TAA 611B

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

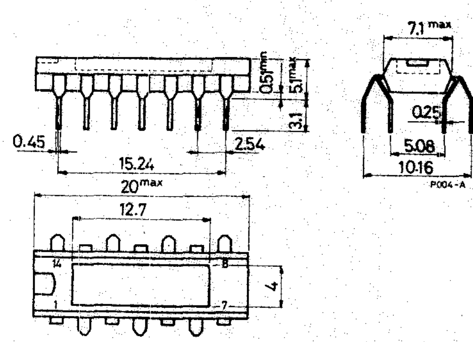
V_s	Supply voltage	15	V
V_i*	Input voltage	-0.5 to 15	V
I_o	Output peak current	1	A
P_{tot}	Power dissipation at $T_{amb} \leq 25\,°C$	1.35	W
→ T_{stg}, T_j	Storage and junction temperature	-40 to 150	°C

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

ORDERING NUMBER: TAA 611 B12

MECHANICAL DATA

Dimensions in mm



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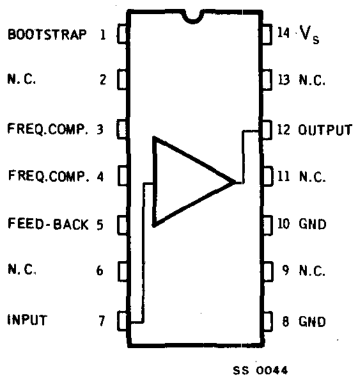
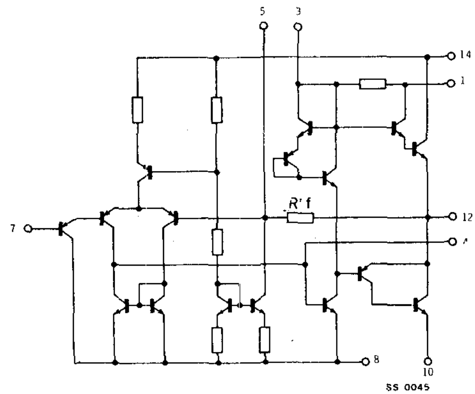
CONNECTION DIAGRAM

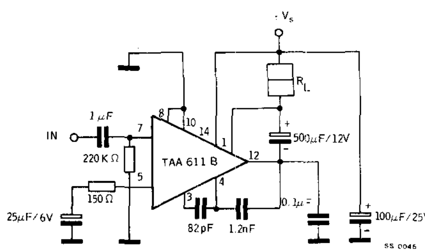


SCHEMATIC DIAGRAM

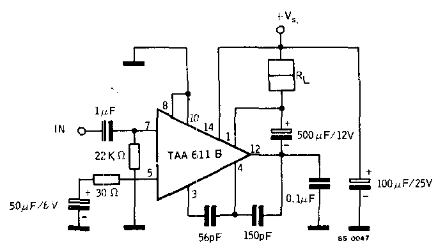


TEST CIRCUITS

Circuit No. 1 (G_v = 50)



Circuit No. 2 (G_v = 250)



THERMAL DATA

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

ELECTRICAL CHARACTERISTICS

(T_{amb} = 25 °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 V V_s = 12 V		4.8 6.3		V V
I_d	Total quiescent drain current	V_s = 9 V V_s = 12 V		3 3.5		mA mA
I_d	Quiescent drain current of output transistors	V_s = 9 V V_s = 12 V		1 1.2		mA mA
I_d	Drain current	R_L = 8 Ω P_o = 1.15 W V_s = 9 V P_o = 2.1 W V_s = 12 V		170 235		mA mA
→ I_b	Input bias current	V_s = 9 V V_s = 12 V		60 0.1	 1	nA μA
→ P_o	Output power	d = 2% f = 1 kHz V_s = 9 V R_L = 8 Ω V_s = 12 V R_L = 8 Ω		0.9 1.7		W W
		d = 10% f = 1 kHz V_s = 9 V R_L = 8 Ω V_s = 12 V R_L = 8 Ω	 1.5	1.15 2.1		W W
R_f'	Internal feedback resistance (see schematic diagram)			7.5		kΩ
→ Z_i	Input impedance	open loop		5		MΩ

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ELECTRICAL CHARACTERISTICS (continued)

Parameter		Test conditions		Min.	Typ.	Max.	Unit
d	Distortion	Test circuit 1					
		$R_L = 8\ \Omega$	$f = 1$ kHz				
		$P_o = 50$ mW	$V_s = 9$ V		0.4		%
		$P_o = 50$ mW	$V_s = 12$ V		0.3		%
		$P_o = 0.5$ W	$V_s = 9$ V		0.3		%
		$P_o = 1$ W	$V_s = 12$ V		0.2		%
		Test circuit 2					
		$R_L = 8\ \Omega$	$f = 1$ kHz				
		$P_o = 50$ mW	$V_s = 9$ V		1.7		%
		$P_o = 50$ mW	$V_s = 12$ V		1.5		%
		$P_o = 0.5$ W	$V_s = 9$ V		1.2		%
		$P_o = 1$ W	$V_s = 12$ V		1		%
G_v	Voltage gain (open loop)	$R_L = 8\ \Omega$	$V_s = 9$ V		68		dB
		$R_L = 8\ \Omega$	$V_s = 12$ V		70		dB

Fig. 1 - Typical output power vs load resistance

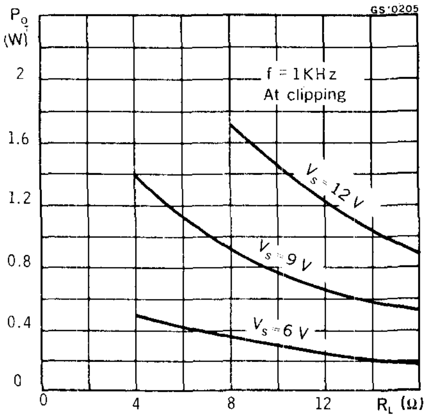


Fig. 2 - Typical output power vs load resistance

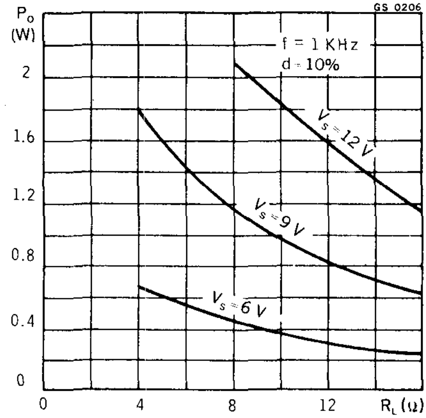


Fig. 3 - Typical distortion vs output power

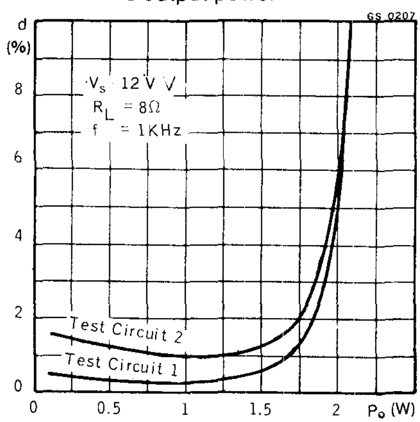


Fig. 4 - Typical distortion vs output power

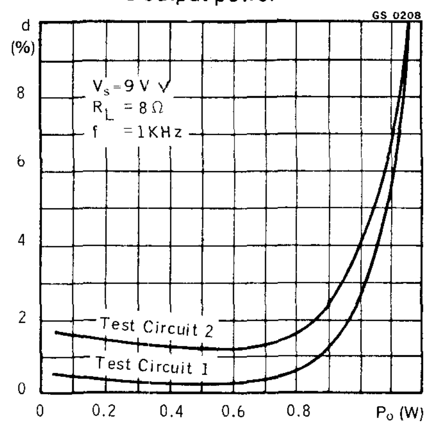


Fig. 5 - Typical voltage gain (open loop) vs frequency

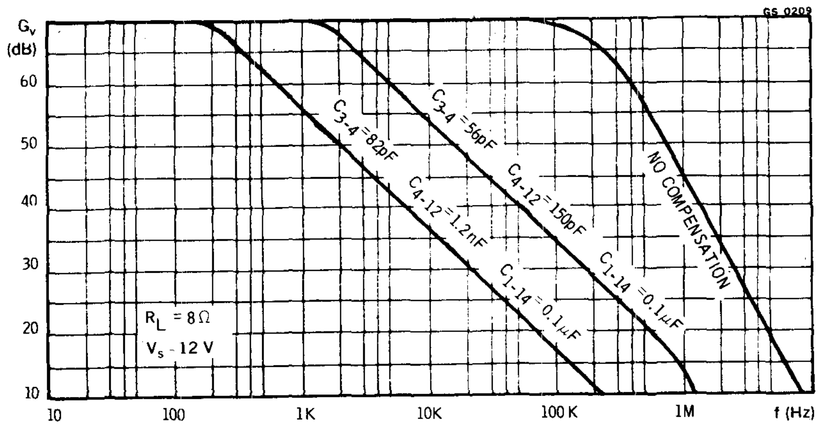


Fig. 6 - Typical relative frequency response

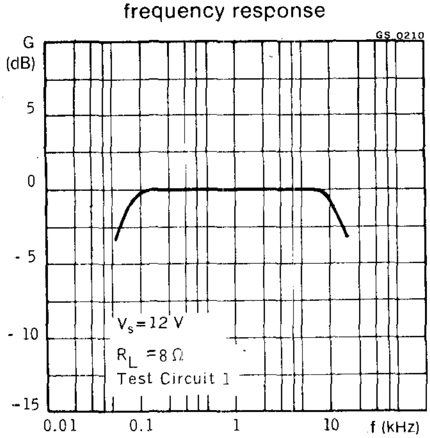


Fig. 7 - Typical relative frequency response

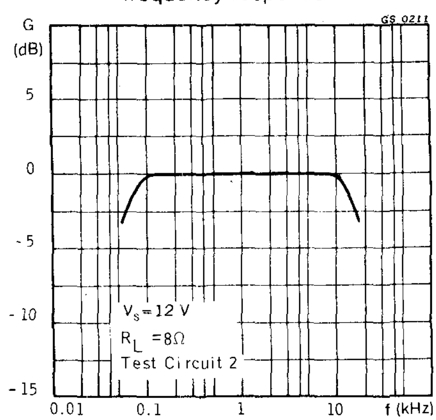


Fig. 8 - Typical output power vs input voltage

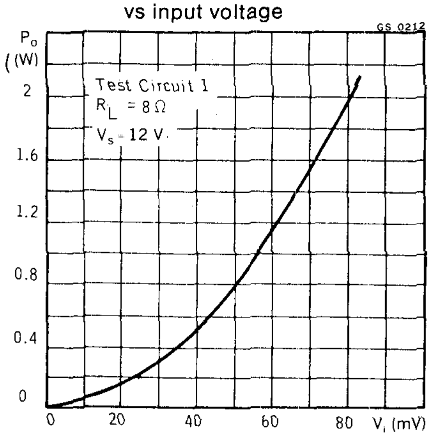


Fig. 9 - Typical output power vs input voltage

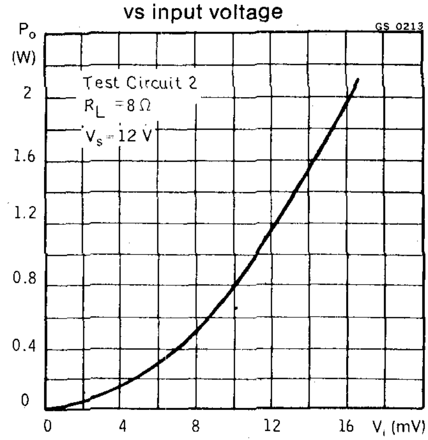


Fig. 10 - Typical power dissipation and efficiency vs output power

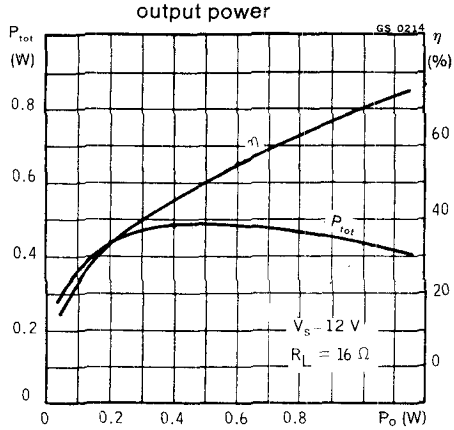


Fig. 11 - Typical power dissipation and efficiency vs output power

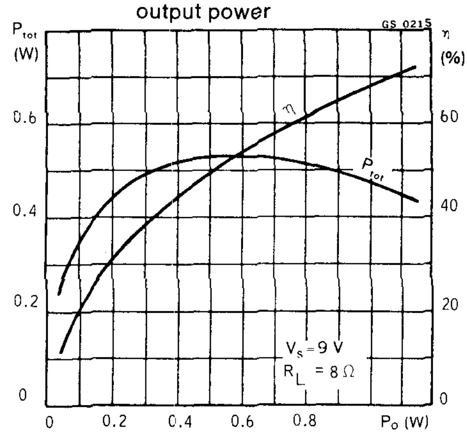


Fig. 12 - Typical power dissipation and efficiency vs output power

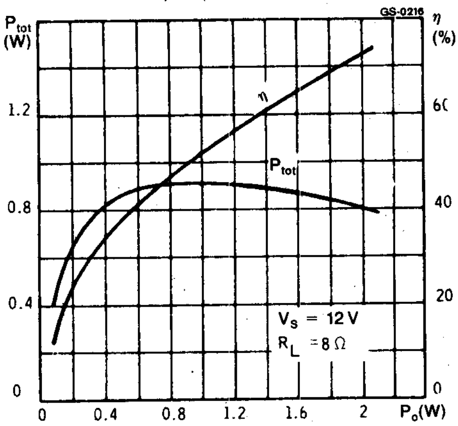


Fig. 13 - Typical drain current vs output power

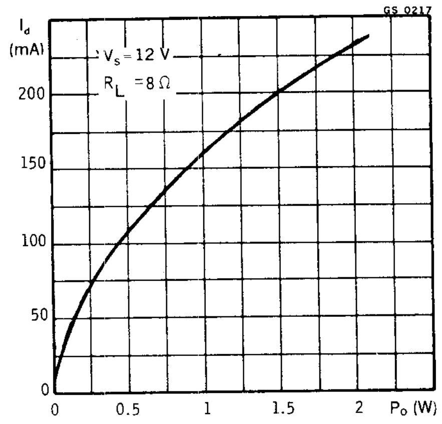


Fig. 14 - Maximum power dissipation vs load resistance

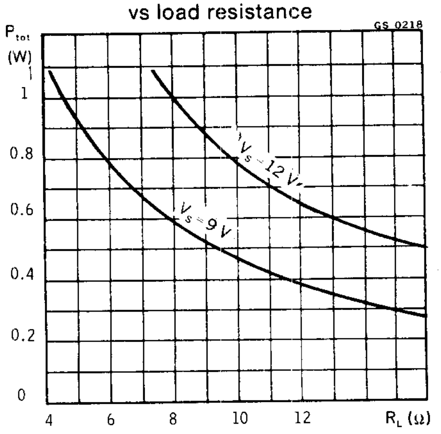


Fig. 15 - Power rating chart

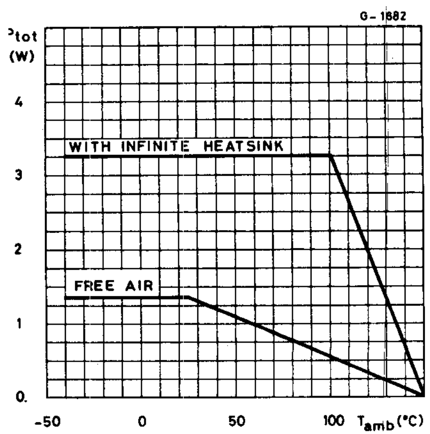


Fig. 16 - Typical quiescent drain current vs supply voltage

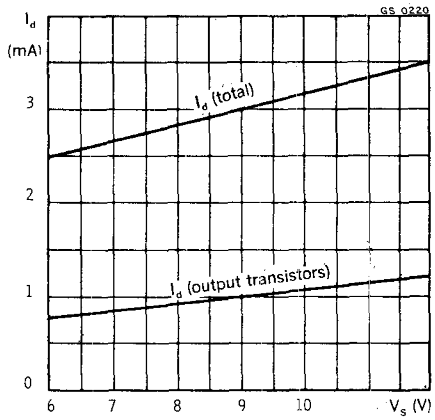


Fig. 17 - Typical quiescent drain current vs ambient temperature

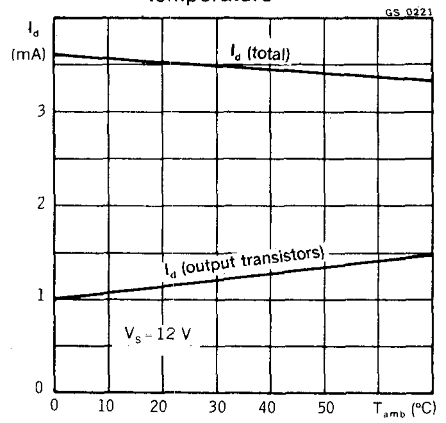
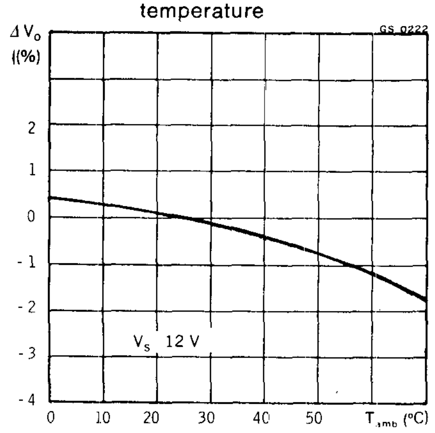


Fig. 18 - Quiescent output voltage variation vs ambient temperature



TYPICAL APPLICATIONS

Fig. 19 - Audio amplifier for radio

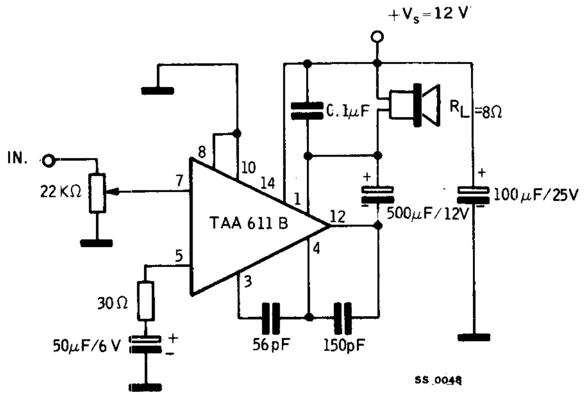


Fig. 20 - Audio amplifier for record-player