

# BTL Power Amplifier

## **MB3731**

16V/18W

# DATASHEET

OEM – Fujitsu

Source: Fujitsu Databook 1983

**FUJITSU**  
**MICROELECTRONICS**

**MB3731**

**18W BTL POWER AMPLIFIER**

**GENERAL DESCRIPTION**

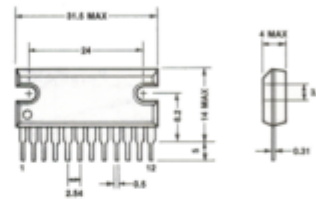
The Fujitsu MB3731 is a low frequency, high power audio amplifier with internal BTL (balanced transformerless) circuitry. The amplifier is packaged in a small 12 pin SIP which offers such a low thermal resistance that heat sink arrangements may be accomplished at extremely low cost.

The MB3731 amplifier requires so few external components that high density applications can make particularly good use of the device. The MB3731 contains on chip filtering circuitry to minimize power-on pop noise as well as additional protection circuitry.

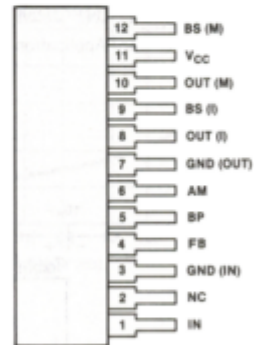
**FEATURES**

- High Power Output:  
18W at  $R_L = 4\Omega$
- Small Plastic 12-pin Single-In-Line Package
- Low Thermal Resistance:  
3°C/W
- Minimum External Components
- Various Protection Circuitries:  
Power Supply Surge Protection  
Excess Voltage Protection  
DC Short Protection for Output Terminal  
Load Short Protection  
Load-Power Supply Short Protection  
Thermal Protection
- Low-Power-On Pop Noise

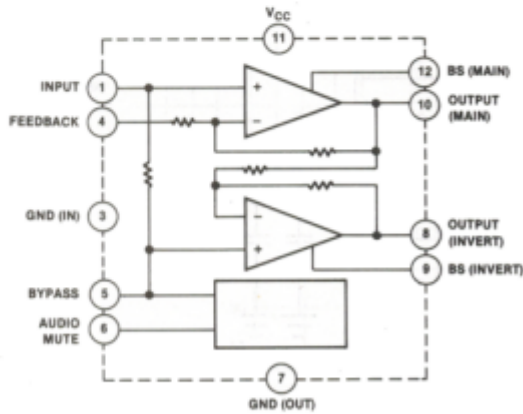
**PACKAGE DIMENSIONS**  
(in millimeters)



**PIN ASSIGNMENT**  
(Front View)



**MB3731 BLOCK DIAGRAM**



**RECOMMENDED OPERATING CONDITIONS**

Supply Voltage ( $V_{CC}$ )	Operating Temperature ( $T_{OP}$ )
+8V to +16V	-20°C to +75°C

**MB3731****ABSOLUTE MAXIMUM RATINGS**  $T_A = 25^\circ\text{C}$ 

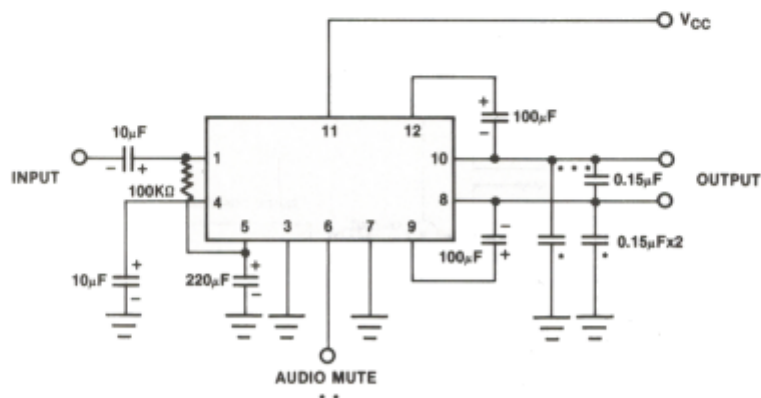
Parameter	Symbol	Value	Unit
Power Supply Voltage	$V_{CC}$	+18	V
Surge Voltage	$V_{CC(S)}$	+40*	V
Output Current	$I_{O(\text{peak})}$	4.5	A
Power Dissipation	$P_D$	18	W
Operating Temperature	$T_{OP}$	-20 to +75	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

\* $t_s = 0.2\text{s}$ **ELECTRICAL CHARACTERISTICS** $(T_A = 25^\circ\text{C}, V_{CC} = 13.2\text{V}, R_L = 4\Omega$  and  $f = 1\text{KHz}$  unless otherwise noted.)

Parameter	Symbol	Min	Typ	Max	Unit
Power Supply Current ( $V_{IN} = 0\text{V}$ $R_L = \infty$ )	$I_Q$	—	80	200	mA
Voltage Gain ( $P_O = 1\text{W}$ )	$A_V$	44.5	47	49.5	dB
Output Power (THD = 10%)	$P_O$	15	18	—	W
Total Harmonic Distortion ( $P_O = 1\text{W}$ )	THD	—	0.1	0.5	%
Output Noise Voltage ( $R_G = 10\text{k}\Omega$ , BW = 20Hz to 20kHz)	$V_{NO}$	—	0.5	1.0	mV
Input Resistance	$R_{IN}$	40	70	—	$\text{k}\Omega$
Output Offset Voltage	$V_{OO}$	—	0.2	0.4	V
Attenuation with Audio Mute ( $P_O = 1\text{W}$ )			43		dB

**APPLICATION INFORMATION**

Example of Standard Application



- \*: This .15µF capacitor should be a high frequency type such as the Fujitsu A10X series.  
If Polyethylene Terephthalate Film Capacitor is used, it is recommended to connect a 1Ω resistor in series.
- \*\* : The output can be cut off by grounding the pin 6.
- \*\*\*: This capacitor may depend on the wiring pattern.

MB3731

TYPICAL CHARACTERISTICS CURVES

