

AN7178

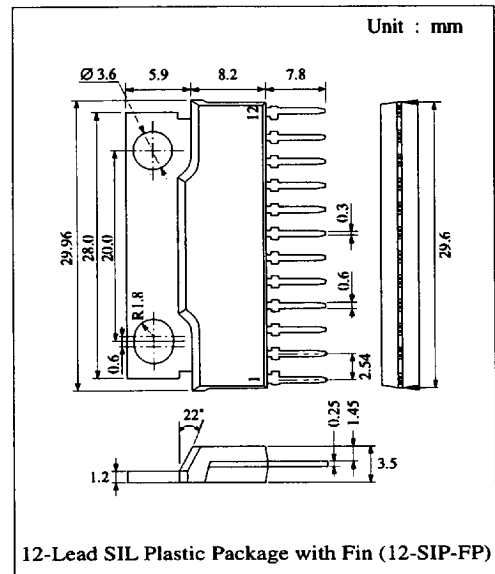
Dual 5.7W Audio Power Amplifier

■ Description

The AN7178 is a monolithic integrated circuit designed for dual audio high power amplifiers in consumer applications suitable for car audio and portable component radio cassette recorders.

■ Features

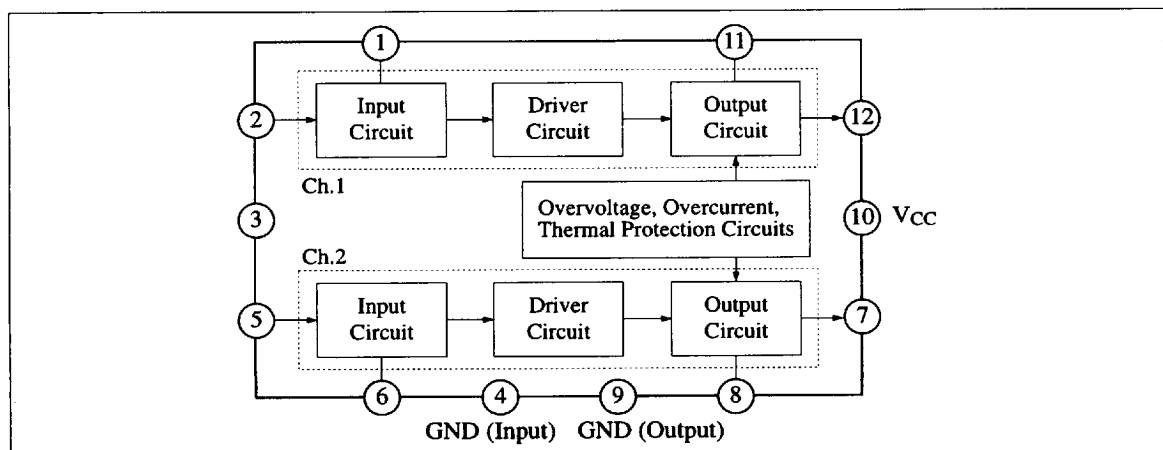
- Very high maximum output power: $P_O = 5.7W$ at $V_{CC} = 13.2V$, $R_L = 4\Omega$
- High gain: $G_v = 54dB$



■ Pin

Pin No	Pin Name	Pin No	Pin Name
1	N.F.B. Ch.1	7	Output Ch.2
2	Input Ch.1	8	Bootstrap Ch.2
3	Ripple Filter & Muting	9	GND (Output)
4	GND (Input)	10	V _{CC}
5	Input Ch.2	11	Bootstrap Ch.1
6	N.F.B. Ch.2	12	Output Ch.1

■ Block Diagram



■ 6932852 0013840 43T ■

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Panasonic

■ Absolute Maximum Ratings (Ta=25°C)

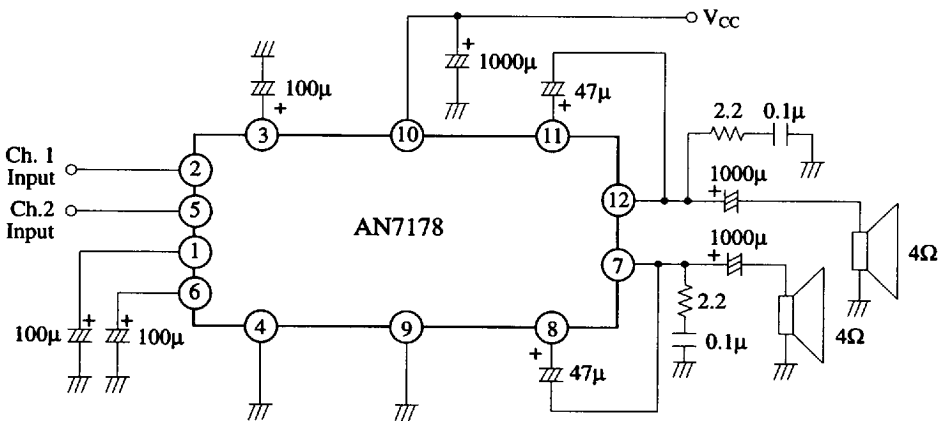
Item	Symbol	Rating	Unit
Supply Voltage	V _{CC}	18	V
Supply Current	I _{CC}	4	A
Power Dissipation	P _D	41.7	W
Operating Ambient Temperature	T _{opr}	-30 ~ +75	°C
Storage Temperature	T _{stg}	-55 ~ +150	°C

Operating Supply Voltage Range: V_{CC} = 8.0V ~ 18.0V

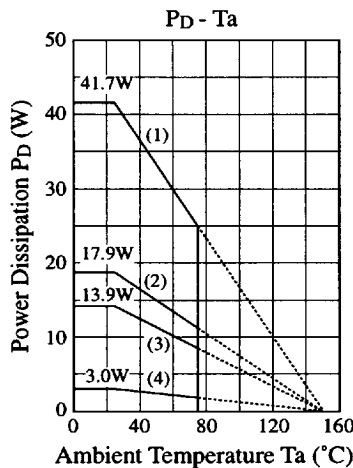
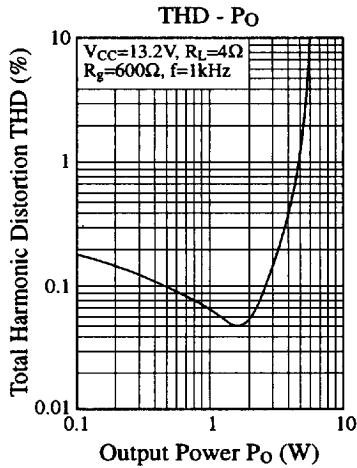
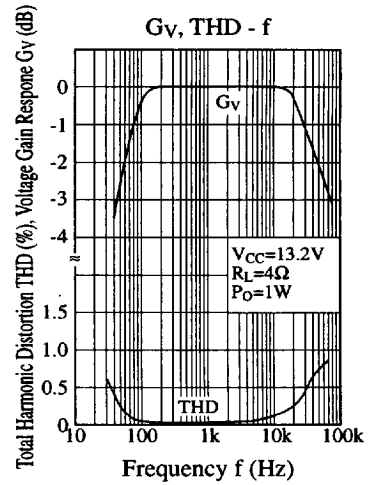
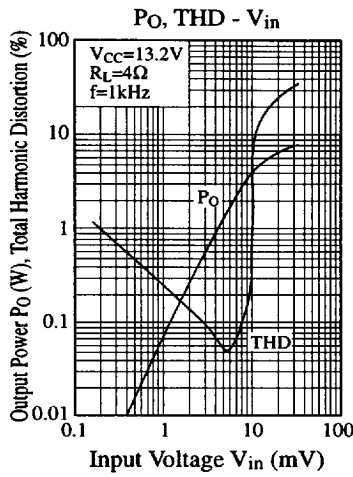
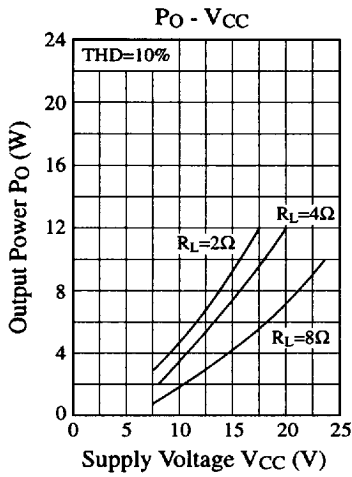
■ Electrical Characteristics (V_{CC}=13.2V, R_L=4Ω, f=1kHz, Ta=25±2°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Quiescent Current	I _{CQ}	V _{in} = 0mV	30	55	100	mA
Total Harmonic Distortion	THD	P _O = 0.5W, f = 1kHz		0.1	0.5	%
		P _O = 0.5W, f = 100Hz		0.1		
		P _O = 0.5W, f = 10kHz		0.2		
Maximum Output Power	P _O	THD = 10%	5.0	5.7	W	
		THD = 10%, R _L = 2Ω		8.9		
		THD = 10%, R _L = 8Ω		3.1		
Voltage Gain	G _v	P _O = 0.5W	52	54	56	dB
Output Noise Voltage	V _{no}	R _g = 10kΩ, 1000pF, f = 15Hz~30kHz, 12dB/OCT		0.8	1.5	mV
		R _g = 10kΩ, 1000pF Without filter		1.1		
Channel Balance	CB	P _O = 0.5W		0	1	dB
Channel Separation	CS	P _O = 0.5W	40	50		dB
Ripple Rejection	RR	R _g = 10kΩ, V _r = 280mV, f _r = 120Hz	35	41		dB
Offset Voltage	V _{O(offset)}	V _{in} = 0mV		0	200	mV

■ Application Circuit



■ Characteristics Curve



- (1) $T_c = T_a$ ($\theta_{j-c} = 3^\circ\text{C/W}$)
- (2) With a 100cm² x 3mm Al heat sink (black colour coated) or a 200cm² x 2mm Al heat sink (not lacquered)
- (3) With a 100cm² x 2mm Al heat sink (not lacquered)
- (4) Without heat sink

■ Printed Circuit Board Layout (Scale: 1:1)

