

ASSP

QUAD OPERATIONAL AMPLIFIER

MB3615

QUAD OPERATIONAL AMPLIFIER OPERATES FROM A SINGLE OR DUAL POWER SUPPLY

The Fujitsu MB3615 is a Quad operational amplifier having a phase compensatory circuit and operates from a single power supply or dual power supplies.

The device has equivalent electrical characteristics of current industrial standard operational amplifier and requires low power supply current.

MB3615 can be mounted in high density because it integrates 4 circuits on a chip in 14-pin package. It is taking the countermeasure for cross-over distortion, so can be used for amplifying AC.

The MB3615 is pin compatible with Motorola MC3303.

- No phase compensation required
- Wide power supply voltage
 - Single power supply: +3 to +30 V
 - Dual power supplies: ± 1.5 to ± 15 V
- Wide input common mode range: 0 to (VCC -1.5) V
- Low power supply current: 2 mA typ.
- Low Cross-over distortion

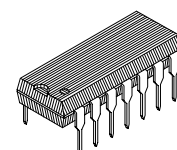
ABSOLUTE MAXIMUM RATINGS (see NOTE)

Ta=25°C

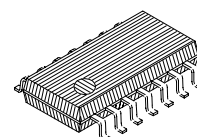
Rating	Symbol	Value	Unit
Power Supply Voltage *	V _{CC}	36	V
Differential Input Voltage *	V _{ID}	36	V
Input Common Mode Voltage *	V _I	-0.3 to +36	V
Power Dissipation	P _D	570	mW
Operating Temperature	T _{OP}	-20 to +75	°C
Storage Temperature	T _{STG}	-55 to +125	°C

NOTE: * Single Power Supply.

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.

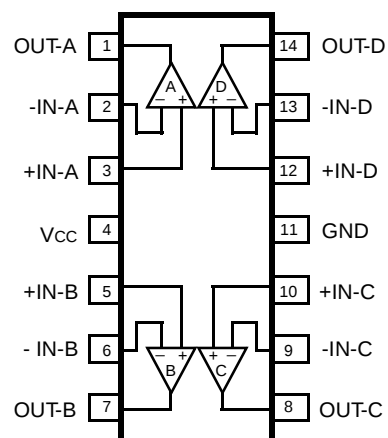


PLASTIC PACKAGE
DIP-14P-M02



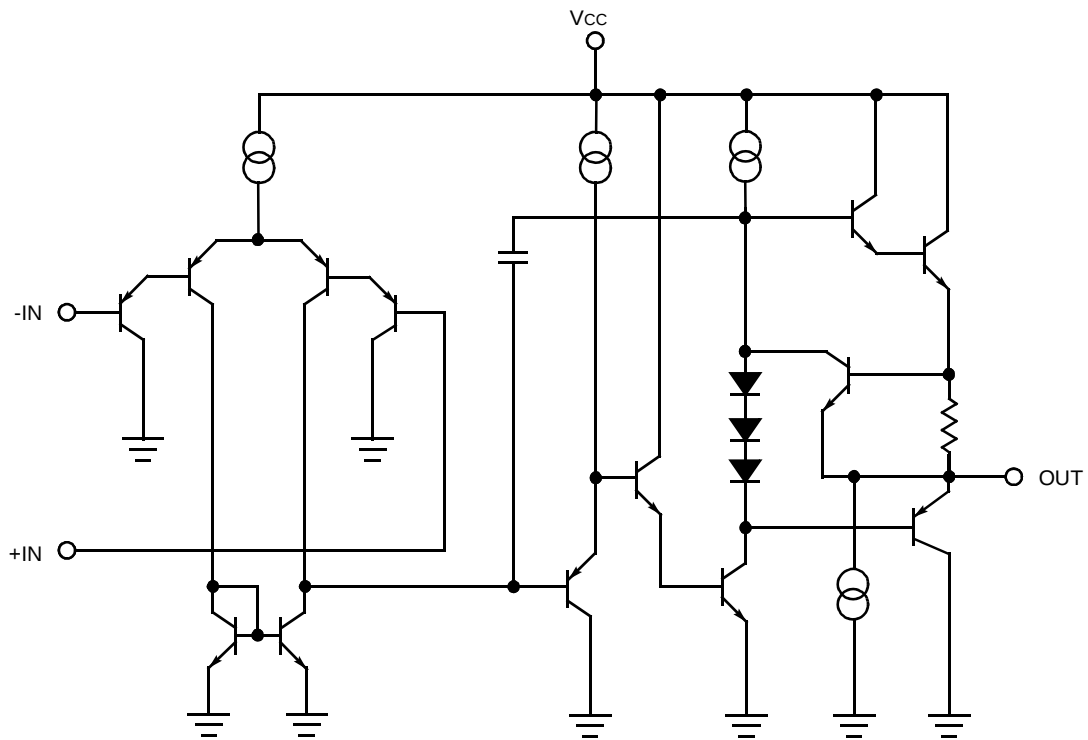
PLASTIC PACKAGE
FPT-14P-M04

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.

Fig. 1 — MB3615 EQUIVALENT CIRCUIT



■ ELECTRICAL CHARACTERISTICS

(VCC = +15V, VEE = -15V, Ta = 25°C)

Parameter	Symbol	Condition	Value			Unit
			Min	Typ	Max	
Input Offset Voltage	V _{IO}	-	-	2	7	mV
Input Offset Current	I _{IO}	-	-	5	50	nA
Input Bias Current	I _I *	-	-	45	250	nA
Power Supply Current	I _{CC}	R _L = ∞	-	2.0	4.0	mA
Input Common Mode Voltage	V _{CM}	-	V _{EE}	-	V _{CC} -1.5	V
Voltage Gain	A _v	R _L ≥ 2kΩ	20	100	-	V/mV
Output Voltage Range	V _{OM}	R _L ≥ 2kΩ	±10	±12	-	V
		R _L = 2kΩ	±12	±13	-	V
Output Current	I _{SOUECE}	-	10	40	-	mA
	I _{SINK}	-	10	20	-	mA
Common Mode Rejection Ratio	CMRR	-	70	85	-	dB
Power Supply Voltage Rejection Ratio	SVRR	-	65	100	-	dB
Channel Separation	CS	-	-	120	-	dB

NOTE:

* A direction of the input bias current flows from IC because first input transistor consists of PNP.

TYPICAL CHARACTERISTICS CURVES

Fig. 2 - Power Supply Current vs. Power Supply Voltage

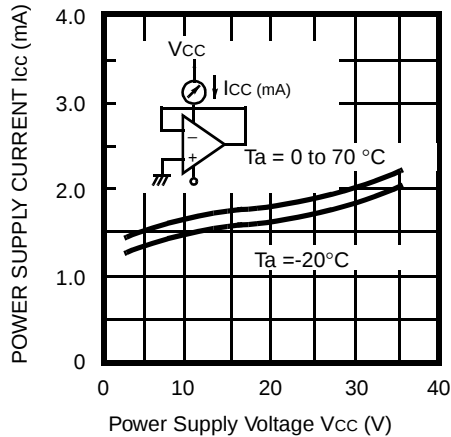


Fig. 3 - Input Bias Current vs. Temperature

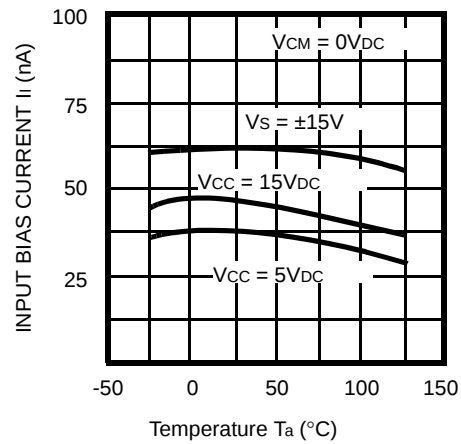


Fig. 4 - Voltage Gain vs. Power Supply Voltage

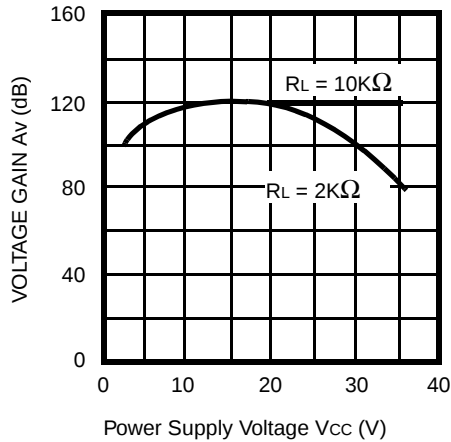


Fig. 5 - Voltage Gain vs. Frequency

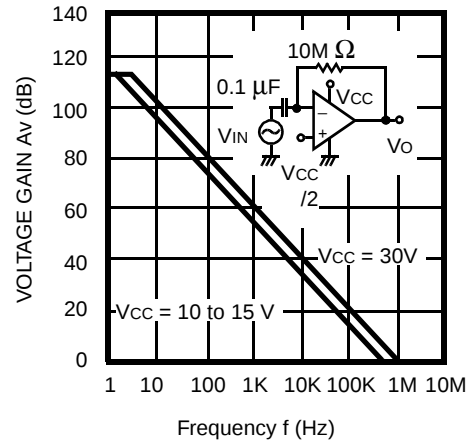


Fig. 6 - Output Voltage vs. Frequency

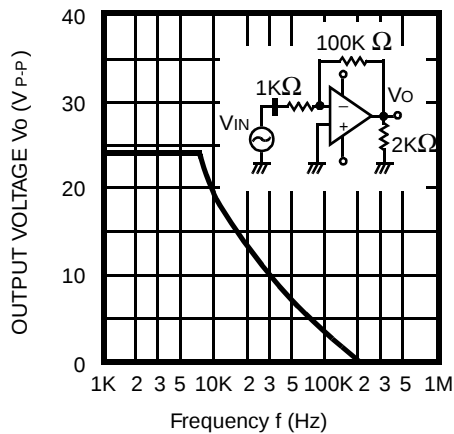
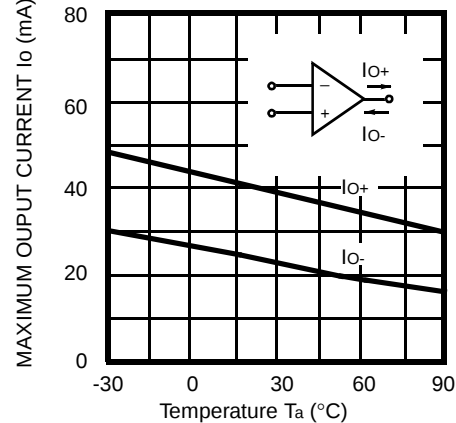
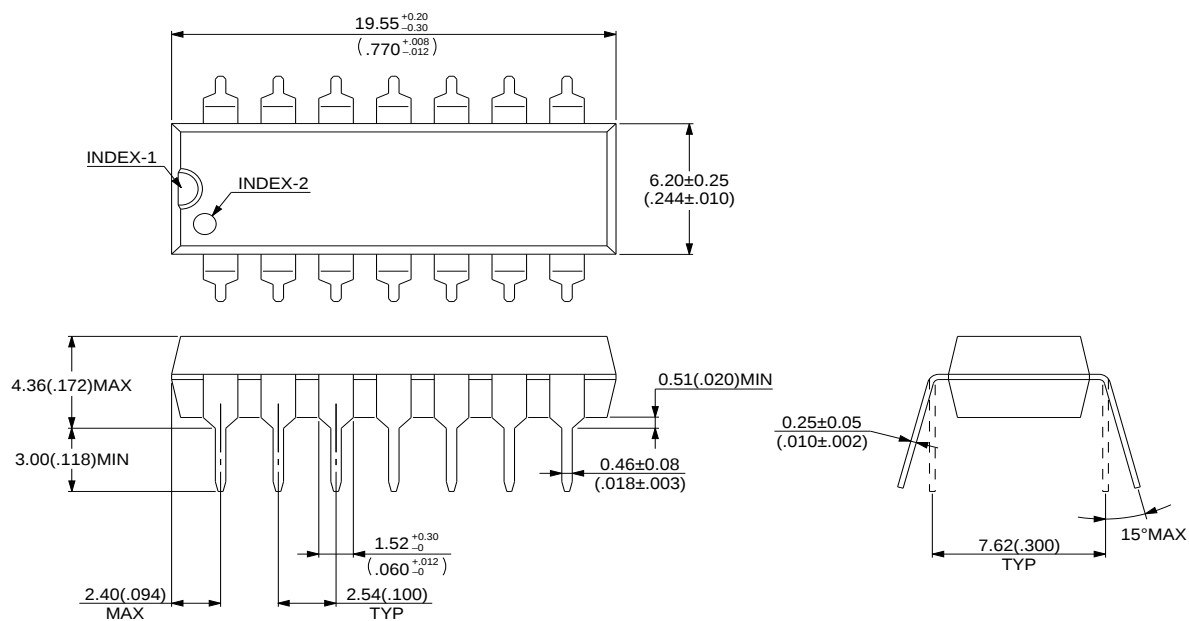


Fig. 7 - Maximum Output Current vs. Temperature



■ PACKAGE DIMENSIONS

14 pin, Plastic DIP
(DIP-14P-M02)

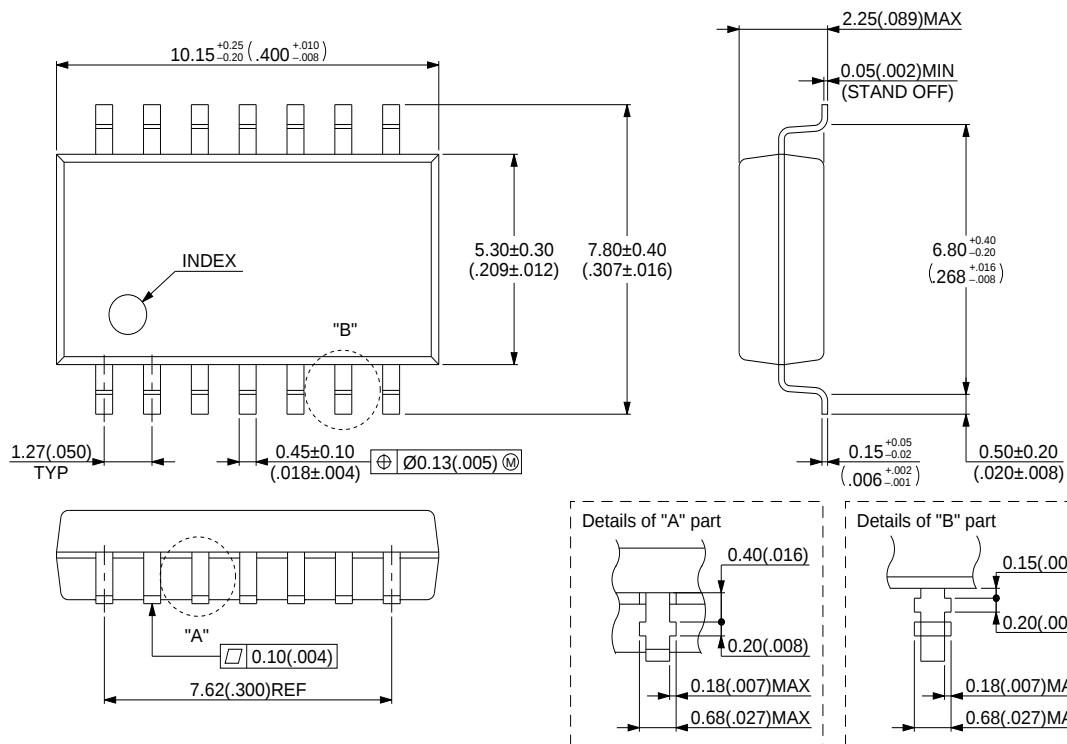


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Dimensions in mm(inches).

■ PACKAGE DIMENSIONS (Continued)

14 pin, Plastic SOP
(FPT-14P-M04)



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Dimensions in mm(inches).

FUJITSU LIMITED

For further information please contact:

Japan

FUJITSU LIMITED
Corporate Global Business Support Division
Electronic Devices
KAWASAKI PLANT, 4-1-1, Kamikodanaka
Nakahara-ku, Kawasaki-shi
Kanagawa 211-88, Japan
Tel: (044) 754-3763
Fax: (044) 754-3329

North and South America

FUJITSU MICROELECTRONICS, INC.
Semiconductor Division
3545 North First Street
San Jose, CA 95134-1804, U.S.A.
Tel: (408) 922-9000
Fax: (408) 432-9044/9045

Europe

FUJITSU MIKROELEKTRONIK GmbH
Am Siebenstein 6-10
63303 Dreieich-Buchschlag
Germany
Tel: (06103) 690-0
Fax: (06103) 690-122

Asia Pacific

FUJITSU MICROELECTRONICS ASIA PTE. LIMITED
#05-08, 151 Lorong Chuan
New Tech Park
Singapore 556741
Tel: (65) 281-0770
Fax: (65) 281-0220

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