

DESCRIPTION

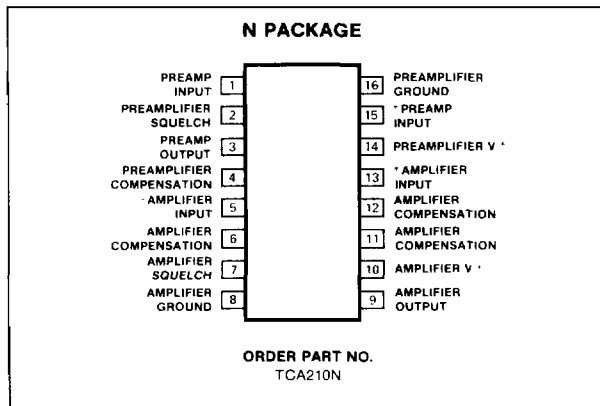
The TCA210 is a monolithic integrated circuit comprising two amplifiers for use in intercoms and other audio systems. The first is a high-gain pre-amplifier with differential input and a class-A output stage which can deliver 2.5mW into an 800Ω load. The second is a power amplifier with a class-B output stage capable of delivering 500mW into a 25Ω load.

Speech rating: up to 800mW can be delivered into a 15Ω load for short periods. When there is no signal, the current consumption is 8mA (typ.). Squelch provision incorporated in both amplifiers can be used to ensure maximum battery life.

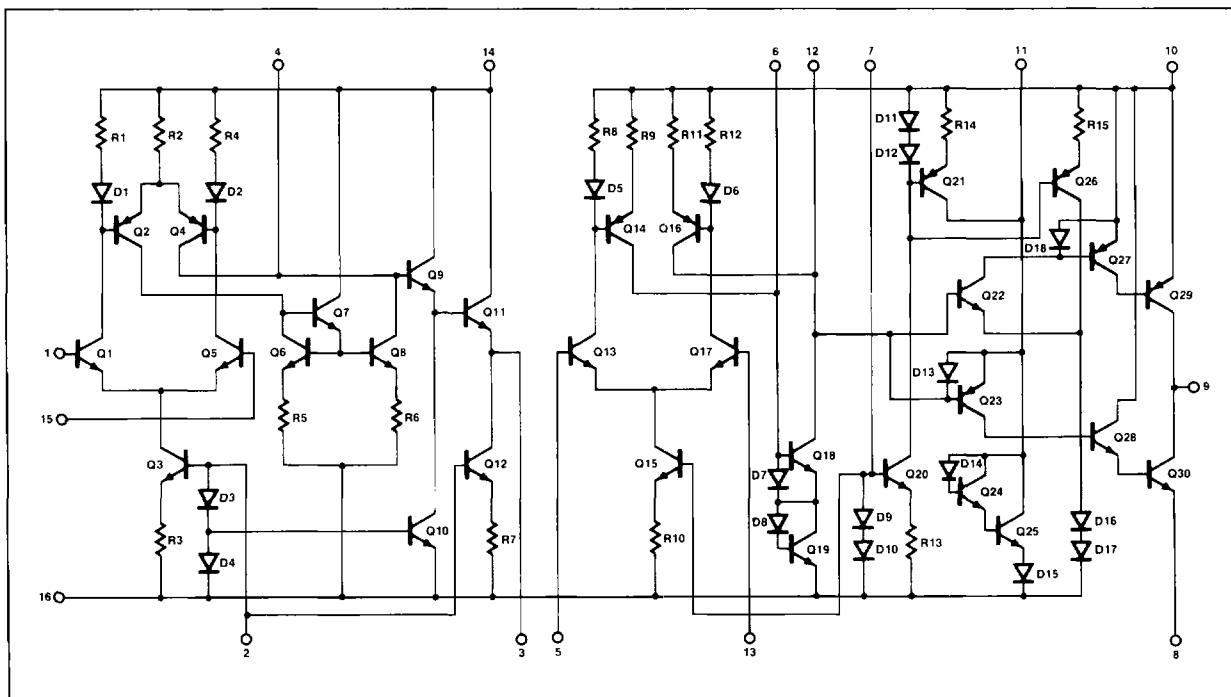
FEATURES

- Noise figure < 6dB
- Separate supply and ground leads
- Preamp open loop gain of 10KV/V
- Output amplifier gain of 500V/V
- Output power 500mW

PIN CONFIGURATION



EQUIVALENT SCHEMATIC



ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING	UNIT
Voltages		
Pin 8 must be externally connected to pin 16		
Pins 3, 9, 10, 14 with respect to pin 16	17	V
Pins 1, 15, 5, 13 with respect to pin 16	17	V*
Pin 1 with respect to pin 15	±5	V
Pin 5 with respect to pin 13	±5	V
Currents		
Pin 10	550	mA
Pin 9	±550	mA
Pin 8	550	mA
Pin 14	20	mA
Pin 3	±20	mA
Pins 2, 4, 6, 7, 11, 12	5	mA
Pins 1, 15, 5, 13	0,5	mA
Temperatures		
Storage temperature T _{STG}	-55 to +125	°C
Operating ambient temperature (see also graph) T _A	-55 to +125	°C

*NOTE

For a supply voltage less than 14V, the maximum input voltage is equal to the supply voltage

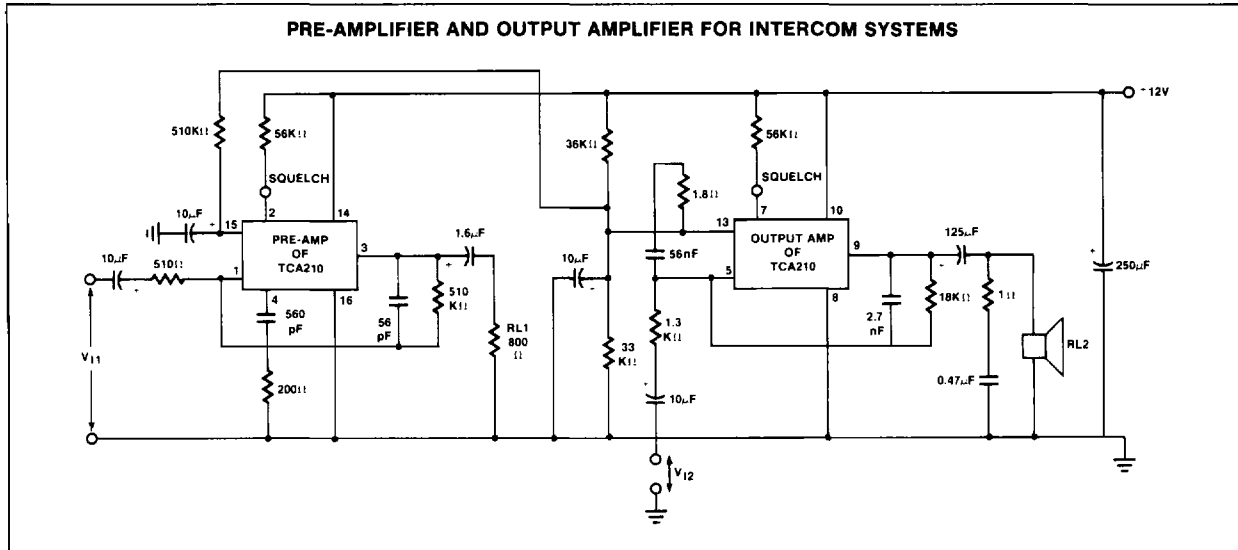
DC ELECTRICAL CHARACTERISTICS T_A = 25°C, V₊ = 12 volts unless otherwise specified.

PARAMETER	TEST CONDITIONS	LIMITS			UNIT
		Min	Typ	Max	
I _B Input bias current	Pins 1 and 15 1/2(I ₁ +I ₁₅)		2.5		μA
I _{CC} Supply current	Pin 14		4		μA
I _B Input bias current	Pin 2		200		μA
I _B Input bias current	Pins 5 and 13 1/2(I ₅ +I ₁₃)		2		μA
I _{CC} Supply current	Pin 10, no signal		4		μA
I _B Bias current	Pin 7		150		μA
A _{VOL} Open loop gain (Preamplifier)		65	80		dB
Output transistor		2.5			mA
Output amplifier					
A _{VOL} Open loop voltage gain			54		dB
P _{OUT} Output power			450		mW
Preamplifier					
N _F Noise figure	R _S = 5KΩ, B _w = 300 to 4KHz		4		dB
B _w Unity gain bandwidth	6dB/octave compensation		10		MHz
Output amplifier					
T _{HD} Total distortion	f = 1KHz, P _O = 50mW, R _L = 75Ω		1.5		%

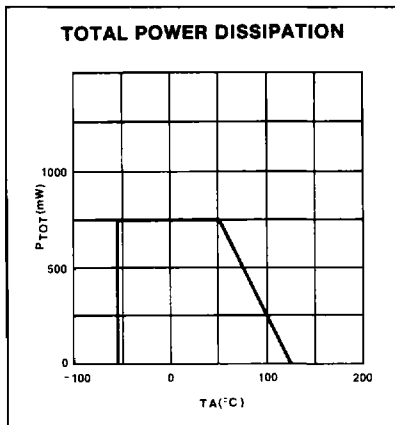
NOTE

V₊ = 12 volts, T_A = 25°C unless otherwise specified

TYPICAL APPLICATION



TYPICAL PERFORMANCE CHARACTERISTICS



ELECTRICAL CHARACTERISTICS $T_A = 25^\circ\text{C}; V_P = 12\text{V}$

PARAMETER	LIMITS			UNIT
	Min	Typ	Max	
PRE-AMPLIFIER				
P_o			2, 5	mW
B			4	kHz
I_{14}			4, 0	mA
V_{i1}			1, 5	mV
$ Z_i $			500	Ω
OUTPUT AMPLIFIER				
P_o			500	mW
P_o			800	mW
B			4	kHz
d_{tot}			1, 5	%
V_{i2}			260	mV
$ Z_i $			1, 3	k Ω
I_{10}			4	mA