FUJITSU

14 W BTL AUDIO POWER AMPLIFIER

MB3730A

September 1988
Edition 1.0

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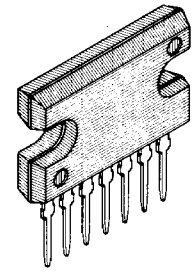
The Fujitsu MB3730A is designed for a low-frequency high-power amplifier with internal BTL (Balanced Transformer Less) circuitry. The MB3730A is packed in 7 pin single in line plastic package and requires a few external components, this enables high density mounting. Design for heat radiation is easy because thermal resistance is low 3°C/W.

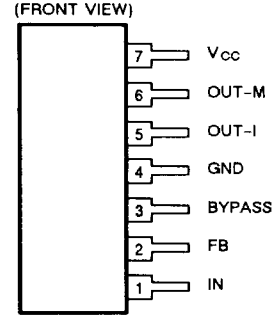
The MB3730A contains internal power-on pop noise protection circuit and various protection circuits. The device is suitable best for car-stereo.

- High power output : 14W typ.
- Minimum external components
- Various protection circuits
  - Over voltage protection
  - Load short protection
  - Thermal protection
  - Output pin-to-DC short protection
- No break-down: between pins is shorted or inverted insertion
- Low thermal resistance : 3°C/W
- On-chip power-on pop noise protection circuit
- 7-pin Plastic Single In Line package (Suffix: -PS)



PLASTIC PACKAGE
SIP-07P-M01

PIN ASSIGNMENT



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.

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

Rating	Symbol	Value	Unit
Power Supply Voltage	V_{CC}	18	V
Power Supply Voltage (Surge)	V_{CCS}	50 *	V
Output Current (Peak)	I_{OPEAK}	4.5	A
Power Dissipation	P_D	18	W
Operating Temperature (Case)	T_C	-20 to +75	°C
Storage Temperature	T_{STG}	-55 to +150	°C

Note: * $ts \leq 0.2$ sec, $tr \geq 1$ 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.

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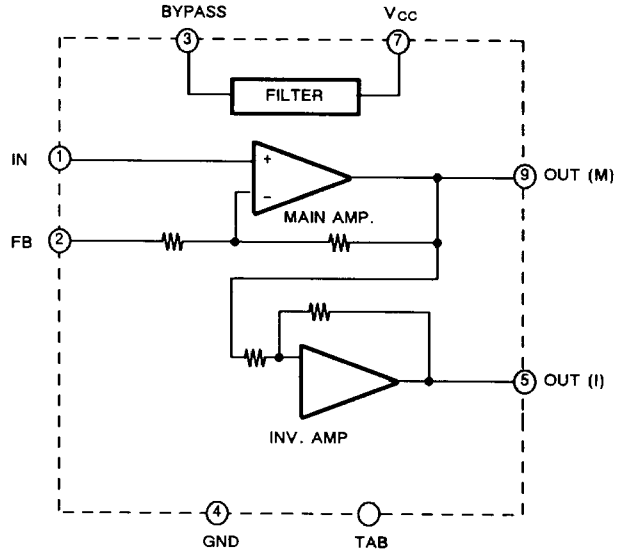
Fig. 1 - MB3730A BLOCK DIAGRAM



RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Value	Unit
Power Supply Voltage	Vcc	8 to 16	V
Operating Temperature(Case)	Tc	-20 to +75	°C

ELECTRICAL CHARACTERISTICS (Tc = 25°C, Vcc = 13.2V, RL = 4Ω, f = 1kHz))

Parameter	Symbol	Condition	Values			Unit
			Min	Typ	Max	
Quiescent Power Supply Current	I_Q	V_{IN}=OV, RL = ∞		80	200	mA
Voltage Gain	A_V	P_O = 1W	52.5	55	57.5	dB
Output Power	P_O	THD=10%	10	14		W
Total Harmonic Distortion	THD	P_O=1W		0.2	1.0	%
Output Noise Voltage	V_{NO}	R_g=10kΩ, BW=20 Hz to 20kHZ		1.0	2.0	mV
Input Resistance	R_{IN}		40	70		kΩ
Output Offset Voltage	V_{OO}	V_{IN} = OV		0.2	0.4	V

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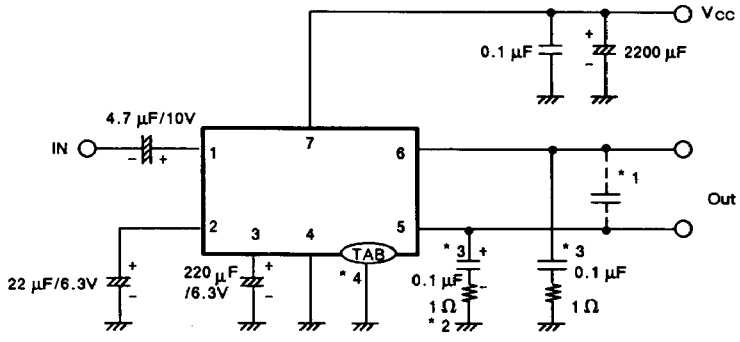
Fig. 2 – TYPICAL CONNECTION EXAMPLE



Notes:
*1 Effective to prevent from oscillation depending on printing pattern.
*2 When power supply line is stable, please connect with Vcc side, it restrains the oscillation.
*3 Use Mylar Capacitor.
*4 The TAB should be connected with GND.

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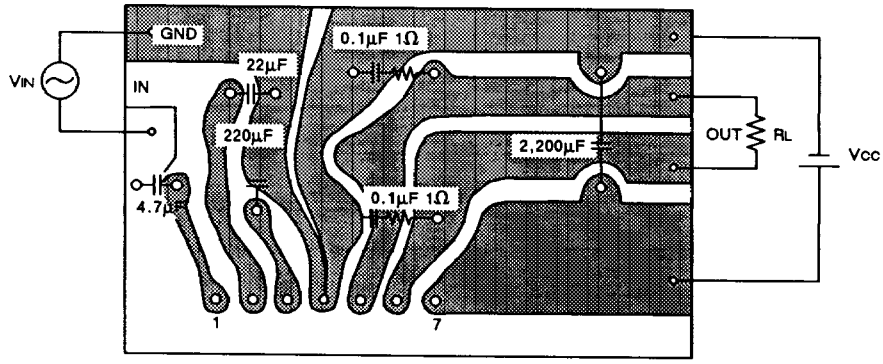
Fig. 3 – RECOMMENDED CONNECTION PATTERN (BOTTOM VIEW)



TYPICAL CHARACTERISTICS CURVES

Fig. 4 – TOTAL HARMONIC DISTORTION vs. OUTPUT POWER

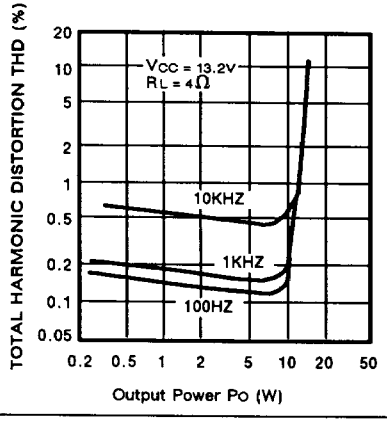
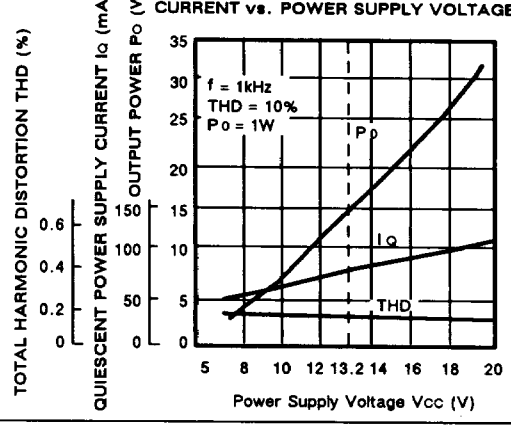


Fig. 5 – OUTPUT POWER/TOTAL HARMONIC DISTORTION/QUIESCENT POWER SUPPLY CURRENT vs. POWER SUPPLY VOLTAGE



TYPICAL CHARACTERISTICS CURVES (Continued)

Fig. 6 - VOLTAGE GAIN vs. FREQUENCY

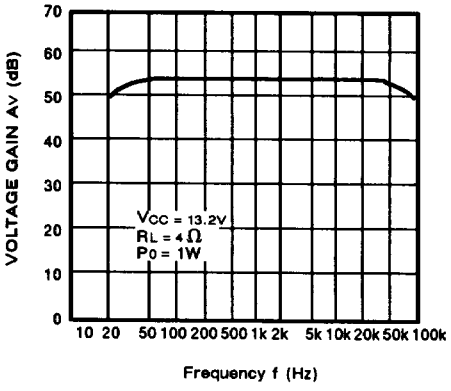


Fig. 7 - TOTAL HARMONIC DISTORTION vs. FREQUENCY

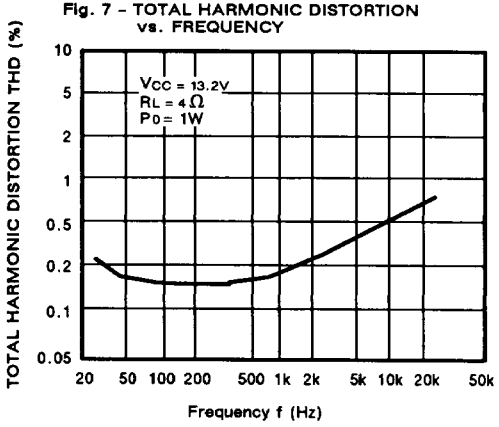
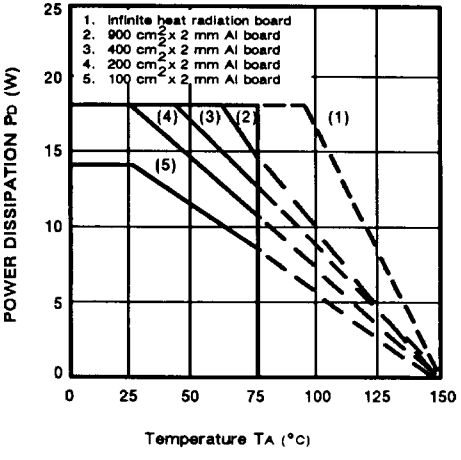
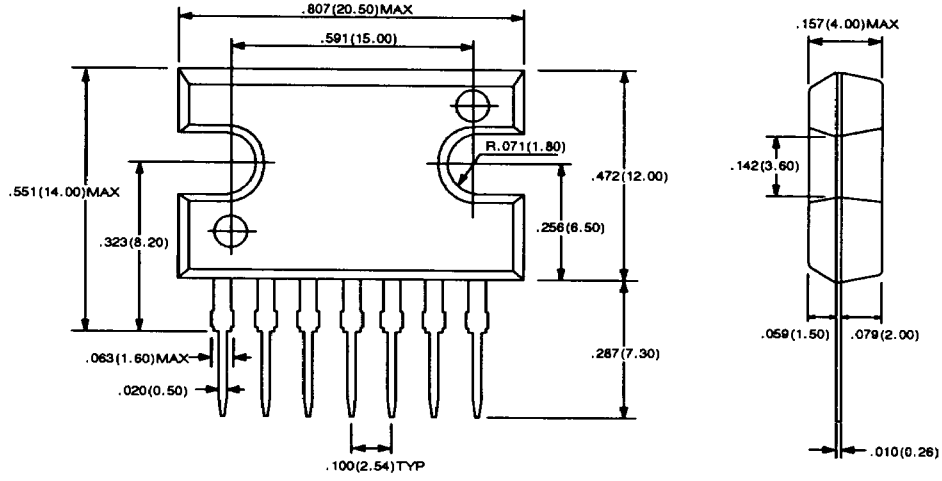


Fig. 8 - POWER DISSIPATION vs. TEMPERATURE



PACKAGE DIMENSION

7-LEAD PLASTIC SINGLE IN-LINE PACKAGE
(CASE No.: SIP-07P-M01)



Dimensions in
inches (millimeters)

S07002S-1C