

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.

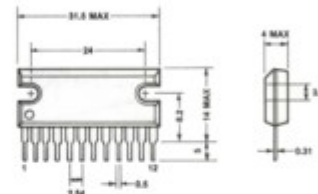
The MB3731 amplifier requires so few external components that high density applications can make particularly good use of the device. The MB3731 contains on chip filtering circuitry to minimize power-on pop noise as well as additional protection circuitry.

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

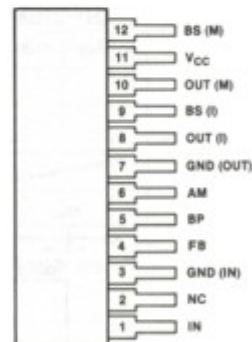
PACKAGE DIMENSIONS

(in millimeters)

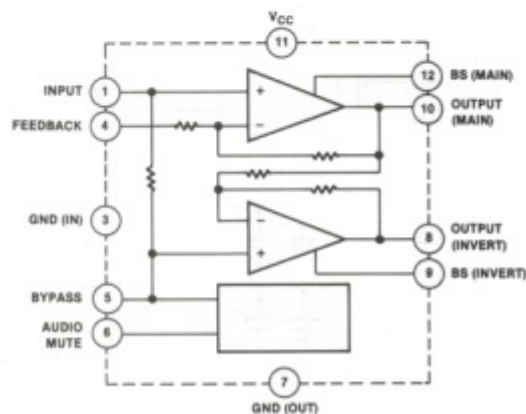


PIN ASSIGNMENT

(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	$^\circ\text{C}$

* $t_s \leq 0.2s$

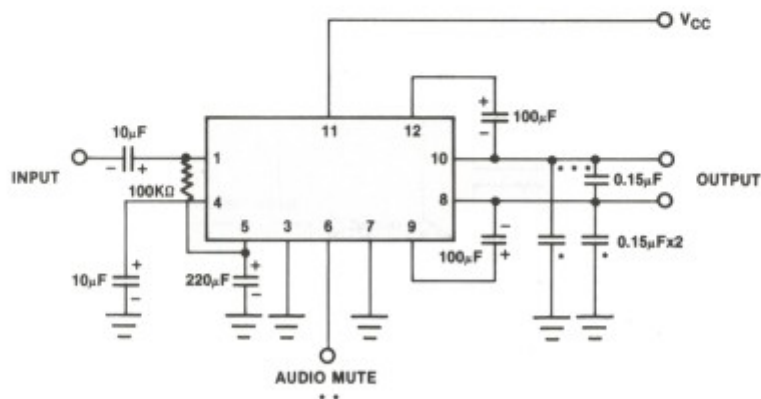
ELECTRICAL CHARACTERISTICS

 $(T_A = 25^\circ\text{C}, V_{CC} = 13.2\text{V}, R_L = 4\Omega$ and $f = 1\text{kHz}$ unless otherwise noted.)

Parameter	Symbol				Unit
		Min	Typ	Max	
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 ($R_O = 10\text{k}\Omega$, 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 10Ω 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

