FUJITSU

LOW NOISE DUAL OPERATIONAL AMPLIFIER

MB47833

1

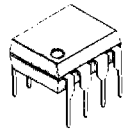
May 1988
Edition 1.0

LOW NOISE DUAL OPERATIONAL AMPLIFIER

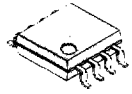
The Fujitsu MB47833 is a dual operational amplifier with a high slew rate, broad bandwidth and low noise characteristics.

The MB47833 is an excellent preamplifier for PCM and high-fidelity audio systems. The device is functionally compatible with the LM833.

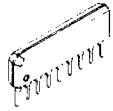
- Wide Power Supply Range: ±1.5V to ±15V
- High Slew Rate: 7 V/μs
- Low Input Noise Voltage: 4.5 nV/$\sqrt{Hz}$
- Wide Gain Bandwidth: 15 MHz
- Internal Phase Compensation



PLASTIC PACKAGE
DIP-08P-M01

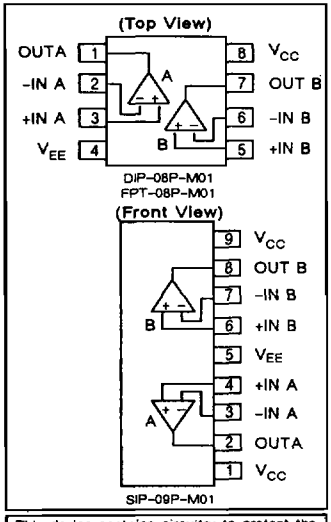


PLASTIC PACKAGE
FPT-08P-M01



PLASTIC PACKAGE
SIP-09P-M01

PIN ASSIGNMENTS



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.

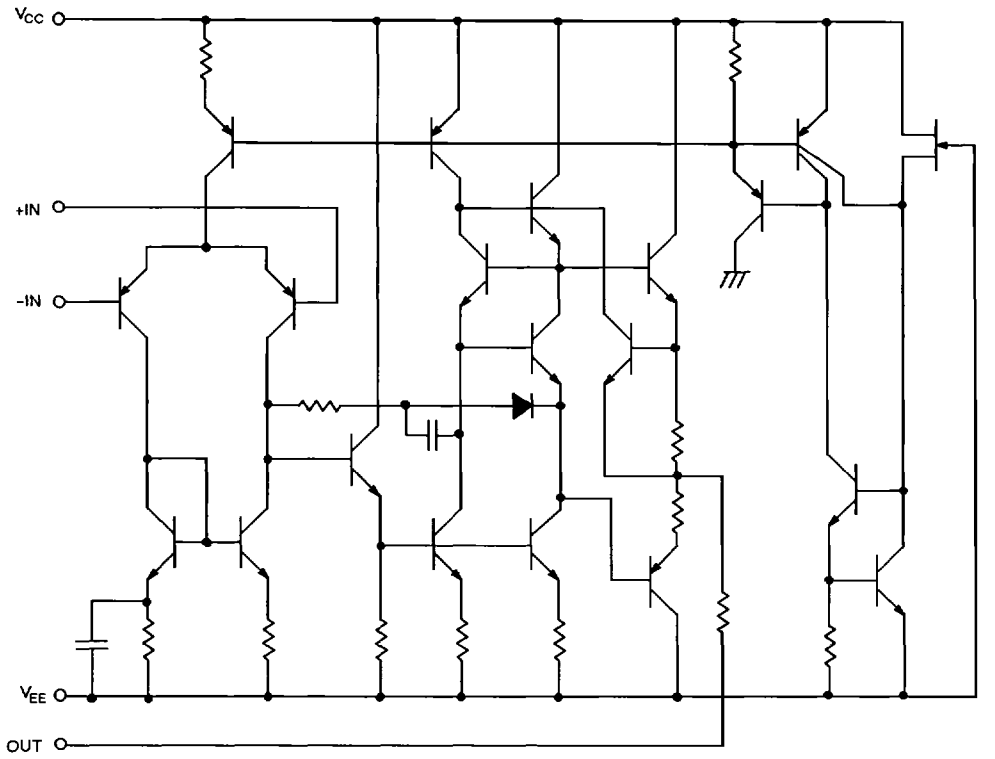
ABSOLUTE MAXIMUM RATINGS (See NOTE)

Rating	Symbol	Value	Unit
Power Supply Voltage	V_{CC}	+18	V
	V_{EE}	-18	V
Differential Input Voltage	V_{ID}	±30	V
Common Mode Input Voltage	V_I	±15	V
Power Dissipation	P_D	350 ($T_A \leq 55°C$)	mW
Operating Temperature	T_A	-30 to +85	°C
Storage Temperature	T_{STG}	-55 to +125	°C

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.

1

Fig. 1 — EQUIVALENT CIRCUIT



RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Value	Unit
Power Supply Voltage	V_{CC}	±1.5 to ±15	V
	V_{EE}		
Ambient Operating Temperature	T_A	-30 to +85	°C

ELECTRICAL CHARACTERISTICS

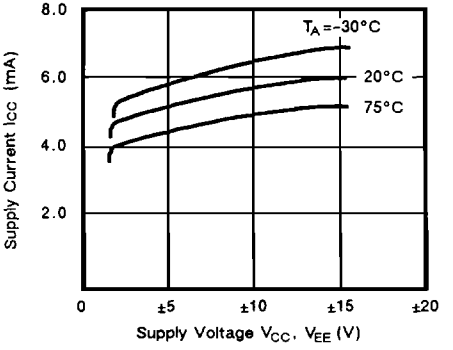
(V_{CC} = +15V, V_{EE} = -15V, T_A = 25°C, unless otherwise noted.)

Parameter	Symbol	Conditions	Value			Unit
			Minimum	Typical	Maximum	
Input Offset Voltage	V_{IO}			0.3	5.0	mV
Input Offset Current	I_{IO}			10	200	nA
Input Bias Current	I_{IN}			500	1000	nA
Common Mode Input Voltage	V_{CM}		±12	±14		V
Common Mode Rejection Ratio	CMR		80	100		dB
Supply Voltage Rejection Ratio	SVR		80	100		dB
Voltage Gain	A_V	R_L = 2kΩ	90	110		dB
Power Supply Current	I_{CC}			5.0	8.0	mA
Maximum Output Voltage	V_{OM}	$R_L \geq$ 10kΩ	±12	±13.5		V
		$R_L \geq$ 2kΩ	±10	±13.4		V
Gain Bandwidth Product	GBW	R_L = 2kΩ, f = 100kHz		15		MHz
Slew Rate	SR	R_L = 2kΩ, C = 100pF A_V = 1		7		V/μS
Channel Separation	CS	f = 1kHz		120		dB
Input Noise Voltage	V_{NI}	NAB, JISA RS = 600Ω, f = 1kHz		0.4		μV

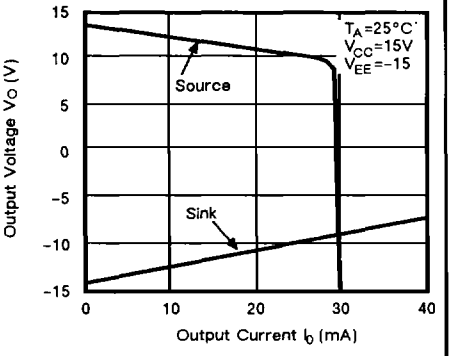
1

TYPICAL PERFORMANCE CHARACTERISTICS

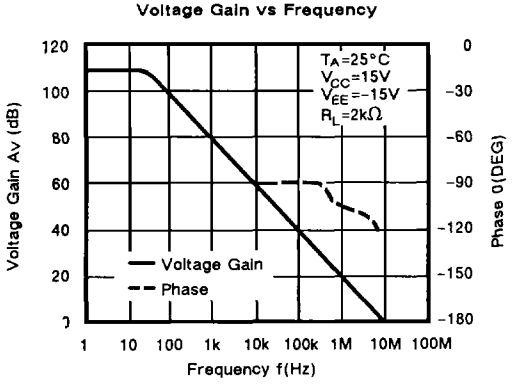
Supply Current vs Supply Voltage



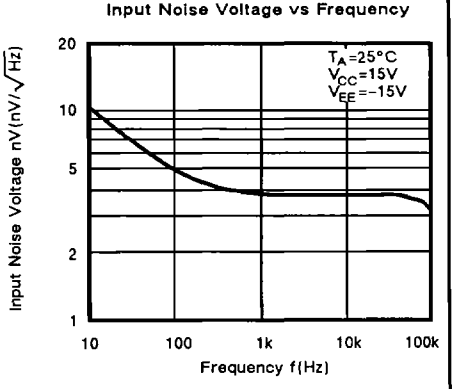
Output Voltage vs Output Current



Voltage Gain vs Frequency



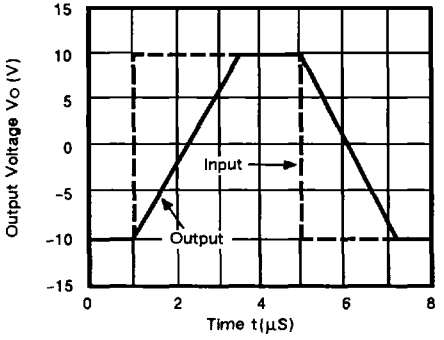
Input Noise Voltage vs Frequency



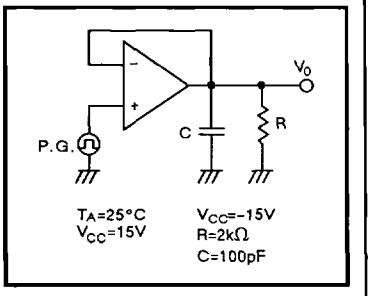
1

TYPICAL PERFORMANCE CHARACTERISTICS (continued)

Pulse Response Characteristics



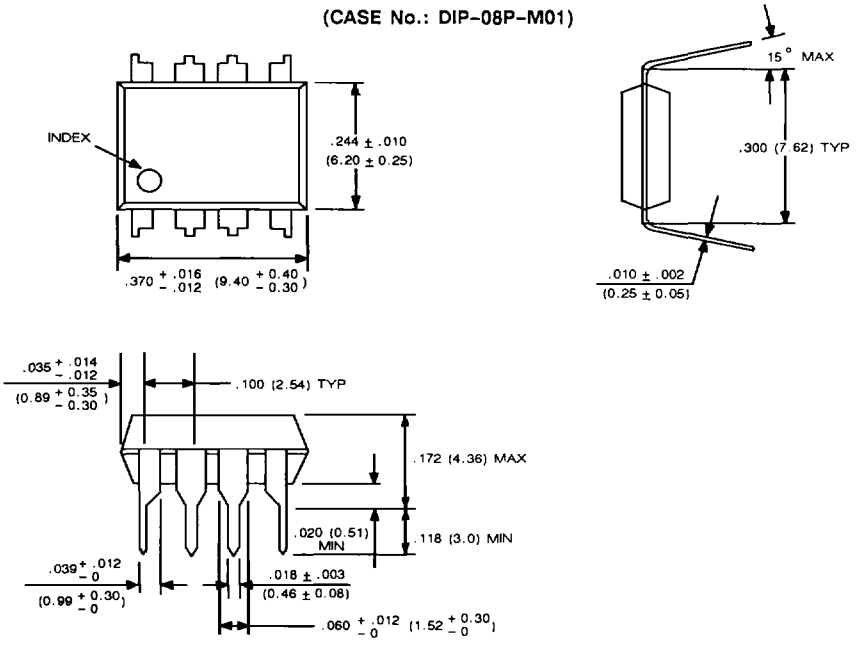
Pulse Response vs Measurement Circuit



1

PACKAGE DIMENSIONS

8-LEAD PLASTIC DUAL-IN-LINE PACKAGE
(CASE No.: DIP-08P-M01)



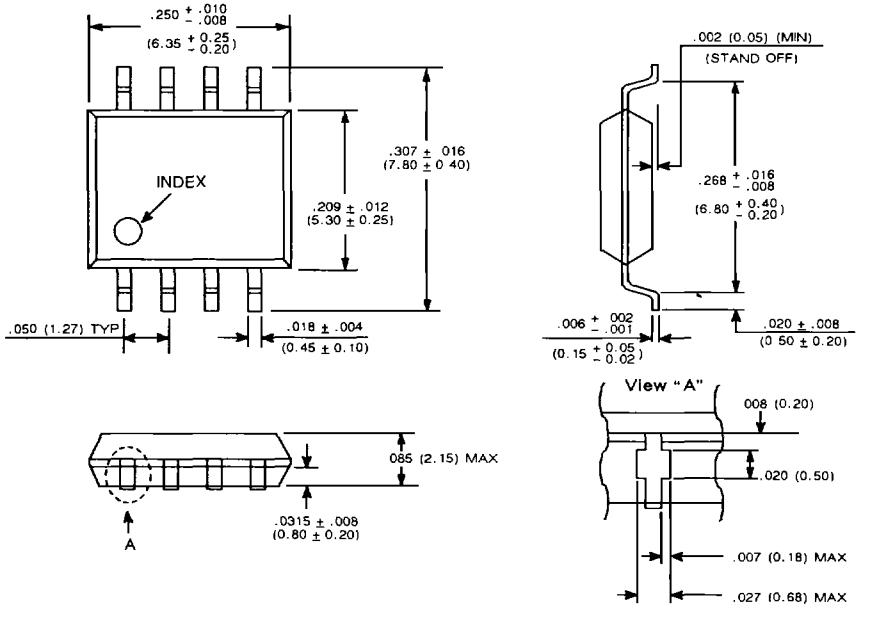
Dimensions in
inches (millimeters)

D08006S-2C

1

PACKAGE DIMENSIONS (continued)

8-LEAD PLASTIC FLAT PACKAGE
(CASE No.: FPT-08P-M01)



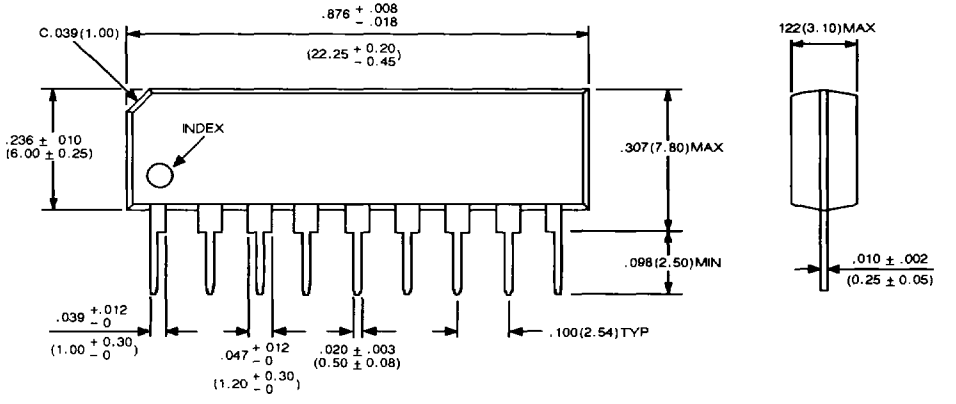
Dimensions in
inches (millimeters)

F08002S-2C

1

PACKAGE DIMENSIONS (continued)

9-LEAD PLASTIC SINGLE-IN-LINE PACKAGE
(CASE No.: SIP-09P-M01)



Dimensions in
inches (millimeters)

S09002S-2C