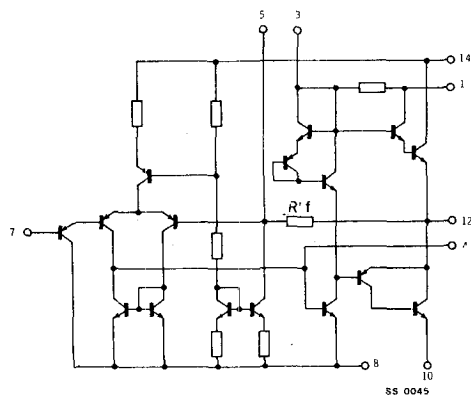


TAA 611B

CONNECTION DIAGRAM

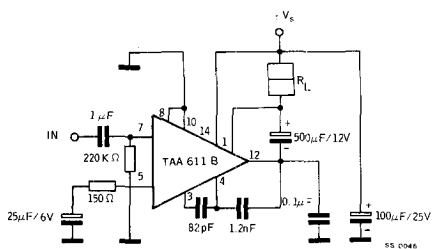


SCHEMATIC DIAGRAM

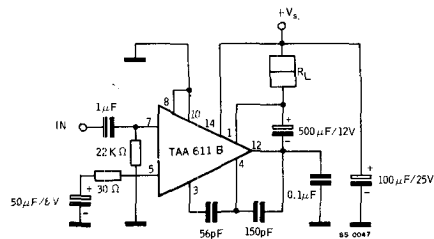


TEST CIRCUITS

Circuit No. 1 ($G_v = 50$)



Circuit No. 2 ($G_v = 250$)



THERMAL DATA

→ $R_{th \text{ j-case}}$	Thermal resistance junction-case	max	16 °C/W
$R_{th \text{ j-amb}}$	Thermal resistance junction-ambient	max	93 °C/W

ELECTRICAL CHARACTERISTICS

($T_{amb} = 25\text{ °C}$, refer to the test circuit no. 2 unless otherwise specified)

	Parameter	Test conditions	Min. Typ. Max.	Unit
	V_o Quiescent output voltage	$V_s = 9\text{ V}$ $V_s = 12\text{ V}$	4.8 6.3	V V
	I_d Total quiescent drain current	$V_s = 9\text{ V}$ $V_s = 12\text{ V}$	3 3.5	mA mA
	I_d Quiescent drain current of output transistors	$V_s = 9\text{ V}$ $V_s = 12\text{ V}$	1 1.2	mA mA
	I_d Drain current	$R_L = 8\ \Omega$ $P_o = 1.15\text{ W}$ $V_s = 9\text{ V}$ $P_o = 2.1\text{ W}$ $V_s = 12\text{ V}$	170 235	mA mA
→	I_b Input bias current	$V_s = 9\text{ V}$ $V_s = 12\text{ V}$	60 0.1 1	nA μA
→	P_o Output power	$d = 2\%$ $f = 1\text{ kHz}$ $V_s = 9\text{ V}$ $R_L = 8\ \Omega$ $V_s = 12\text{ V}$ $R_L = 8\ \Omega$ $d = 10\%$ $f = 1\text{ kHz}$ $V_s = 9\text{ V}$ $R_L = 8\ \Omega$ $V_s = 12\text{ V}$ $R_L = 8\ \Omega$	0.9 1.7 1.5 2.1	W W W W
	R_f' Internal feedback resistance (see schematic diagram)		7.5	k Ω
→	Z_i Input impedance	open loop	5	M Ω

TAA 611B

ELECTRICAL CHARACTERISTICS (continued)

Parameter	Test conditions	Min.	Typ.	Max.	Unit
d Distortion	Test circuit 1				
	$R_L = 8 \Omega$ $f = 1 \text{ kHz}$				
	$P_o = 50 \text{ mW}$ $V_s = 9 \text{ V}$		0.4		%
	$P_o = 50 \text{ mW}$ $V_s = 12 \text{ V}$		0.3		%
	$P_o = 0.5 \text{ W}$ $V_s = 9 \text{ V}$		0.3		%
	$P_o = 1 \text{ W}$ $V_s = 12 \text{ V}$		0.2		%
	Test circuit 2				
	$R_L = 8 \Omega$ $f = 1 \text{ kHz}$				
	$P_o = 50 \text{ mW}$ $V_s = 9 \text{ V}$		1.7		%
	$P_o = 50 \text{ mW}$ $V_s = 12 \text{ V}$		1.5		%
G_v Voltage gain (open loop)	$R_L = 8 \Omega$ $V_s = 9 \text{ V}$		68		dB
	$R_L = 8 \Omega$ $V_s = 12 \text{ V}$		70		dB

Fig. 1 - Typical output power
vs load resistance

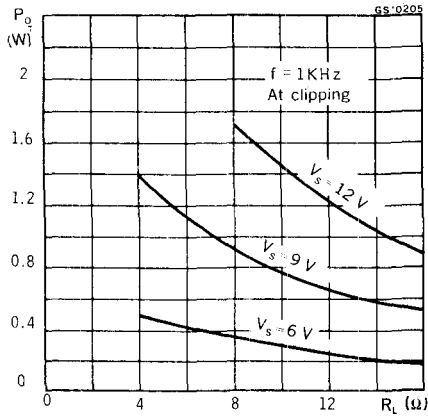


Fig. 2 - Typical output power
vs load resistance

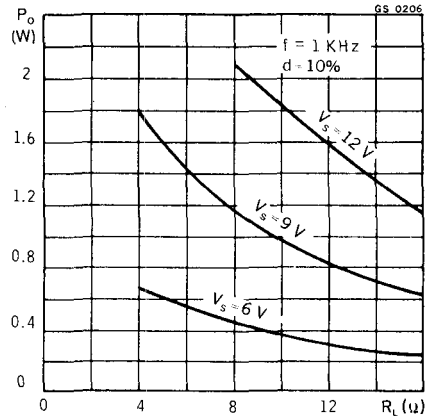


Fig. 3 - Typical distortion
vs output power

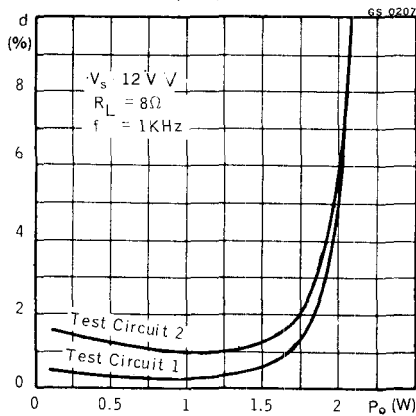
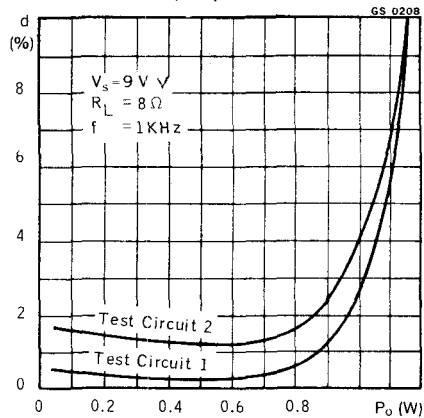


Fig. 4 - Typical distortion
vs output power



TAA 611B

Fig. 5 - Typical voltage gain (open loop) vs frequency

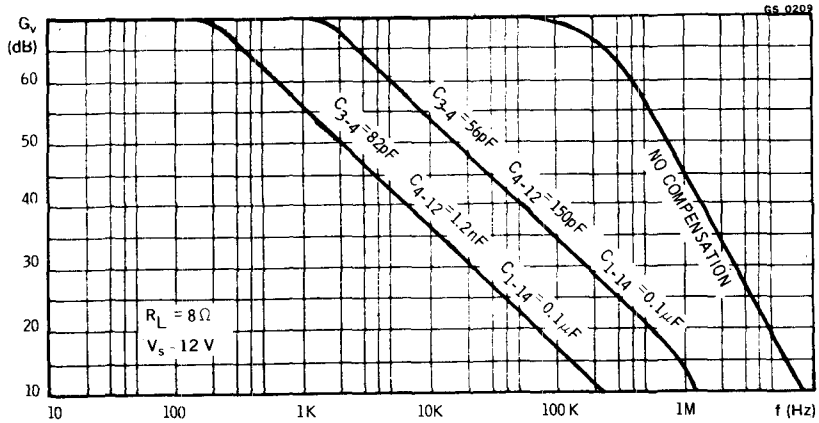


Fig. 6 - Typical relative frequency response

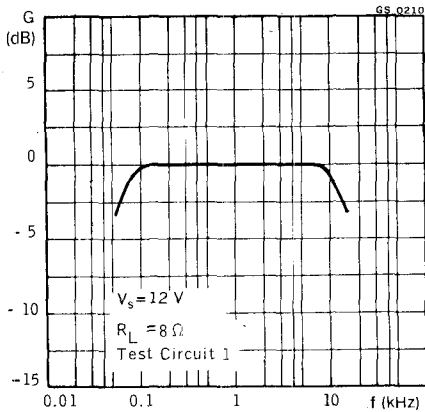


Fig. 7 - Typical relative frequency response

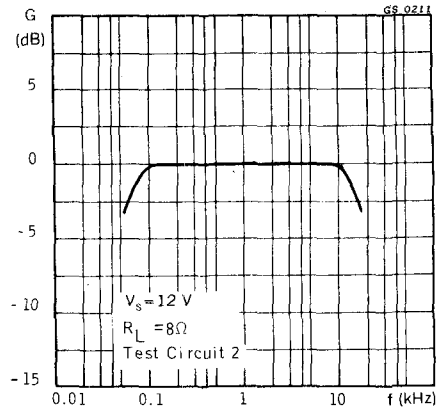


Fig. 8 - Typical output power vs input voltage

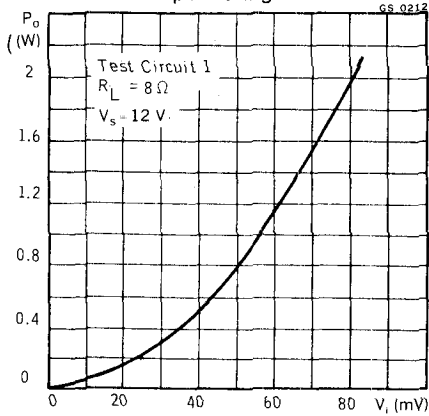


Fig. 9 - Typical output power vs input voltage

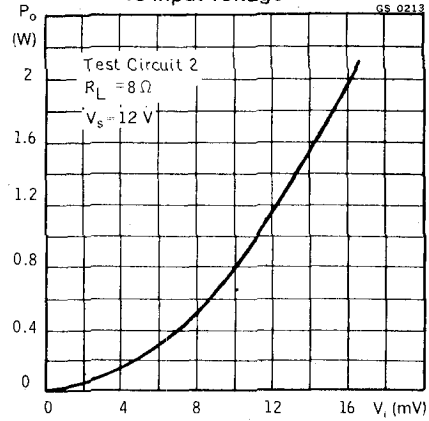


Fig. 10 - Typical power dissipation and efficiency vs output power

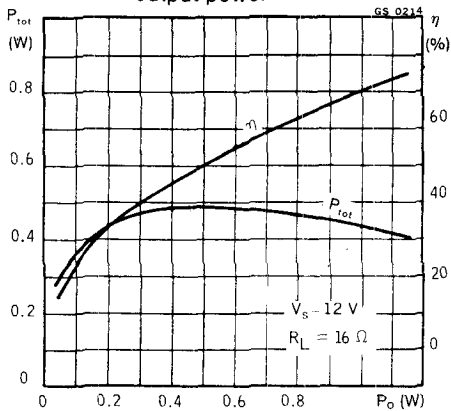
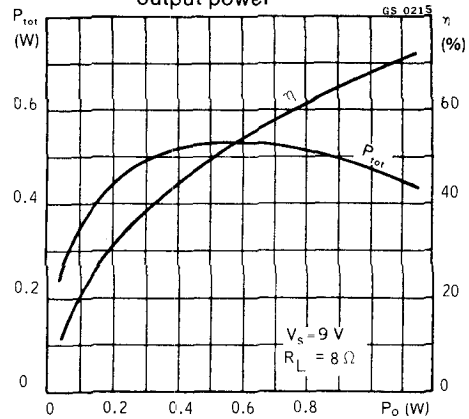


Fig. 11 - Typical power dissipation and efficiency vs output power



TAA 611B

Fig. 12 - Typical power dissipation and efficiency vs output power

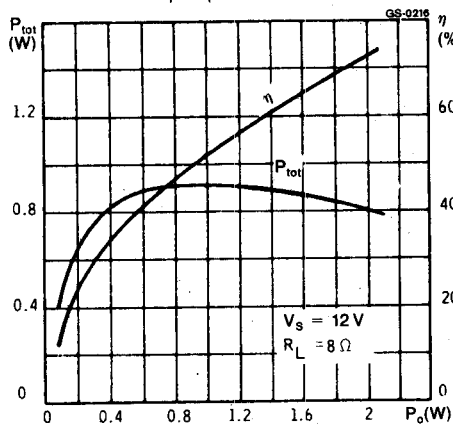


Fig. 13 - Typical drain current vs output power

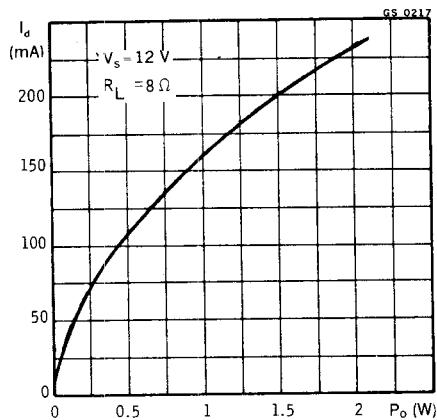


Fig. 14 - Maximum power dissipation vs load resistance

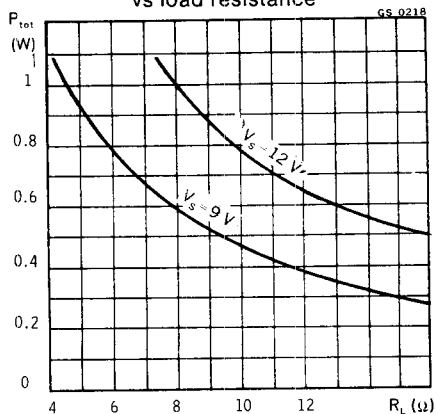


Fig. 15 - Power rating chart

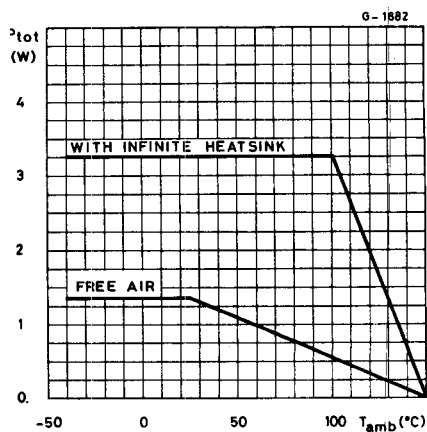


Fig. 16 - Typical quiescent drain current vs supply voltage

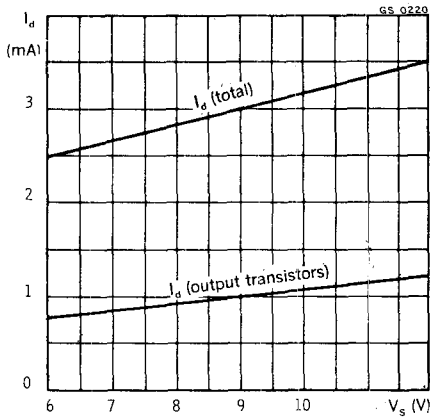


Fig. 17 - Typical quiescent drain current vs ambient temperature

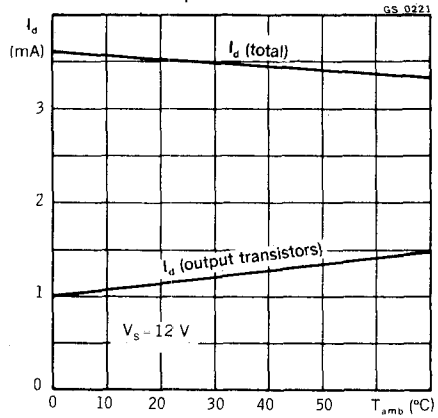
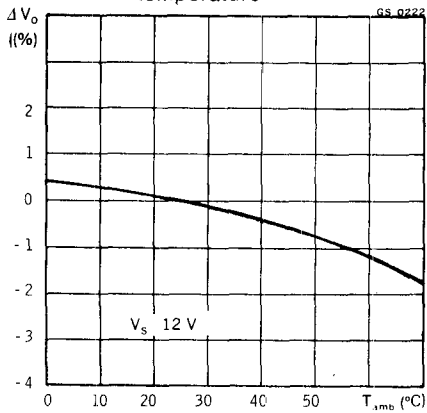


Fig. 18 - Quiescent output voltage variation vs ambient temperature



TAA 611B

TYPICAL APPLICATIONS

Fig. 19 - Audio amplifier for radio

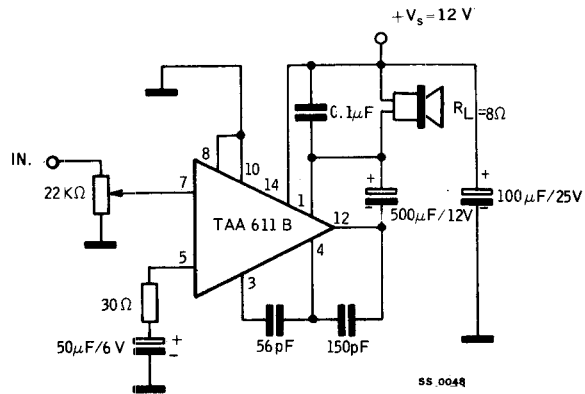


Fig. 20 - Audio amplifier for record-player

