

# AN7163

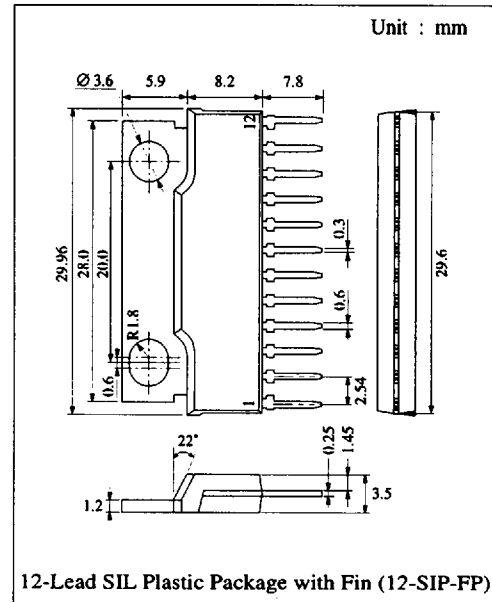
## BTL 17W Audio Power Amplifier

### ■ Description

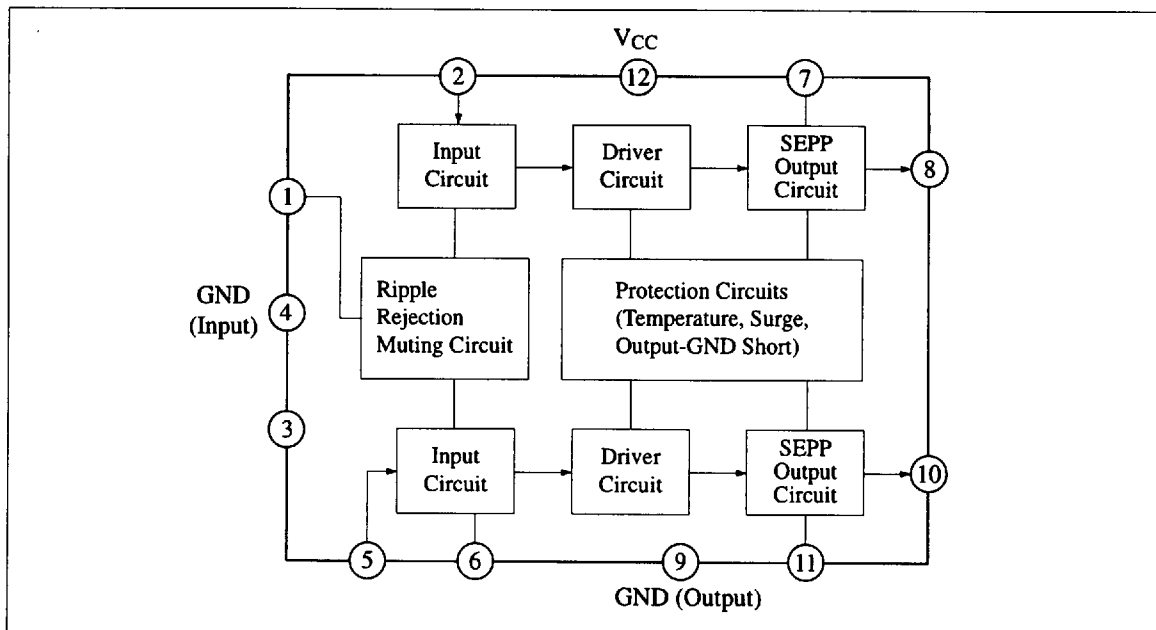
The AN7163 is a monolithic integrated circuit designed exclusively for BTL high power amplifiers in consumer applications. It is suitable for Hi-Fi and car stereo applications.

### ■ 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 (Ta=25°C)

Item	Symbol	Rating	Unit
Supply Voltage	V <sub>CC</sub>	24	V
Supply Current	I <sub>CC</sub>	4	A
Power Dissipation	P <sub>D</sub>	41.7	W
Surge Supply Voltage	V <sub>CC(surge)</sub>	50	V
Operating Ambient Temperature	T <sub>opr</sub>	-30 ~ +75	°C
Storage Temperature	T <sub>stg</sub>	-55 ~ +150	°C

Operating Supply Voltage Range: V<sub>CC</sub> = 7.0V ~ 18.0V

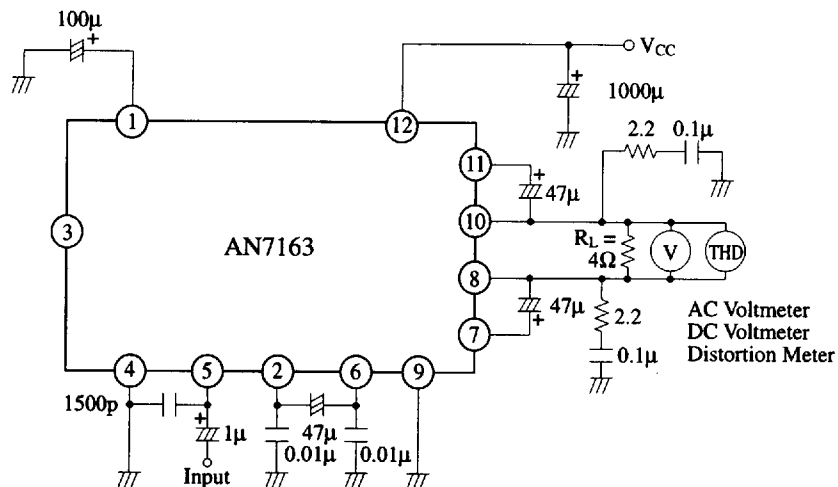
### ■ Electrical Characteristics (V<sub>CC</sub>=13.2V, f=1kHz, R<sub>L</sub>=4Ω, Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Quiescent Current	I <sub>CQ</sub>	V <sub>in</sub> = 0mV		40	80	mA
Output Noise Voltage	V <sub>no</sub>	V <sub>in</sub> = 0V, R <sub>g</sub> = 10kΩ, f = 15Hz~30kHz, 12dB/OCT		0.7	1.2	mV
Output Offset Voltage	V <sub>O(offset)</sub>	V <sub>in</sub> = 0mV	-200		200	mV
Voltage gain	G <sub>V</sub>	V <sub>in</sub> = 5mV	49	51	53	dB
Total Harmonic Distortion	THD	V <sub>in</sub> = 5mV		0.15	0.5	%
Output Power	P <sub>O</sub>	THD = 10%	15	17		W
Ripple Rejection	RR	V <sub>in</sub> = 0V, R <sub>g</sub> = 0Ω, V <sub>r</sub> = 300mV, f <sub>r</sub> = 120Hz	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 <sub>CC</sub>

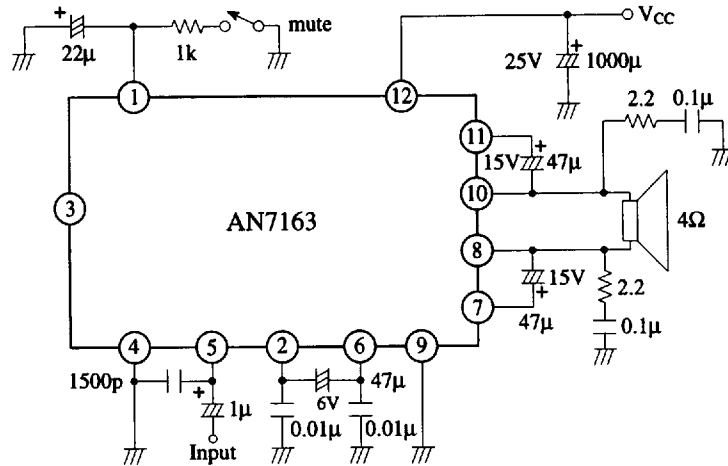
### Test Circuit



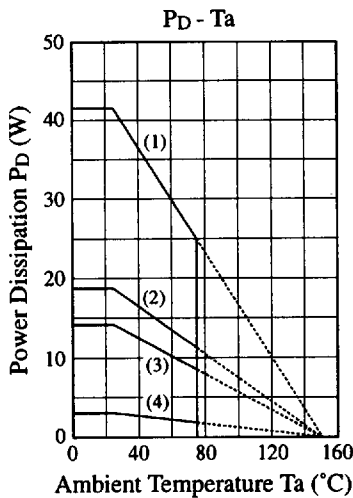
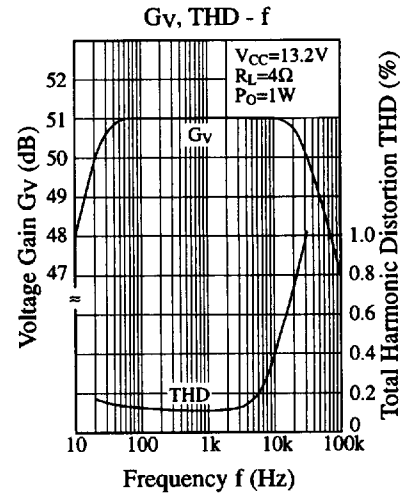
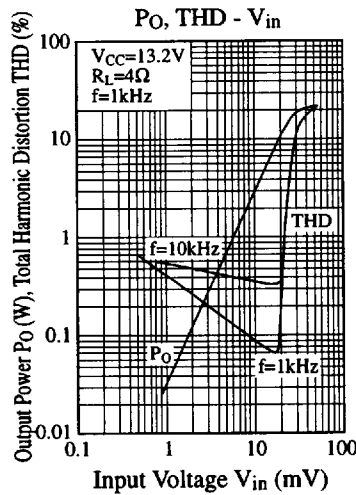
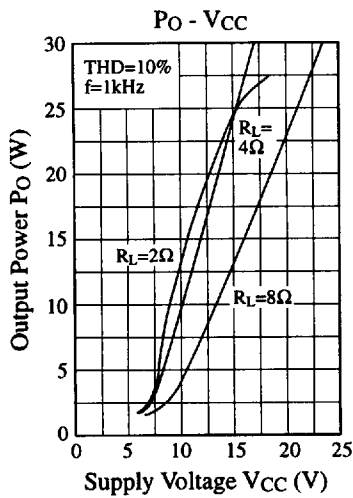
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Panasonic

■ Application Circuit



■ Characteristics Curve



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