

**FUJITSU**

**20 WATT BTL  
AUDIO POWER  
AMPLIFIER**

T-74-05-01

**MB 3735**

April 1987  
Edition 2.0

**20 WATT BTL AUDIO POWER AMPLIFIER**

The Fujitsu MB 3735 is designed for a low-frequency high-power amplifier with internal BTL (Balanced Transformer less) circuitry. The MB 3735 is packed in a small plastic 9-pin Single In-Line Package (SIP) which has low thermal resistance, so that a design for heat radiation can be performed with low cost.

Also, the MB 3735 requires such a few external components, so that it can be mounted on printed circuit board with high density.

The MB 3735 contains a filtering circuitry for power-on pop noise and various protection circuits.

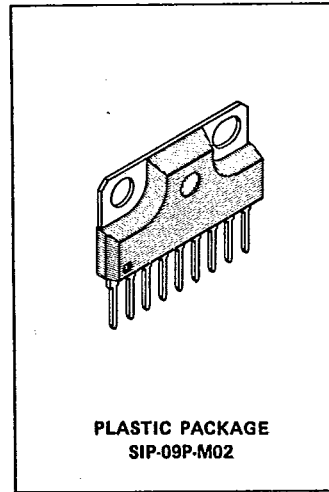
- High Power Output: 20W with  $R_L = 4\Omega$
- Minimum External Components
- Small Plastic 9-pin Single In-Line Package
- Low Thermal Resistance
- Various Protection Circuitries:
  - Power Supply Surge Protection
  - Excess Voltage Protection
  - Load Short Protection
  - DC Short Protection for Outputs, Power Supply pin, and Ground pin
- Low Power-on Pop Noise

**ABSOLUTE MAXIMUM RATINGS (See NOTE)**

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

NOTE: \*  $t_s \leq 0.2$  (s),  $t_r \geq 1$  (ms)

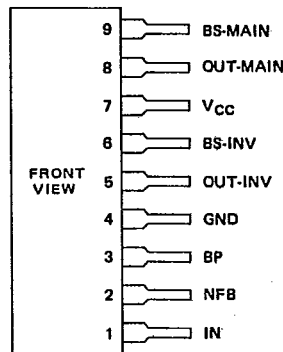
NOTE: Permanent device damage may occur if ABSOLUTE MAXIMUM RATINGS are exceeded. Functional operation should be restricted to the conditions as detailed in the operational sections of this data sheet. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.



**PLASTIC PACKAGE  
SIP-09P-M02**

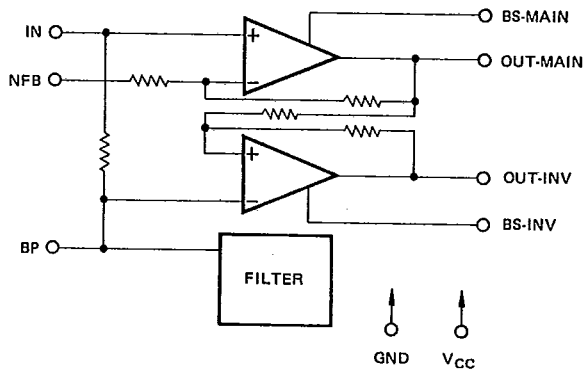
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**PIN ASSIGNMENT**



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.

Fig. 1 - BLOCK DIAGRAM of MB 3735



**RECOMMENDED OPERATING CONDITIONS**

Parameter	Symbol	Value	Unit
Power Supply Voltage	$V_{cc}$	8 to 16	V
Case Temperature	$T_c$	-20 to +75	°C

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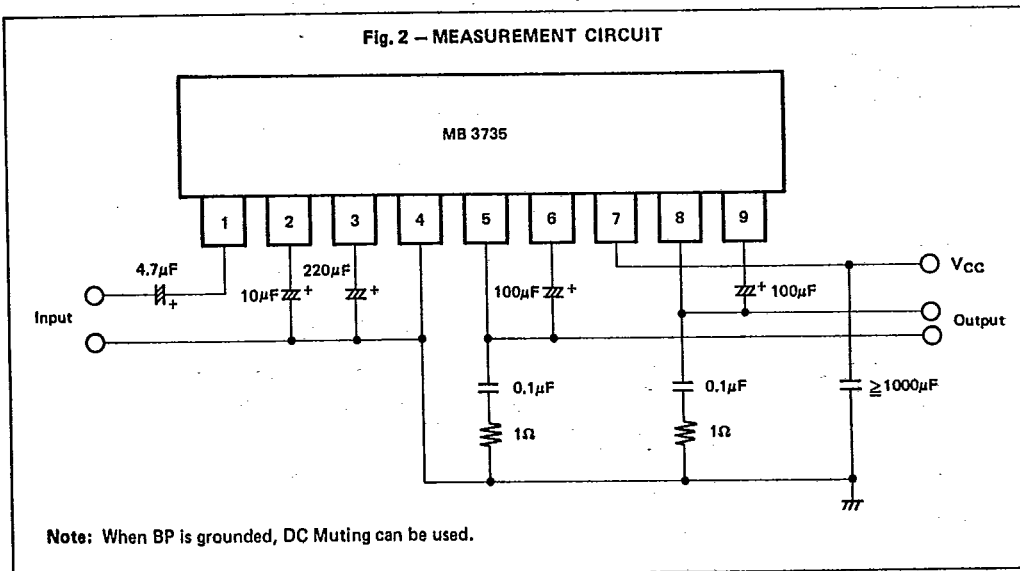
**ELECTRICAL CHARACTERISTICS**

( $T_C = 25^\circ C$ ,  $V_{CC} = 13.2V$ ,  $R_L = 4\Omega$ ,  $f = 1kHz$ )

Parameter	Condition	Symbol	Value			Unit
			Min	Typ	Max	
Quiescent Power Supply Current	$V_{IN} = 0V$ , $R_L = \infty$	$I_Q$		80	160	mA
Voltage Gain		$A_V$	45	47	49	dB
Output Power	THD = 10%	$P_{O1}$	16	20		W
	THD = 1%	$P_{O2}$		14		W
Total Harmonic Distortion	$P_O = 1W$	THD		0.07	0.5	%
Output Noise Voltage	$R_g = 0\Omega$ , BW = 20 Hz to 20 kHz	$V_{NO1}$		0.3		mV
	$R_g = 10k\Omega$ BW = 20 Hz to 20 kHz	$V_{NO2}$		0.5	1.0	mV
Input Resistance		$R_{IN}$	20	30		k $\Omega$
Output Offset Voltage		$V_{OFFSET}$		$\pm 0.1$	$\pm 0.3$	V
Supply Current in DC MUTE mode	BP = 0V	$I_{CCO}$		15		mA



Fig. 2 - MEASUREMENT CIRCUIT





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### TYPICAL CHARACTERISTICS CURVES

Fig. 3 - TOTAL HARMONIC DISTORTION vs. OUTPUT POWER

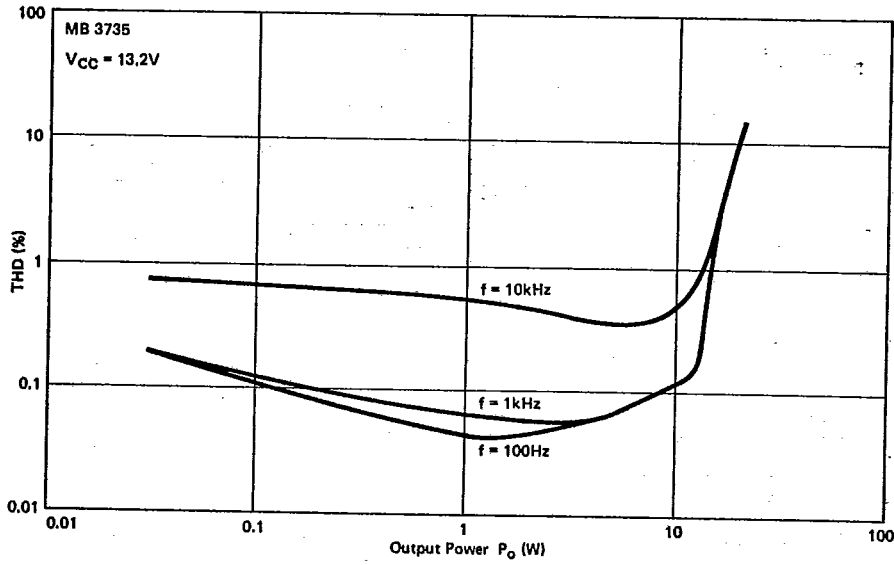
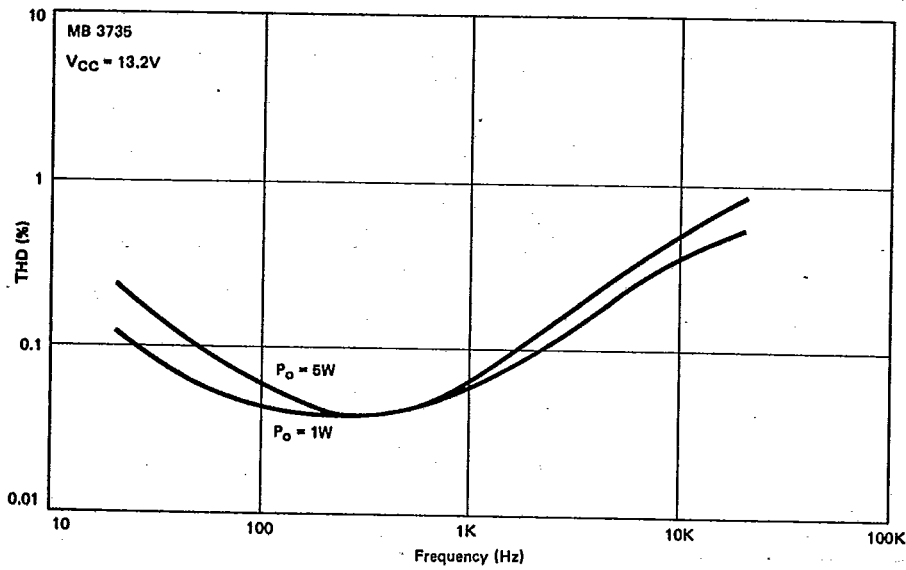


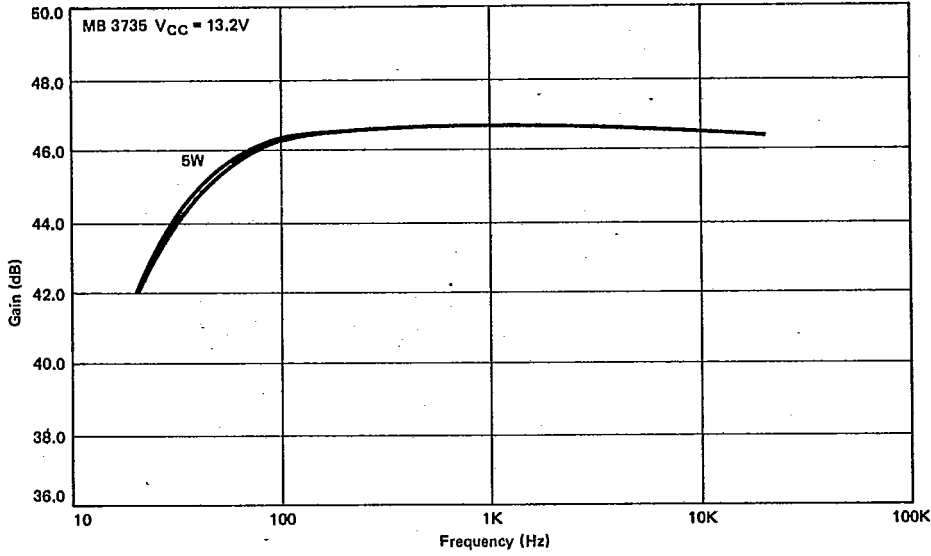
Fig. 4 - TOTAL HARMONIC DISTORTION vs. FREQUENCY



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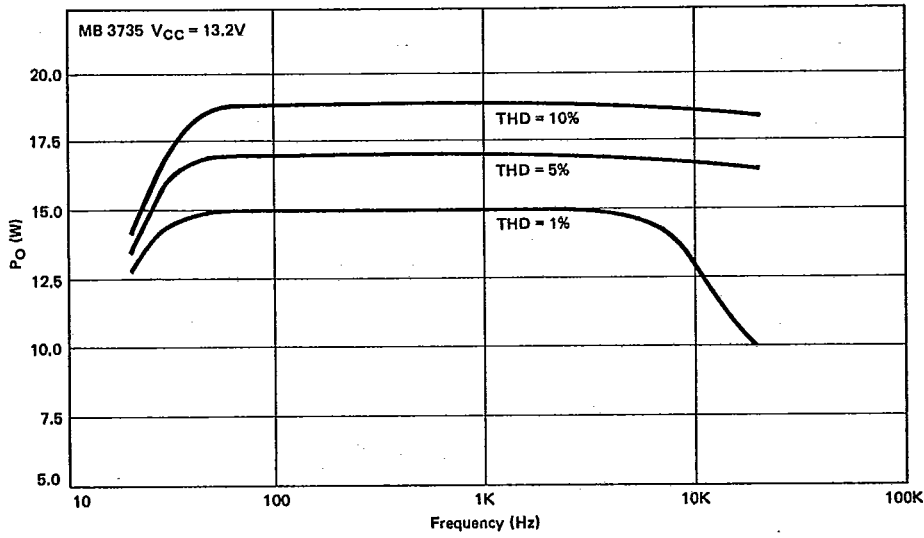
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Fig. 5 - GAIN vs. FREQUENCY



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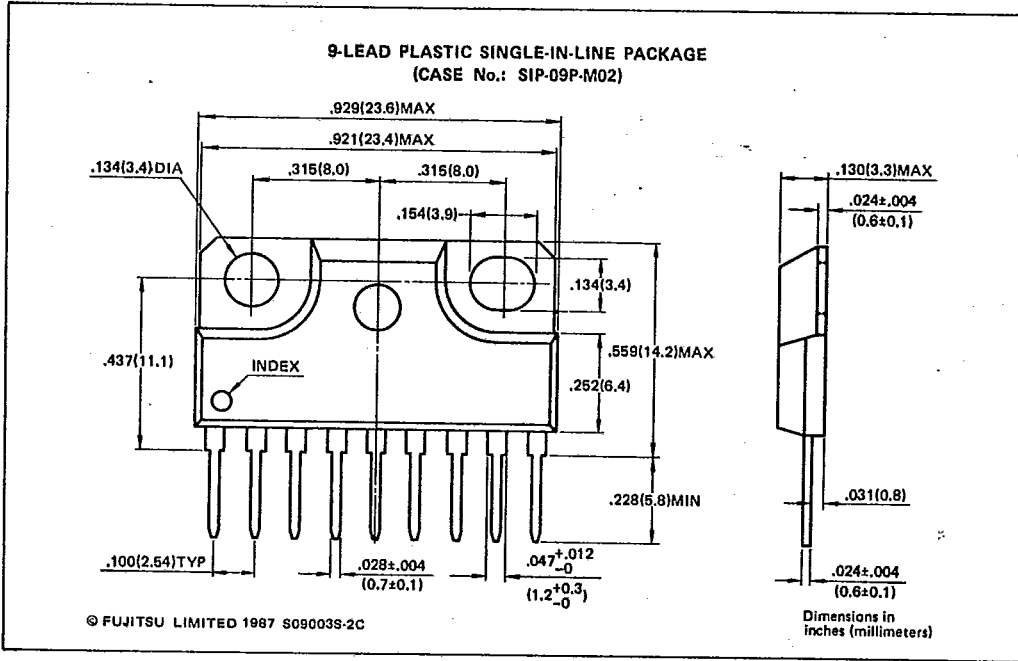
Fig. 6 - POWER BAND WIDTH



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**PACKAGE DIMENSIONS**



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