

# AN7163

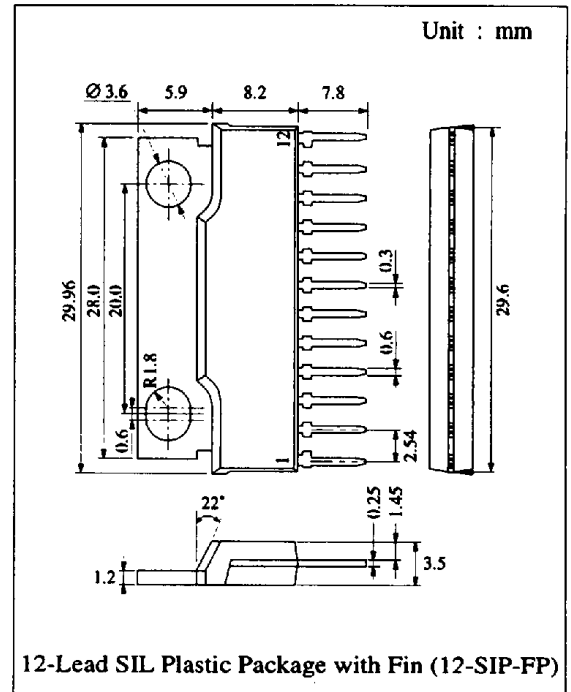
## BTL 17W Audio Power Amplifier

### ■ Description

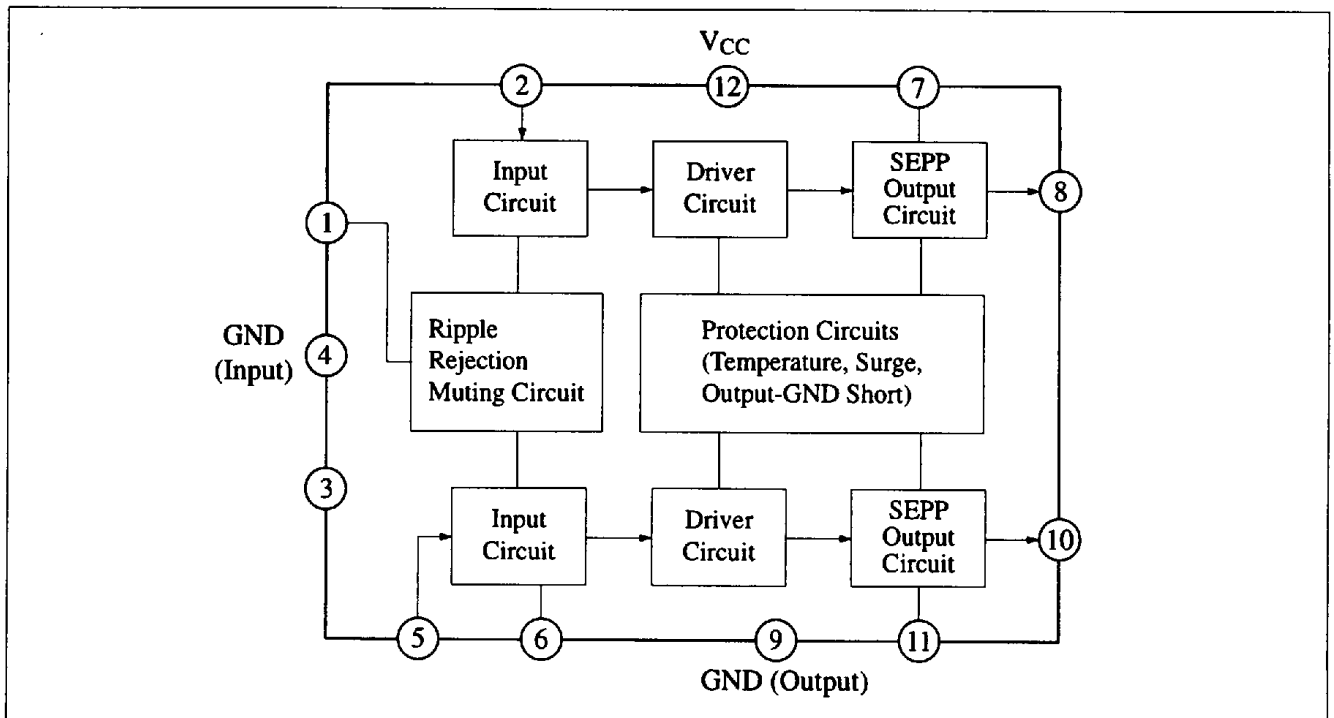
The AN7163 is a monolithic integrated circuit designed exclusively for BTL high power amplifiers in consumer applications. It is suitable for Hi-Fi and car stereo applications.

### ■ Features

- Built-in protection circuits include: overvoltage, overcurrent, thermal and output-GND short
- Small pop noise during ON/OFF
- High maximum output power (BTL):  $P_O = 17W$  at  $V_{CC} = 13.2V, R_L = 4\Omega$
- Few external components required
- Operating supply voltage:  $V_{CC} = 7V \sim 18V$



### ■ Block Diagram



### ■ Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

Item	Symbol	Rating	Unit
Supply Voltage	$V_{CC}$	24	V
Supply Current	$I_{CC}$	4	A
Power Dissipation	$P_D$	41.7	W
Surge Supply Voltage	$V_{CC(surge)}$	50	V
Operating Ambient Temperature	$T_{opr}$	-30 ~ +75	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$

Operating Supply Voltage Range:  $V_{CC} = 7.0\text{V} \sim 18.0\text{V}$

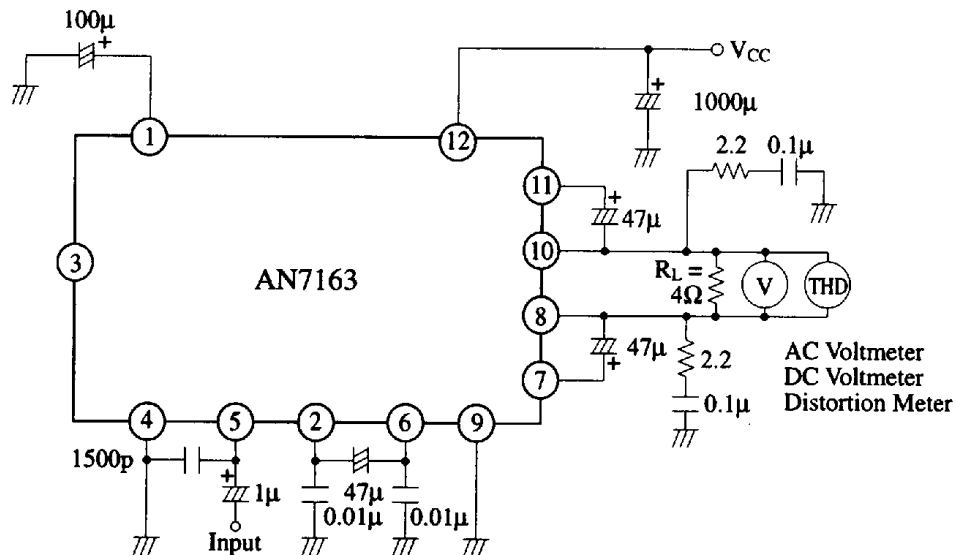
### ■ Electrical Characteristics ( $V_{CC}=13.2\text{V}$ , $f=1\text{kHz}$ , $R_L=4\Omega$ , $T_a=25^\circ\text{C}$ )

Item	Symbol	Condition	min.	typ.	max.	Unit
Quiescent Current	$I_{CQ}$	$V_{in} = 0\text{mV}$		40	80	mA
Output Noise Voltage	$V_{no}$	$V_{in} = 0\text{V}$ , $R_g = 10\text{k}\Omega$ , $f = 15\text{Hz} \sim 30\text{kHz}$ , 12dB/OCT		0.7	1.2	mV
Output Offset Voltage	$V_{O(offset)}$	$V_{in} = 0\text{mV}$	-200		200	mV
Voltage gain	$G_v$	$V_{in} = 5\text{mV}$	49	51	53	dB
Total Harmonic Distortion	THD	$V_{in} = 5\text{mV}$		0.15	0.5	%
Output Power	$P_O$	THD = 10%	15	17		W
Ripple Rejection	RR	$V_{in} = 0\text{V}$ , $R_g = 0\Omega$ , $V_r = 300\text{mV}$ , $f_r = 120\text{Hz}$	35	45		dB

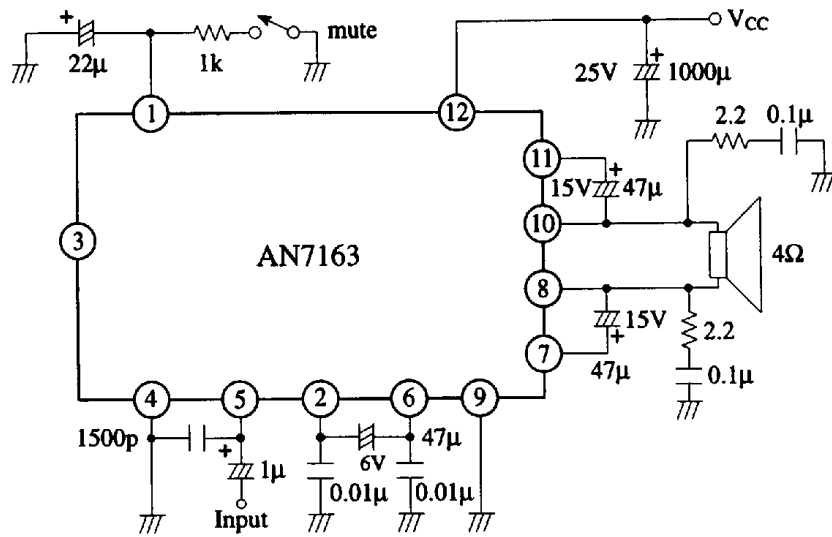
### ■ Pin

Pin No	Pin Name	Pin No	Pin Name
1	Ripple Filter	7	Bootstrap Ch.2
2	N.F.B. Ch.2	8	Output Ch.2
3	Centre Control	9	GND (Output)
4	GND (Input)	10	Output Ch.1
5	Input	11	Bootstrap Ch.1
6	N.F.B. Ch.1	12	$V_{CC}$

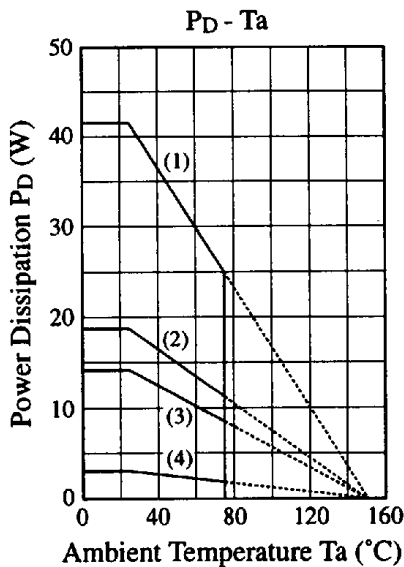
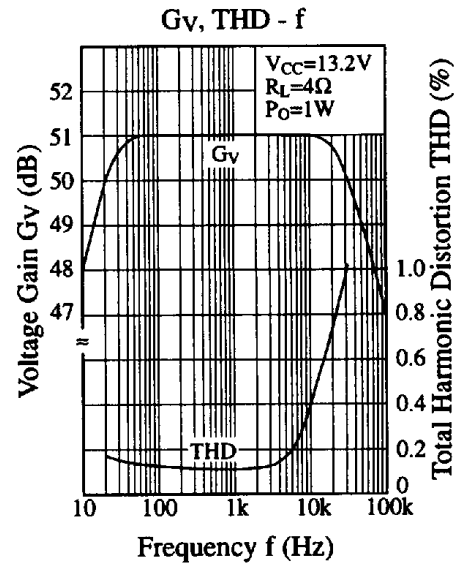
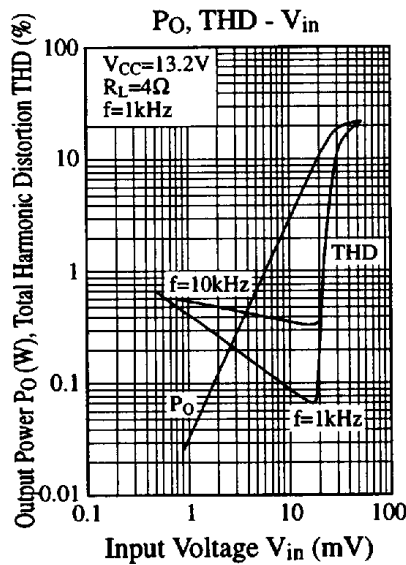
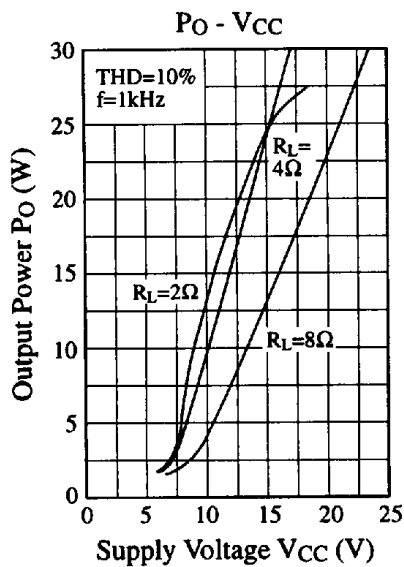
### Test Circuit



■ Application Circuit



■ Characteristics Curve



- (1)  $T_c = T_a$  ( $\theta_{j-c} = 3^\circ\text{C/W}$ )
- (2) With a  $100\text{cm}^2 \times 3\text{mm}$  Al heat sink (black colour coated) or a  $200\text{cm}^2 \times 2\text{mm}$  Al heat sink (not lacquered)
- (3) With a  $100\text{cm}^2 \times 2\text{mm}$  Al heat sink (not lacquered)
- (4) Without heat sink