FUJITSU

J-FET INPUT OPERATIONAL AMPLIFIER

MB47082

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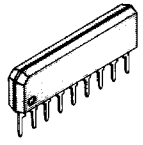
Apr. 1989
Edition 1.0

J-FET INPUT OPERATIONAL AMPLIFIER

The Fujitsu MB47082 is designed for a dual operational amplifier with P channel-typed J-FET used at the input stage. Its slew rate is faster (more than one figure) comparing with the standard operational amplifier and also its band width is wide because of its high input impedance characteristics and well-built transmission conductance at the input stage comparing with the bipolar transistor.

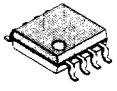
The MB47082 is suitable for a D/A converter and a Sample & Hold circuit that need to cover from a small signal amplification to a fast and large signal change.

- Compatible with TL082
- Wide operating power supply voltage: ± 5V to ± 15V
- Fast slew rate : 13V/μs typ.
- Low input bias current : 30pA typ.
- Wide frequency bandwidth : 3MHz typ.
- On-chip internal frequency compensation
- Low noise



PLASTIC PACKAGE
SIP-09P-M01

PLASTIC PACKAGE
DIP-08P-M01



PLASTIC PACKAGE
FPT-08P-M01

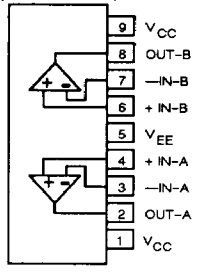
ABSOLUTE MAXIMUM RATINGS (see NOTE) (T_A=25°C)

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	-20 to 75	°C
Storage Temperature	T_{STG}	-55 to 125	°C

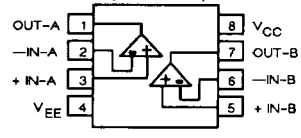
NOTE: Permanent device damage may occur if the above **Absolute Maximum Ratings** are exceeded. Functional operation should be restricted to the conditions as detailed in the operational sections of this data sheet. Exposure to absolute maximum rating conditions for extended periods may affect device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

PIN ASSIGNMENT

SIP: (FRONT VIEW)



DIP,FPT: (TOP VIEW)



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.

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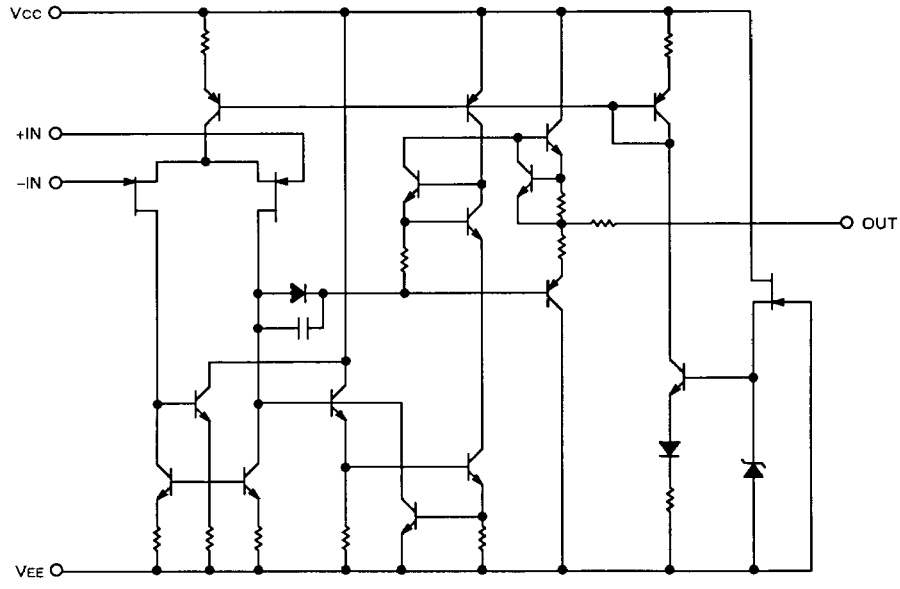
Fig. 1 — MB47082 EQUIVALENT CIRCUIT



RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Value	Unit
Power Supply Voltage	V_{CC}, V_{EE}	±5 to ±15	V
Operating Temperature	T_A	-20 to +75	°C

(T_A =25°C, V_{CC}=15V, V_{EE} =-15V)

Parameter	Symbol	Condition	Value			Unit
			Min	Typ	Max	
Input Offset Voltage	V_{IO}	$R_S \leq 50\Omega$		5.0	15.0	mA
Input Offset Current	I_{IO}			5	200	pA
Input Bias Current	I_I			30	400	pA
Common-mode Input Voltage	V_{CM}		±10			V
Common-mode Rejection Ratio	CMRR	$R_S \leq 10k\Omega$	70	86		dB
Power Supply Voltage Rejection Ratio	SVRR	$R_S \leq 10k\Omega$	70	86		dB
Voltage Gain	A_V	R_L=2kΩ	25	200		V/mV
Power Supply Current	I_{CC}			3.5	5.6	mA
Maximum Output Voltage	V_{OM}	$R_L \geq 18k\Omega$	±12	±13.5		V
		$R_L \geq 2k\Omega$	±10	±12		V
Output Current	I_{SOURCE}	V_O=V_{EE}		-25	-10	mA
	I_{SINK}	V_O=V_{CC}	25	40		mA
Frequency Bandwidth	BW	R_L=2kΩ		3.0		MHz
Slew Rate	SR	R_L=2kΩ, C=100pF, AV=1		13		V/μs
Channel Separation	CS	f=1kHz		120		dB
Equivalent Input Noise Voltage	V_{NI}	f=1kHz, R_S=100Ω		25		$nV\sqrt{Hz}$

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ELECTRICAL CHARACTERISTICS CURVES

Fig. 2 - Voltage Gain vs. Frequency

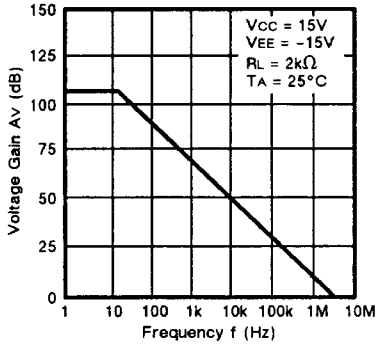


Fig. 3 - Output Voltage vs. Frequency

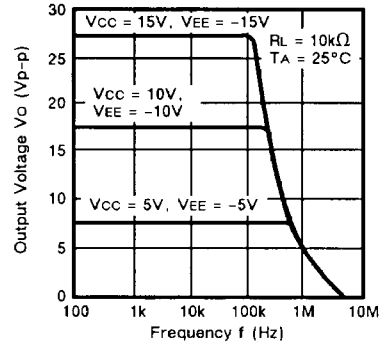


Fig. 4 - Input Bias Current vs. Common-Mode Input Voltage

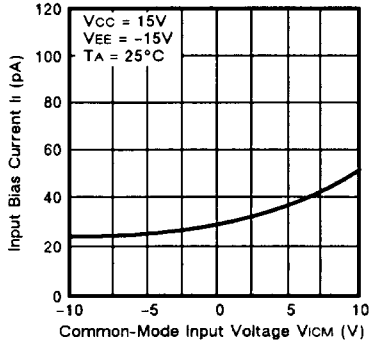


Fig. 5 - Input Bias Current vs. Temperature

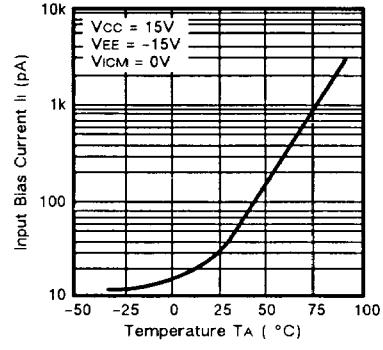


Fig. 6 - Output Voltage vs. Power Supply Voltage

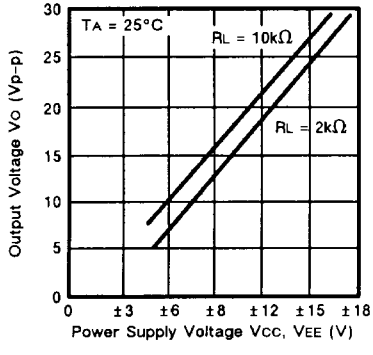
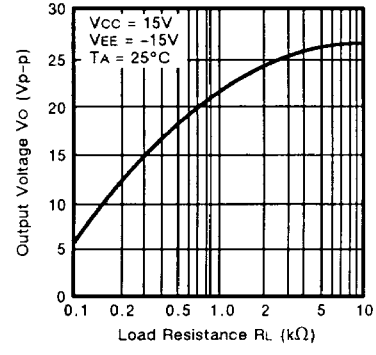


Fig. 7 - Output Voltage vs. Load Resistance



ELECTRICAL CHARACTERISTICS CURVES (Continued)

Fig. 8 - Input Noise Voltage vs. Frequency

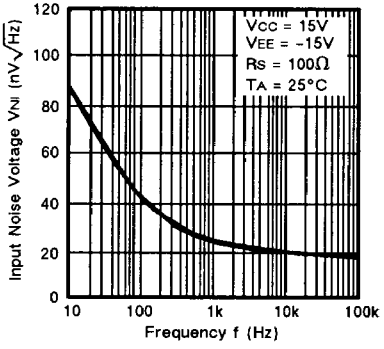


Fig. 9 - Pulse Response

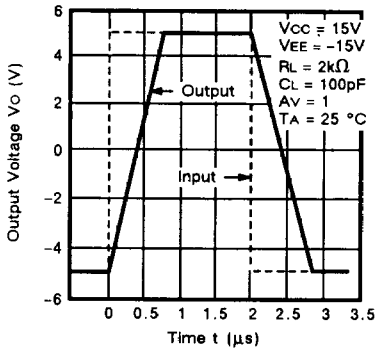


Fig. 10 - Power Supply Current vs. Power Supply Voltage

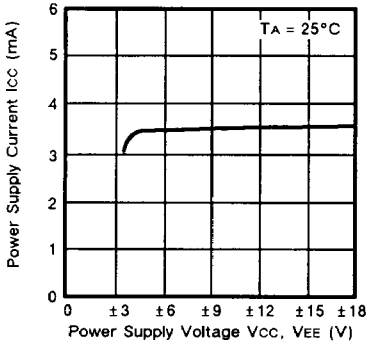
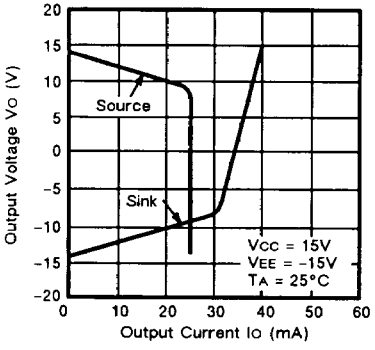


Fig. 11 - Output Voltage vs. Output Current



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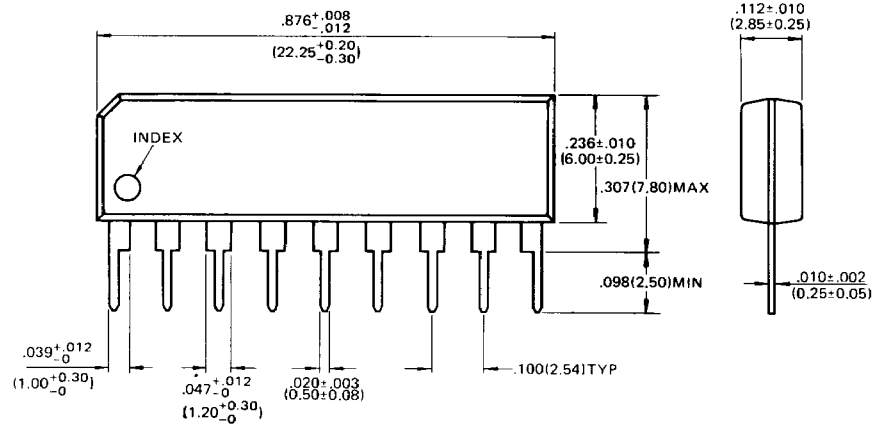
9-LEAD PLASTIC SINGLE-IN-LINE PACKAGE
(CASE No.: SIP-09P-M01)



Dimensions in inches (millimeters)

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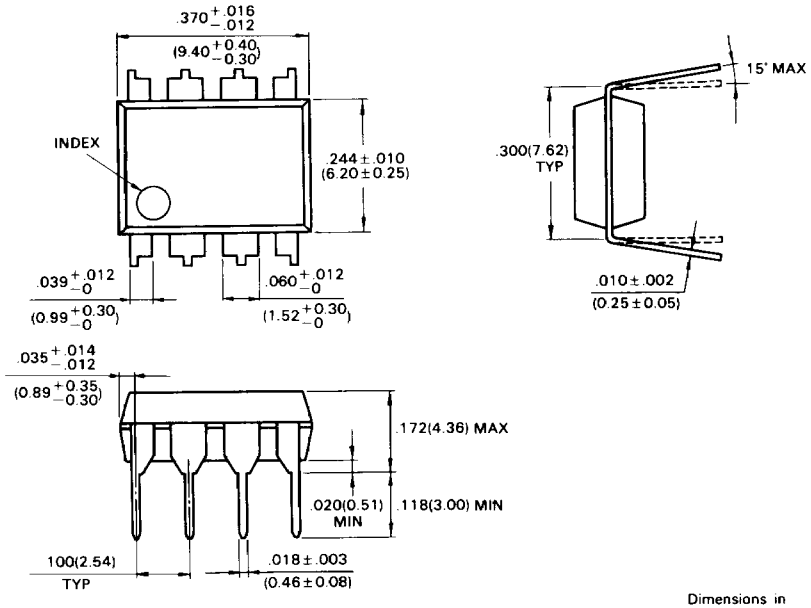
8-LEAD PLASTIC DUAL-IN-LINE PACKAGE
(CASE No.: DIP-08P-M01)



Dimensions in
inches (millimeters)

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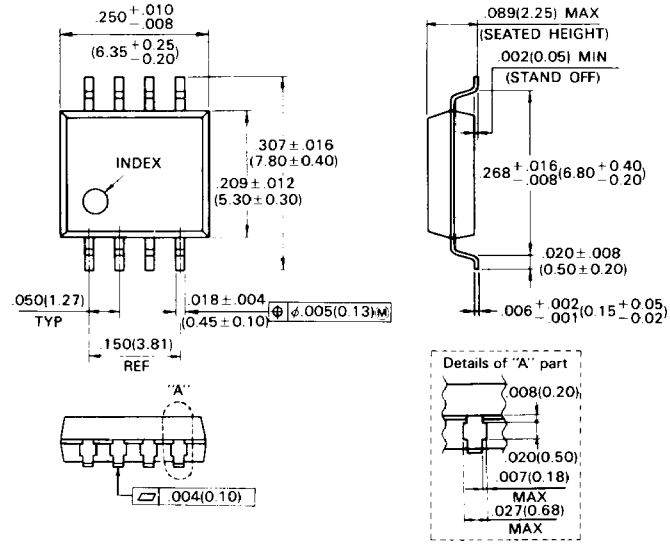
8-LEAD PLASTIC FLAT PACKAGE
(CASE No.: FPT-08P-M01)



Dimensions in
inches (millimeters)