FUJITSU

DUAL OPERATIONAL AMPLIFIER

MB3607

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May 1988
Edition 1.0

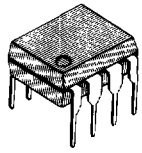
DUAL OPERATIONAL AMPLIFIER

The Fujitsu MB3607 is a dual silicon monolithic operational amplifier with on-chip internal frequency compensation circuitry, high input resistance and high gain.

It enables higher integration of function without increasing of mounting density because it integrates two circuitry on chip in one package.

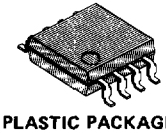
The MB3607 is compatible with MC1458.

- No frequency compensation required.
- On-chip over load protection circuitry.
- Not required external component for frequency compensation due to adoption of internal frequency compensation circuitry.
- High input resistance, large common-mode input voltage and large differential input voltage.
- High common-mode ripple rejection ratio.
- Owing to adoption of active load, low power consumption, high gain are achieved.
- No latch-up



PLASTIC PACKAGE
DIP-08P-M01

CERAMIC PACKAGE
DIP-08C-C01



PLASTIC PACKAGE
FPT-08P-M01

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

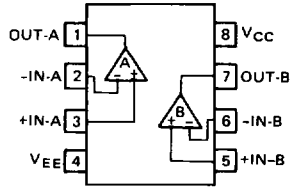
Rating		Symbol	Value	Unit
Power Supply Voltage		V_{CC}	+18	V
Power Supply Voltage		V_{EE}	-18	V
Differential Input Voltage		V_{ID}	±30*	V
Common-mode Input Voltage		V_I	±15*	V
Power Dissipation		P_D	500	mW
Storage Temperature	Plastic	T_{STG}	-55 to 125	°C
	Ceramic		-65 to 150	°C

* When power supply voltage V_{CC} is less than ±15V, $V_{ID} = \pm(V_{CC} + |V_{EE}|)$, V_I is equal to the V_{CC}.

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.

PIN ASSIGNMENT

(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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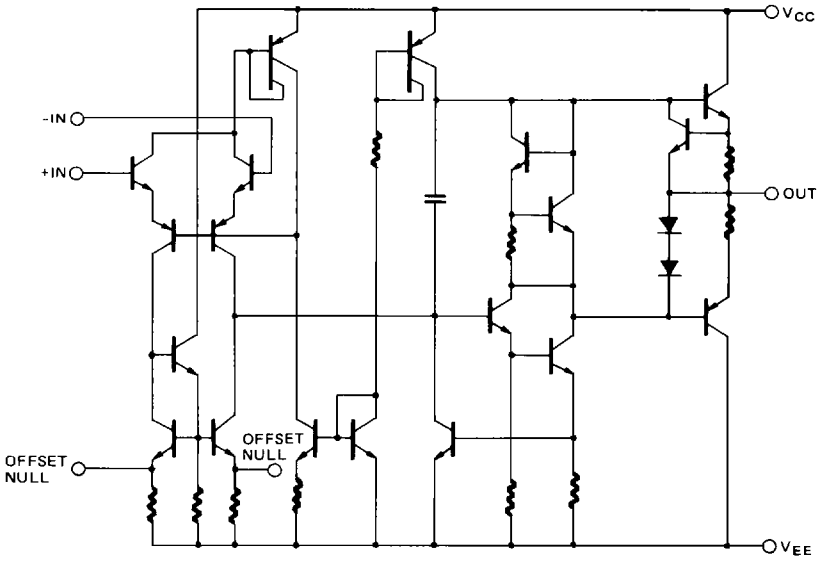
Fig. 1 – MB3607 EQUIVALENT CIRCUIT



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RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Value	Unit
Power Supply Voltage	V_{CC}	6 to 15	V
Power Supply Voltage	V_{EE}	−6 to −15	V
Operating Temperature	T_A	−20 to +75	°C

DC CHARACTERISTICS

(V_{CC} = +15V, V_{EE} = −15V, T_A = 25°C)

Parameter	Symbol	Condition	Value			Unit
			Min	Typ	Max	
Input Offset Voltage	V_{IO}	R_S = 10kΩ, V_O = 0V		1.0	6.0	mV
		R_S = 10kΩ, V_O = 0V, T_A = 0 to 70°C			7.5	
Input Offset Current	I_{IO}	V_O = 0V		20	200	nA
		V_O = 0V, T_A = 0 to 70°C			300	
Input Bias Current	I_I	V_O = 0V		80	500	nA
		V_O = 0V, T_A = 0 to 70°C			800	
Voltage Gain	A_V	R_L = 2kΩ, V_O = ±10V	15000			
Common-mode Rejection Ratio	CMRR	V_I = ±7.5V	70			dB
Power Supply Rejection Ratio	SVRR	R_S = 10kΩ			150	μV/V
Maximum Output Voltage	V_{OM}	R_L = 2kΩ	±10			V
Common-mode Input Voltage	V_{CM}		±12			V
Input Resistance	R_{IN}		300			kΩ
Power Supply Current	I_{SUP}	V_O = 0V		3.4	5.6	mA
		V_O = 0V, T_A = 0 to 70°C			6.2	

AC CHARACTERISTICS

(V_{CC} = +15V, V_{EE} = −15V, T_A = 25°C)

Parameter	Symbol	Condition	Value			Unit
			Min	Typ	Max	
Frequency Bandwidth	BW	R_L = 2kΩ, 0dB	0.1	1.0		MHz
Slew Rate	SR	R_L = 2kΩ, A_V = 1	0.25	0.6		V/μs
Channel Separation	CS	R_L = 2kΩ, f = 1kHz	55			dB

1 TYPICAL CHARACTERISTICS CURVES

Fig. 2 – OPEN LOOP VOLTAGE GAIN vs. POWER SUPPLY VOLTAGE

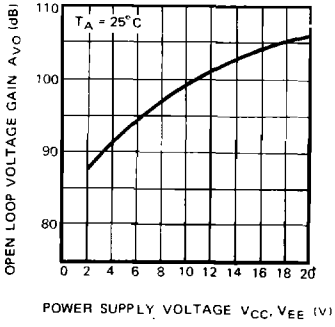

Fig. 3 – OUTPUT VOLTAGE vs. POWER SUPPLY VOLTAGE

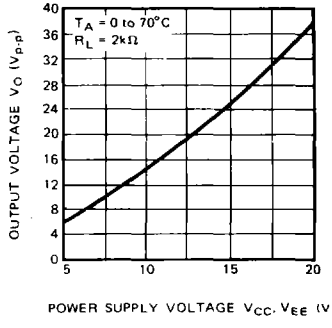

Fig. 4 – COMMON-MODE INPUT VOLTAGE vs. POWER SUPPLY VOLTAGE

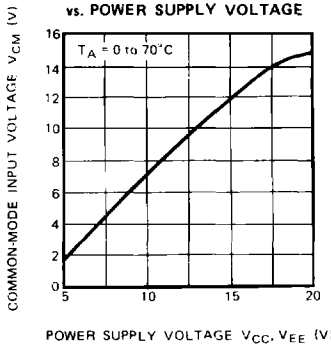

Fig. 5 – INPUT BIAS CURRENT vs. TEMPERATURE

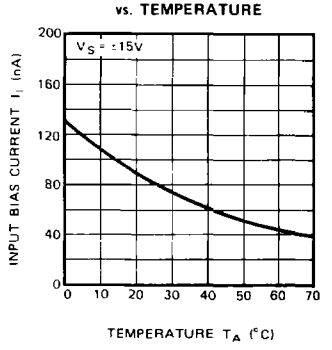

Fig. 6 – INPUT OFFSET CURRENT vs. TEMPERATURE

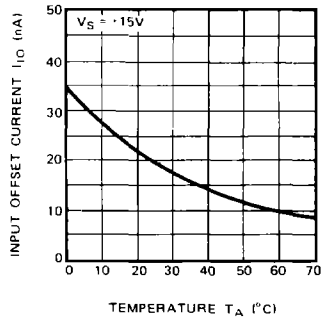

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Fig. 7 – OUTPUT VOLTAGE vs. LOAD RESISTANCE

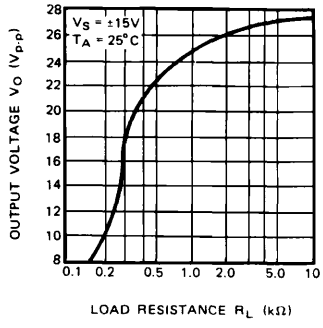


Fig. 8 – OPEN LOOP VOLTAGE GAIN vs. FREQUENCY

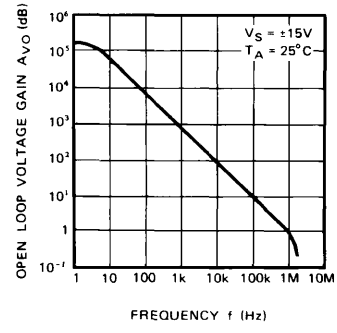


Fig. 9 – OUTPUT VOLTAGE vs. FREQUENCY

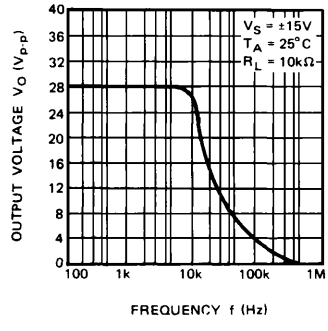
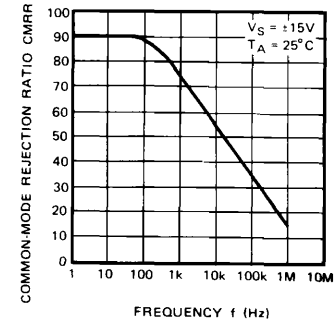


Fig. 10 – COMMON-MODE REJECTION RATIO vs. FREQUENCY



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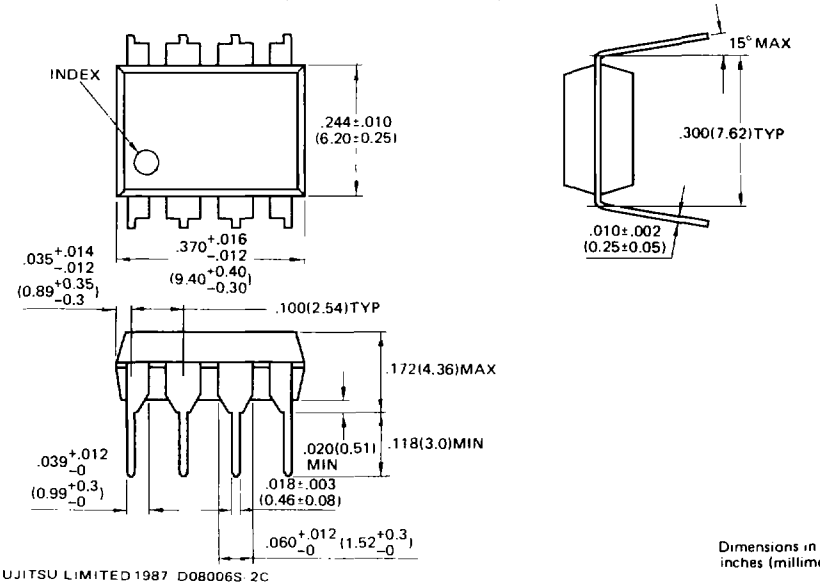
PACKAGE DIMENSIONS

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



Dimensions in
inches (millimeters)

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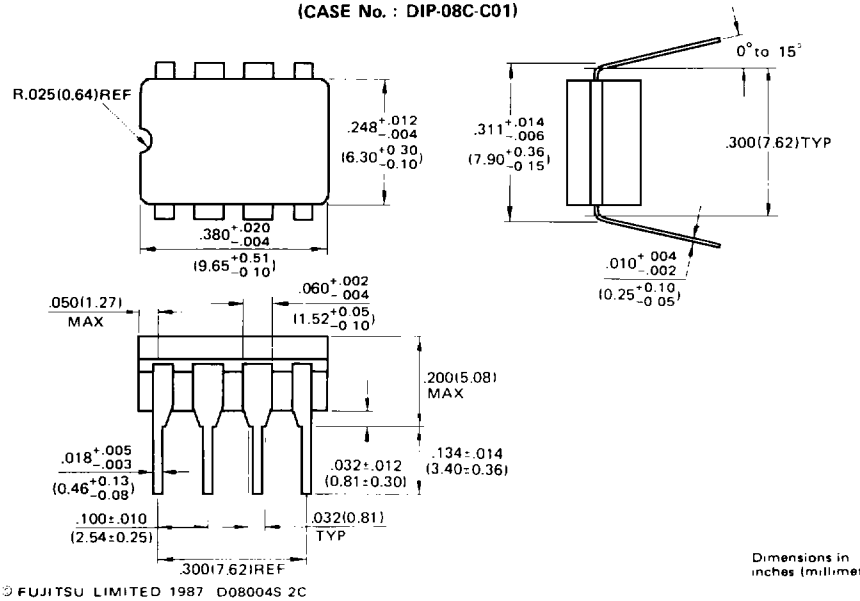
8-LEAD CERAMIC (CERDIP) DUAL IN-LINE PACKAGE
(CASE No. : DIP-08C-C01)



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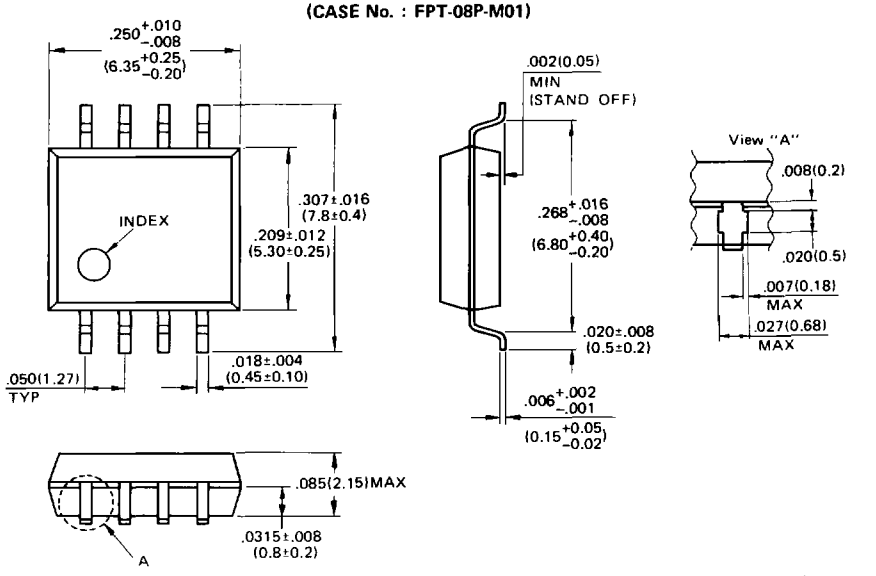
PACKAGE DIMENSIONS (continued)

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



Dimensions in
inches (millimeters)