FUJITSU

5.8 W DUAL AUDIO POWER AMPLIFIER

MB3722

February 1989
Edition 1.0

5.8W DUAL AUDIO POWER AMPLIFIER

The Fujitsu MB3722 is designed for a dual low-frequency high-power amplifier which is packed in 12 pin single in line plastic package. The MB3722 requires a few external components, this enables high density mounting. Design for heat radiation is easy because thermal resistance is low.

The MB3722 contains internal power-on pop noise protection circuitry and various protection circuitry. The device is suitable best for car-stereo.

- High power output: 5.8 W typ.
- Low Noise Output Voltage: 0.8 mV typ.
- Low Total Harmonic Distortion: 0.2 % typ.
- Minimum external components
- On chip power on pop noise protection circuit
- Audio mute function is provided
- Separated GND pins for Input/Output circuit
- Various protection circuits
  — Over voltage protection
  — Thermal protection
  — Load short protection
  — Output pin-to-DC short protection

PLASTIC PACKAGE
SIP-12P-M01

PIN ASSIGNMENT

FRONT VIEW

Pin	Signal
12	OUT–A
11	BS–A
10	Vcc
9	BS–B
8	OUT–B
7	GND–OUT
6	GND–IN
5	IN–B
4	NFB–B
3	BYPASS
2	NFB–A
1	IN–A

ABSOLUTE MAXIMUM RATINGS (see NOTE)   (Tc = 25°C)

Rating	Symbol	Value	Unit
Power Supply Voltage (No signal)	Vccoo	24	V
Power Supply Voltage (Operation)	Vcc	18	V
Power Supply Voltage (Surge)	Vccs	40 *	V
Output Current (Peak)	IOPEAK	4.5	A
Power Dissipation	PD	18	W
Operating Temperature (Case)	Tc	–20 to +75	°C
Storage Temperature	TSTG	–55 to +150	°C

NOTE: * ts≤0.2 sec, tr≥1 msec

Permanent device damage may occur if the above Absolute Maximum Ratings are exceeded. Functional operation should be restricted to the conditions as detailed in the operational sections of this data sheet. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.
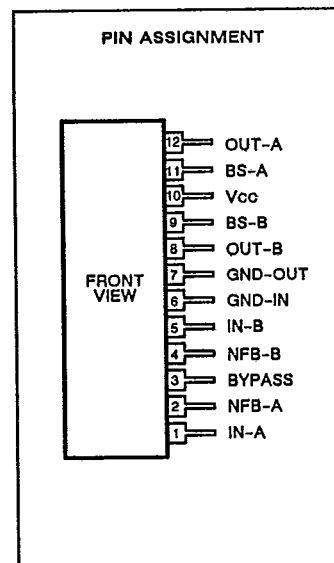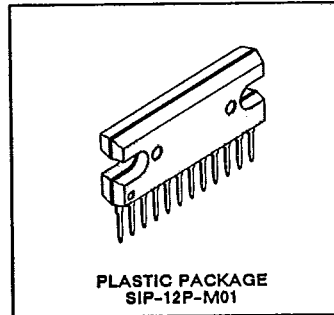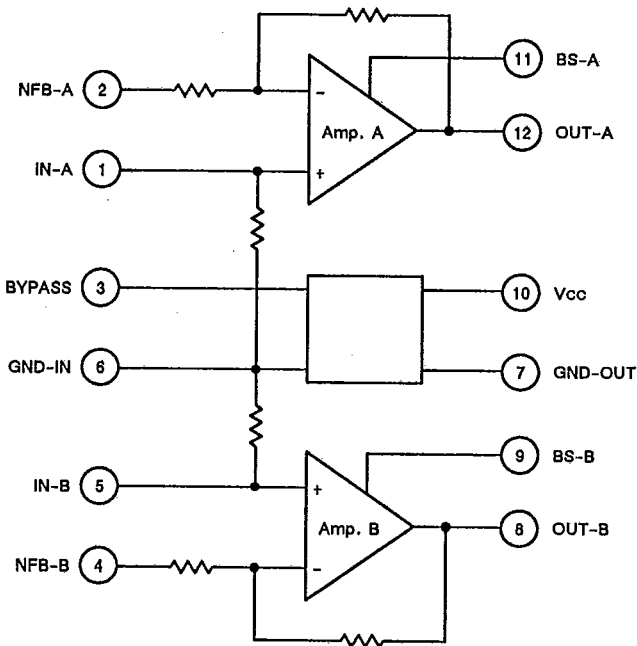
This device contains circuitry to protect the inputs against damage due to high static voltages or electric fields. However, it is advised that normal precautions be taken to avoid application of any voltage higher than maximum rated voltages to this high impedance circuit.

Fig. 1 — MB3722 BLOCK DIAGRAM

NFB-A (2)

IN-A (1)

BYPASS (3)

GND-IN (6)

IN-B (5)

NFB-B (4)

Amp. A

Amp. B

(11) BS-A

(12) OUT-A

(10) Vcc

(7) GND-OUT

(9) BS-B

(8) OUT-B

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Value	Unit
Power Supply Voltage	Vcc	8 to 16	V
Operating Temperature	Tc	–20 to +75	°C
Output Load	RL	2 to 8 *	Ω

Note:
* Dual operation.

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ELECTRICAL CHARACTERISTICS

(Vcc = 13.2 V, f = 1 kHz, RL = 4Ω, Tc = 25°C, One channel operation)

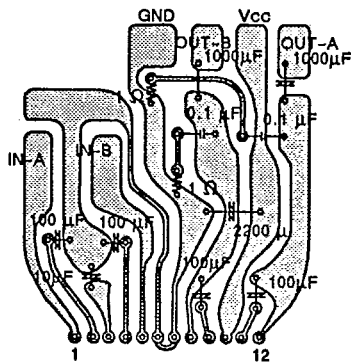| Parameter	Symbol	Condition	Value			Unit
			Min	Typ	Max	
Quiescent Power Supply Current	Iq	V_{IN}=0V		80	160	mA
Voltage Gain	Av	Po=1W	48.5	50.5	52.5	dB
Difference Voltage Gain	ΔAv	Po=1W		0	1.5	dB
Output Power	Po	THD=10%	5.0	5.8		W
Total Harmonic Distortion	THD	Po=1W		0.2	1.0	%
Output Noise Voltage	V_{NO}	Rg=10kΩ, BW = 20 Hz to20 kHz		0.8	1.6	mV
Input Resistance	R_{IN}		20	30		kΩ
Cross Talk		Rg=600Ω	40	50		dB
Audio Mute Attenuation		Rg=600Ω		40		dB

Fig. 2 — TYPICAL APPLICATION EXAMPLE
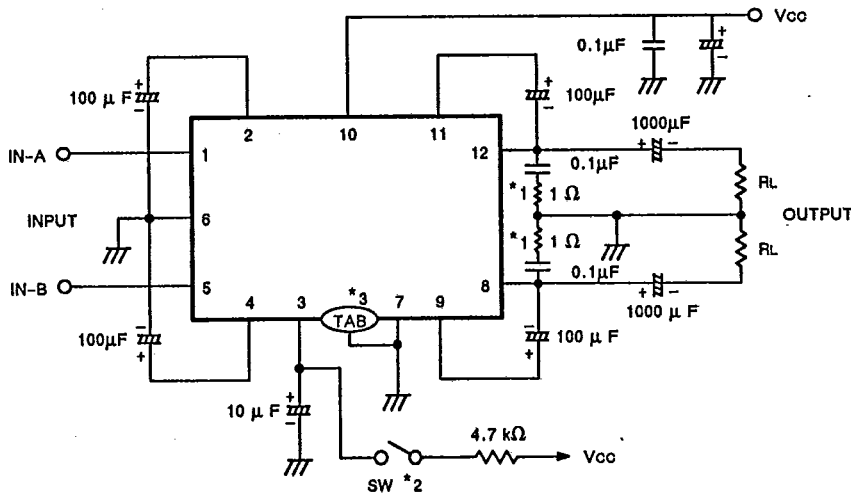
Notes:
*1 Use Mylar condenser.
*2 When Vcc is apply to the pin 3, Audio mute (40dB) is available.
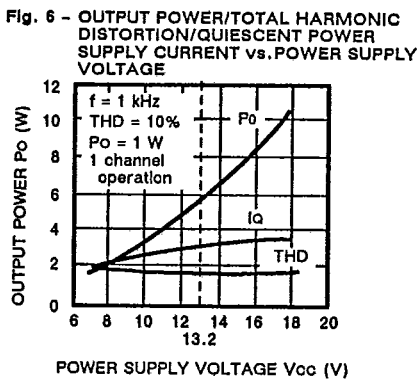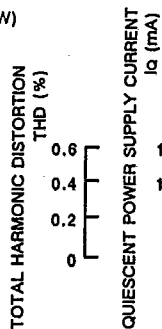*3 The TAB should be connected with the GND.

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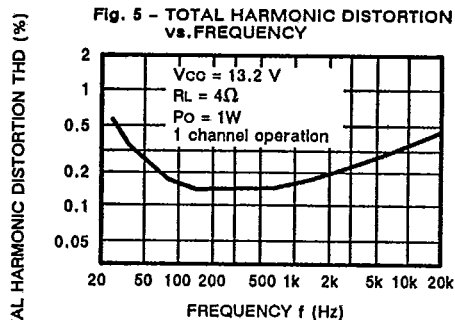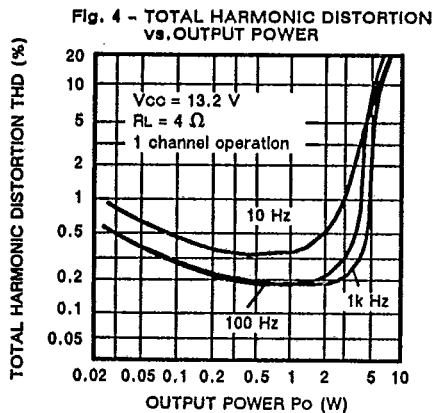
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Fig. 3 — TYPICAL APPLICATION CIRCUIT PATTERN (BOTTOM VIEW)

TYPICAL CHARACTERISTICS CURVES

Fig. 4 - TOTAL HARMONIC DISTORTION vs. OUTPUT POWER

Vcc = 13.2 V
RL = 4 Ω
1 channel operation

10 Hz
1k Hz
100 Hz

Fig. 5 - TOTAL HARMONIC DISTORTION vs. FREQUENCY

Vcc = 13.2 V
RL = 4Ω
Po = 1W
1 channel operation

Fig. 6 - OUTPUT POWER/TOTAL HARMONIC DISTORTION/QUIESCENT POWER SUPPLY CURRENT vs. POWER SUPPLY VOLTAGE

f = 1 kHz
THD = 10%
Po = 1 W
1 channel operation

Po
Iq
THD

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12-LEAD PLASTIC SINGLE IN-LINE PACKAGE
(Case No. : SIP-12P-M01)

1.240(31.50) MAX

.945(24.00)

.165(4.20) MAX

R.071(1.80)

.551(14.00)
MAX

.142(3.60)

.472(12.00)

.323(8.20)

INDEX

.256(6.50)

.287(7.30)

.047(1.20)   .094(2.40)

.100(2.54)
TYP

.063(1.60)
MAX

.020(0.50)

.012(0.31)

Dimensions in
inches (millimeters)
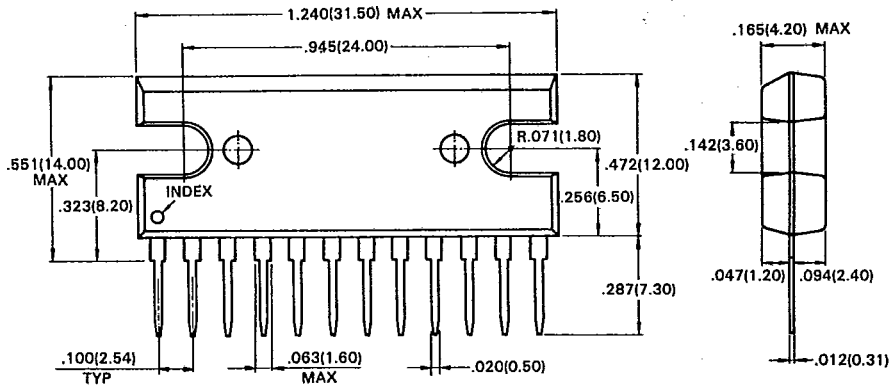
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3