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Edition 1.0

FUJITSU

DATA SHEET

MB3736
15W BTL AUDIO AMPLIFIER

15W BTL AUDIO AMPLIFIER WITH INTERNAL STAND BY FUNCTION

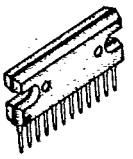
The Fujitsu MB3736 is designed for a low-frequency high-power amplifier with internal BTL (Balanced Transformer Less) circuitry.

Suitable for car stereos, the MB3736 is packed in 12 pin plastic Single in line small packaage or 12 pin plastic Zigzag in line small package which has low thermal resistance (SIP: 3°C/W, ZIP: 4°C/W). Design for heat radiation can be executed easily.

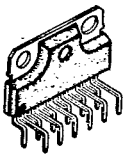
The MB3736 requires few external components, so high density mounting is optimized.

The MB3736 contains a power-on pop noise protection circuitry and various protection circuitry.

- High Output Power : 15W typ at 4Ω
- Minimum External Components (OCL, 5 capacitors, 2 resistors)
- Stand-by Function (TTL Drive)
- Various Protection Circuitry
  - Power Supply Surge Protection
  - Output pin-to DC Short Protection
  - Over Voltage Protection
  - Load Short Protection
  - Thermal Protection
- Low Power-on Pop Noise
- Package
  - 12 pin Plastic SIP package (Suffix: -PS)
  - 12 pin Plastic SIP package (Suffix: -PSZ)

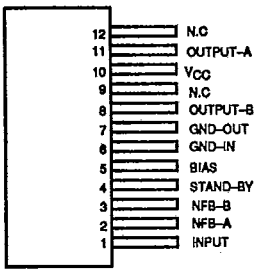


PLASTIC PACKAGE
SIP-12P-M01



PLASTIC PACKAGE
ZIP-12P-M01

PIN ASSIGNMENT
(Front View)



(SIP-12P-M01)
ZIP pin assignment:
Please see page 7

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) (T_C = 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	30	W
Operating Temperature (Case)	T_C	-20 to + 75	°C
Storage Temperature	T_{STG}	-55 to + 150	°C

*$T_S \leq$ 0.2 sec, $T_r \leq$ 1 msec

NOTE: 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.

Fig. 1 — MB3736 BLOCK DIAGRAM

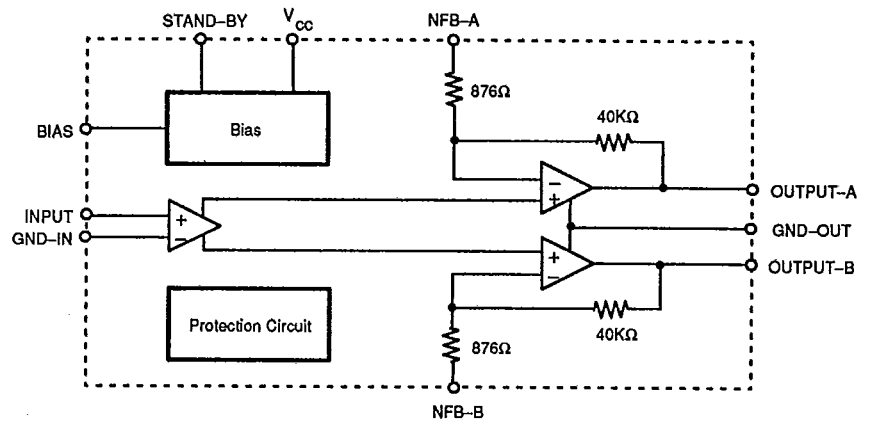
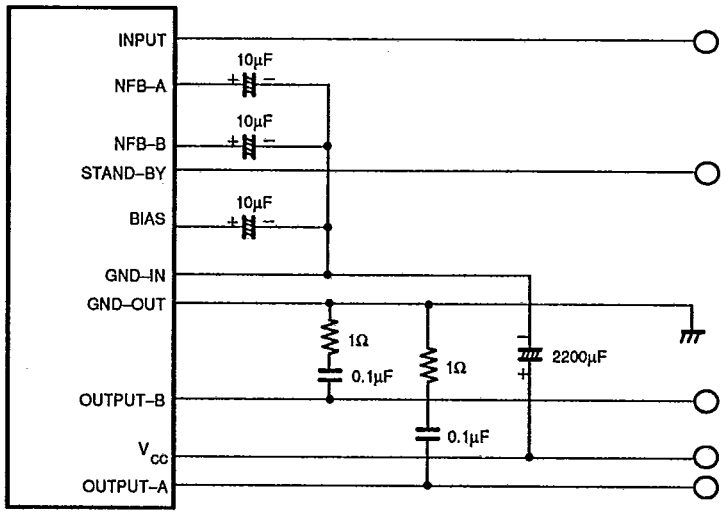


Fig. 2 – MB3736 CONNECTION EXAMPLE



RECOMMENDED OPERATION CONDITIONS

Parameter	Symbol	Value	Unit
Power Supply Voltage	V_{CC}	9 to 16	V
Operating Temperature (Case)	T_C	−20 to + 75	°C

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ERECTRICAL CHARACTERISTICS

(T_C = 25°C, V_{CC} = 13.2V, f = 1 kHz, R_L = 4Ω)

Parameter	Symbol	Condition		Value			Unit
				Min	Typ	Max	
Quiescent Power Supply Current	I_{CCQ}	V_{IN} = 0V, R_L = ∞			100	200	mA
Voltage Gain	A_V			43	45	47	dB
Output Power	P_O	THD = 10%	R_L = 4Ω	12	15		W
			R_L = 2Ω	12	23		
Total Harmonic Distortion	THD	P_O = 5W			0.04	0.4	%
Output Noise Voltage	V_{NO}	R_g = 10 kΩ, BW = 20Hz to 20kHz			0.4	1.0	m V
Input Resistance	R_{IN}			20	30		KΩ
Output Offset Voltage	V_{OFF}				± 0.1	± 0.3	V
Power Supply Current at Stand by mode	I_{CCS}				1	50	μA
Input Voltage, Stand-by Pin	V_{SBH}	Operating mode		2.4		V_{CC}	V
	V_{SBL}	Stand-by mode		0		0.4	V
Ripple Rejection Ratio	RR	Vrip = 1Vrms, f = 1kHz (1 μF is connected between V_{CC} and GND)		40	50		dB

TYPICAL CHARCTERISTICS CURVES

Fig. 3 – TOTAL HARMONIC DISTORTION vs. OUTPUT POWER

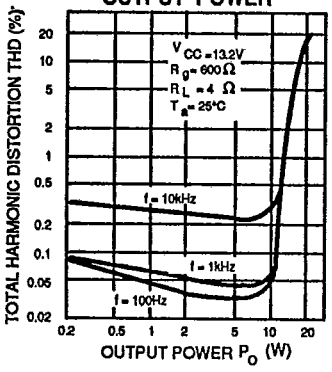


Fig. 4 – TOTAL HARMONIC DISTORTION vs. OUTPUT POWER

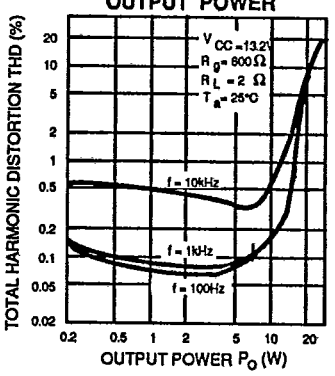


Fig. 5 – TOTAL HARMONIC DISTORTION vs. FREQUENCY

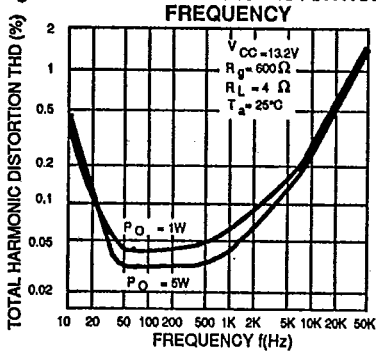


Fig. 6 – VOLTAGE GAIN vs. FREQUENCY

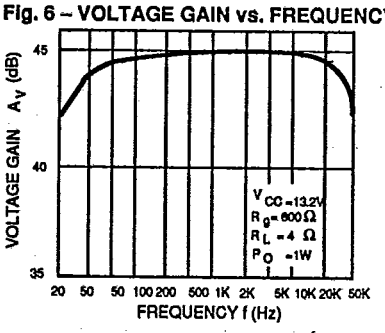


Fig. 7 – OUTPUT POWER vs. FREQUENCY

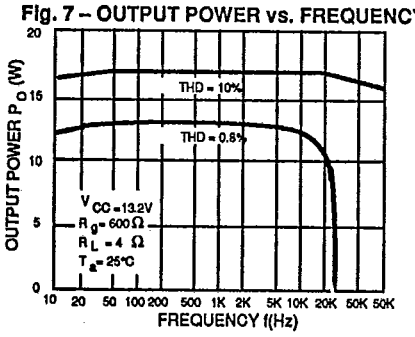


Fig. 8 – TOTAL HARMONIC DISTORTION vs. SIGNAL SOURCE IMPEDANCE

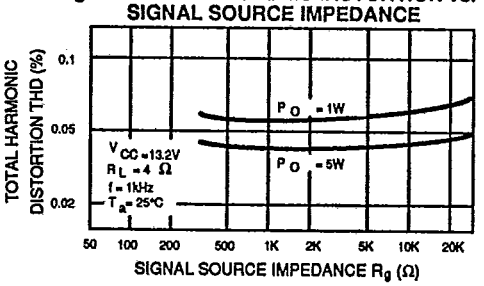


FIG.9 – OUTPUT NOISE VOLTAGE vs. SIGNAL SOURCE IMPEDANCE

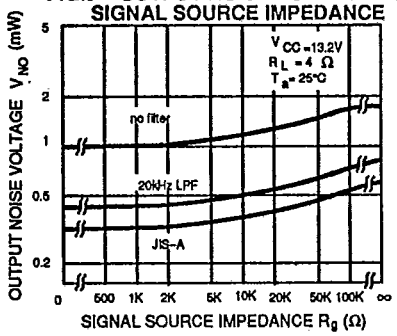


Fig. 10 – RIPPLE REJECTION vs. FREQUENCY

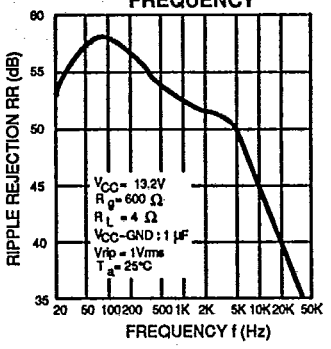


FIG.11 – POWER SUPPLY CURRENT/ POWER DISSIPATION vs. OUTPUT POWER

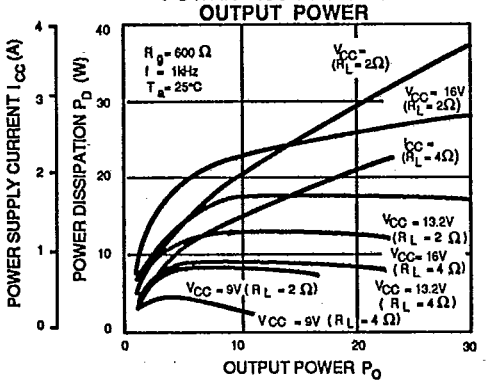


Fig. 12 – OUTPUT POWER vs. LOAD RESISTANCE

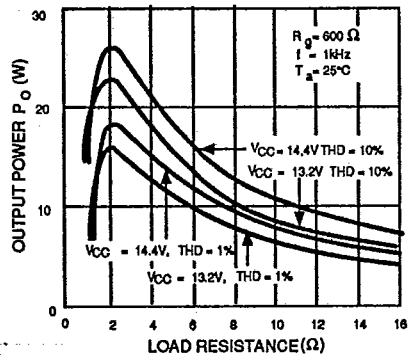


Fig. 13 – OUTPUT POWER vs. FREQUENCY

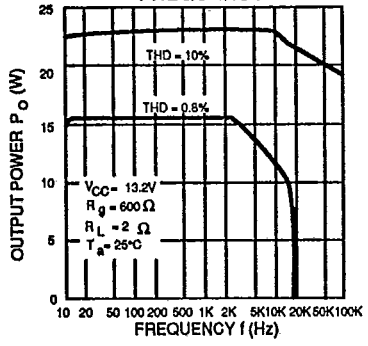
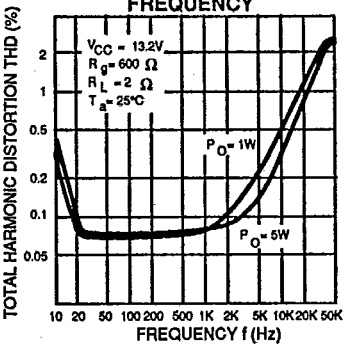
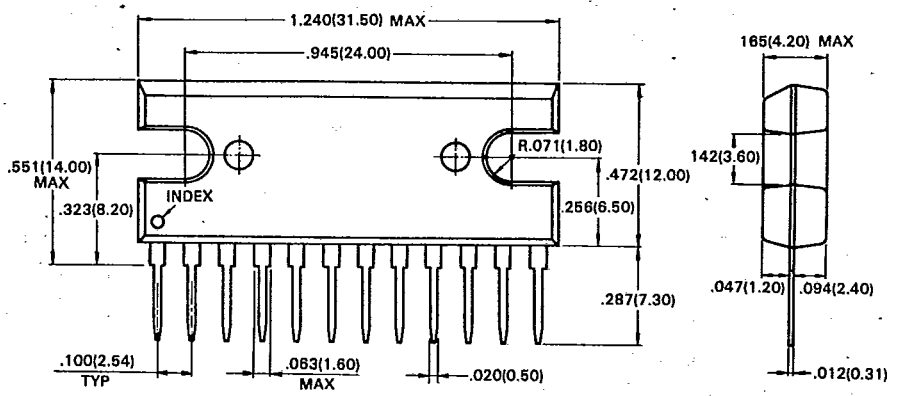


Fig. 14 – TOTAL HARMONIC DISTORTION FREQUENCY



PACKAGE DIMENSIONS

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



Dimensions in Inches (millimeters)

PACKAGE DIMENSIONS (Continued)