

Quad Comparator

MB4204

Integrated Circuit

DATASHEET

OEM – Fujitsu

Source: Fujitsu Databook 1983

FUJITSU
MICROELECTRONICS

MB4204

QUAD COMPARATOR

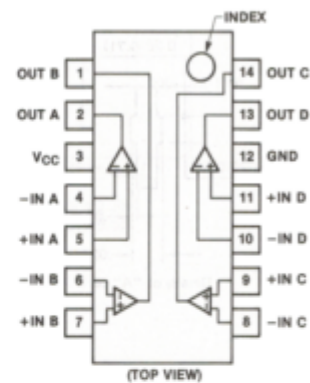
DESCRIPTION

The Fujitsu MB4204 is a quadruple comparator which consists of four independent channels. This device is designed to operate from either a single power supply or dual power supplies over a wide range of voltages. The input characteristics of this device are equivalent to a general-purpose operational amplifier. Even though operated from a single power supply, this device is designed to compare multiple signals in parallel and to be operated by a battery, because the input common mode voltage range includes ground potential and the power consumption is low.

FEATURES

- **Single Power Supply**
Operation: +2.0V to +36V
- **Dual Power Supply**
Operation: $\pm 1.0V$ to $\pm 18V$
- **Input Common Mode Voltage Range including Ground Potential**
- **Low current Drain:**
800 μA Typ.
- **Low Offset Voltage:**
5mV Max.
- **Low Input Bias Current:**
25nA Typ.
- **Pin Compatible with Fairchild $\mu A775$**

PIN ASSIGNMENT



DIP-14P-M01

ELECTRICAL CHARACTERISTICS $V_{CC} = +5V$ and $T_a = 25^\circ C$ unless otherwise noted.

Parameter	Symbol	Value			Unit
		Min	Typ	Max	
Input Offset Voltage ($V_{OUT} = V_{REF} = 1.4V$)	V_{IO}	—	2	5	mV
Input Offset Current	I_{IO}	—	5	50	nA
Input Bias Current	I_I	—	-25	-250	nA
Input Common Mode Range	V_{CM}	0	—	$V_{CC} - 1.5$	V
Voltage Gain ($R_L = 15Kohm$)	A_V	—	200	—	V/mV
Transconductance	G_T	—	13	—	mhos
Large Signal Response Time ($V_{IN} = TTL$ Logic Swing, $V_{REF} = 1.4V$, $V_{RL} = 5V$, $R_L = 5.1Kohm$)	t_{R1}	—	300	—	ns
Response Time (100mA Input Step, $R_L = 5.1Kohm$, 5mV Overdrive, $V_{RL} = 5V$)	t_{R2}	—	1.3	—	us
Low Output Voltage ($V_{IN(-)} = +1V$, $V_{IN(+)} = 0V$, $I_{SINK} = 3mA$)	V_{OL}	—	250	400	mV
Output Sink Current ($V_{IN(-)} = +1V$, $V_{IN(+)} = 0V$, $V_{OUT} = 1.5V$)	I_{SINK}	6	16	—	mA
Output Leakage Current ($V_{IN(+)} = +1V$, $V_{IN(-)} = 0V$, $V_{OUT} = 5V$)	I_{LEAK1}	—	0.1	—	nA
Output Leakage Current ($V_{IN(+)} = +1V$, $V_{IN(-)} = 0V$, $V_{OUT} = 15V$)	I_{LEAK2}	—	—	1	μA
Power Supply Current ($R_L = infinite$)	I_{CC}	—	0.8	2	mA

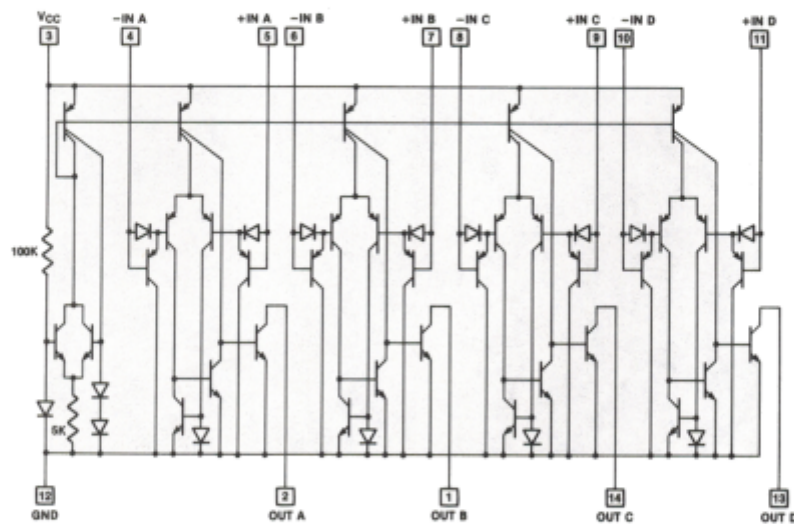
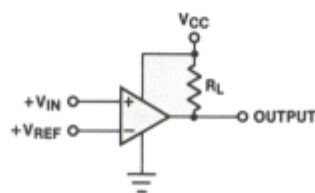
MB4204

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Rating	Unit
Supply Voltage	V_{CC}	36	V
Power Dissipation	P_D	500	mW
Differential Input Voltage	V_{ID}	36	V
Common Mode Input Voltage	V_{IC}	-0.3 to +36	V
Output Short Circuit Duration*	—	infinite	—
Operating Temperature	T_{OP}	-20 to +70	°C
Storage Temperature	T_{stg}	-55 to +125	°C

*Short Circuit to GND

NOTE: Permanent device damage may occur if ABSOLUTE MAXIMUM RATINGS are exceeded.

OPERATIONAL DESCRIPTION/APPLICATION INFORMATION**EQUIVALENT CIRCUIT****STANDARD APPLICATION CIRCUIT****APPLICATIONS**

- Limit Comparator
- Simple Analog to Digital Converter
- Pulse, Squarewave and Time Delay Generator
- Wide Range VCO
- MOS Clock Timer
- Multi-Vibrator
- High Voltage Digital Logic Gate