


FUJITSU


ECL 1024-BIT BIPOLAR RANDOM ACCESS MEMORY

MBM 10422A-5
MBM 10422A-7

 April 1986
 Edition 3.0

1024-BIT BIPOLAR ECL RANDOM ACCESS MEMORY

The Fujitsu MBM 10422A is fully decoded 1024-bit ECL read/write random access memory designed for high-speed scratch pad, control and buffer storage applications. This device is organized as 256 words by 4 bits, and it features on-chip voltage compensation for improved noise margin.

The MBM 10422A offers extremely small cell and chip size, realized through the use of Fujitsu's patented DOPOS (Doped Polysilicon), as well as IOP-II (Isolation by Oxide and Polysilicon), processing. As a result, very fast access time with high yields and outstanding device reliability are achieved in volume production.

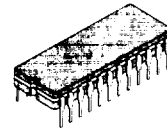
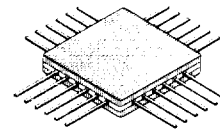
Operation for the MBM 10422A is specified over a temperature range of from 0° to 75°C (T_A for DIP, T_C for Flat Package and LCC). It also features 24-pin DIP, Flat Package, or LCC. It is fully compatible with industry-standard 10K-series ECL families.

- 256 words x 4 bits organization
- On-chip voltage compensation for improved noise margin
- Fully compatible with industry-standard 10K-series ECL families
- Address access time: 5 ns max. (MBM 10422A-5)
7 ns max. (MBM 10422A-7)
- Block select access time: 3 ns max. (MBM 10422A-5)
4 ns max. (MBM 10422A-7)
- Open emitter output for ease of memory expansion
- Low power dissipation of 0.7 mW/bit typ.
- DOPOS and IOP-II processing
- Pin compatible with the F10422

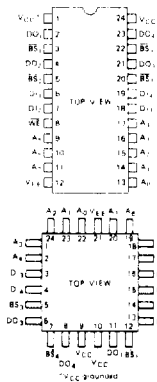
ABSOLUTE MAXIMUM RATINGS (See NOTE)

Rating	Symbol	Value	Unit
V_{EE} Pin Potential to Ground Pin	V_{EE}	+0.5 to -7.0	V
Input Voltage	V_{IN}	+0.5 to V_{EE}	V
Output Current (DC, Output High)	I_{OUT}	-30	mA
Temperature Under Bias	T_A for DIP	-55 to +125	°C
	T_C for Flat Package and LCC	-55 to +125	
Storage Temperature	T_{STG}	-65 to +150	°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.


**CERAMIC PACKAGE
DIP-24C-C05**

**CERAMIC PACKAGE
FPT-24C-C02**
LCC-24C-F02: See Page 9

PIN ASSIGNMENT


LCC PAD CONFIGURATION: See Page 9

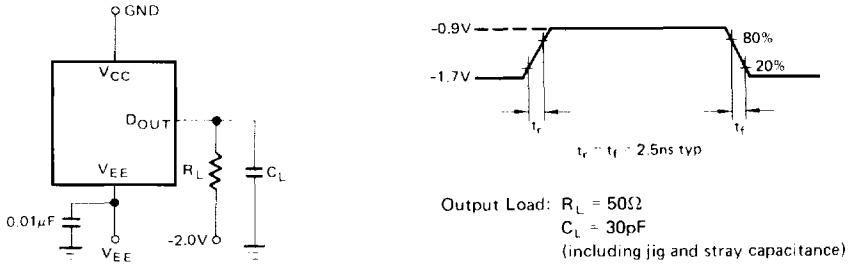
Small geometry bipolar integrated circuits are occasionally susceptible to damage from static voltages or electric fields. It is therefore advised that normal precautions be taken to avoid application of any voltage higher than maximum rated voltages to this device.

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AC CHARACTERISTICS

($V_{CC} = 0\text{ V}$, $V_{EE} = -5.2\text{ V} \pm 5\%$, Output Load = $50\ \Omega$ to -2.0 V and 30 pF to GND, $T_A = 0^\circ\text{C}$ to 75°C for DIP, Airflow $\geq 2.5\text{ m/s}$, $T_C = 0^\circ\text{C}$ to 75°C for Flat Package and LCC, unless otherwise noted.)

Fig. 2 - AC TEST CONDITIONS

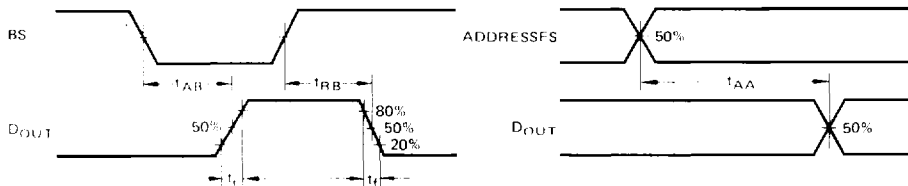


NOTE: All timing measurements referenced to 50% input levels.

READ CYCLE

Parameter	Symbol	MBM 10422A-5			MBM 10422A-7			Unit
		Min	Typ	Max	Min	Typ	Max	
Address Access Time	t_{AA}			5		5	7	ns
Block Select Access Time	t_{AB}			3		2.5	4	ns
Block Select Recovery Time	t_{RB}			3		2.5	4	ns

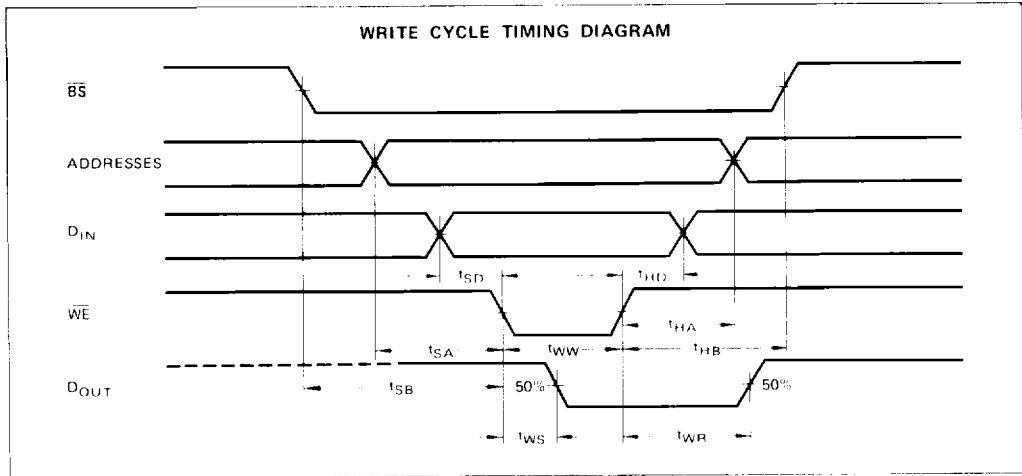
READ CYCLE TIMING DIAGRAMS



WRITE CYCLE

Parameter	Symbol	MBM 10422A-5			MBM 10422A-7			Unit
		Min	Typ	Max	Min	Typ	Max	
Write Pulse Width	t_{WW}	3.5			5			ns
Write Disable Time	t_{WS}			3.5			4	ns
Write Recovery Time	t_{WR}			3.5			8	ns
Address Set Up Time	t_{SA}	0.5			1			ns
Block Select Set Up Time	t_{SB}	0.5			1			ns
Data Set Up Time	t_{SD}	0.5			1			ns
Address Hold Time	t_{HA}	1.0			1			ns
Block Select Hold Time	t_{HB}	1.0			1			ns
Data Hold Time	t_{HD}	1.0			1			ns

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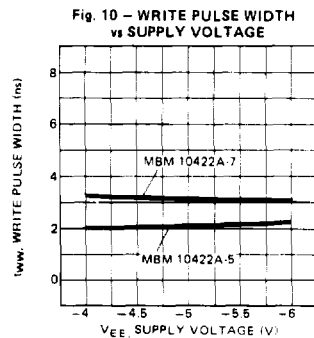
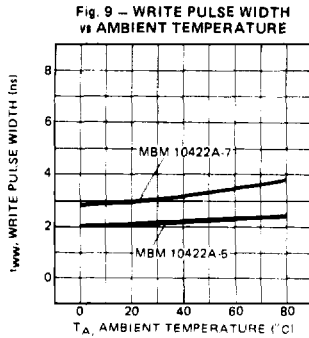
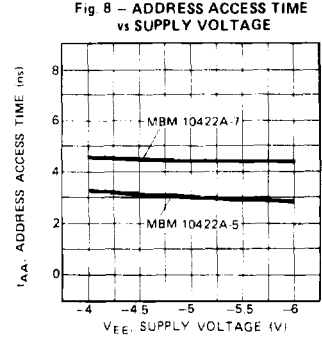
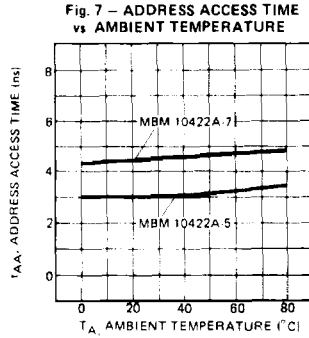
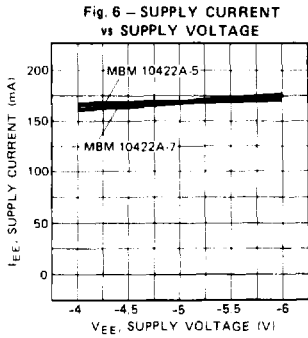
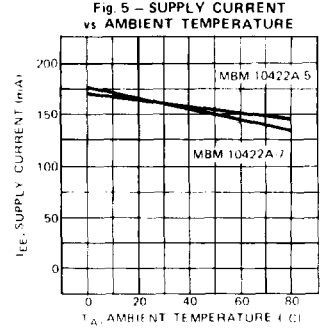
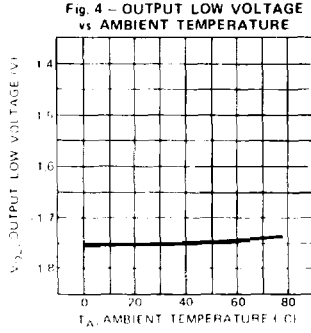
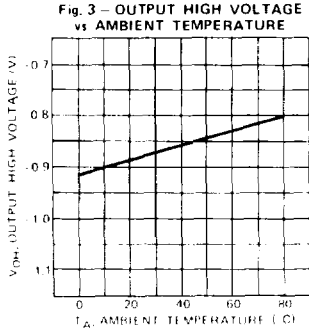
RISE TIME and FALL TIME

Parameter	Symbol	Min	Typ	Max	Unit
Output Rise Time	t_r		1.5		ns
Output Fall Time	t_f		1.5		ns



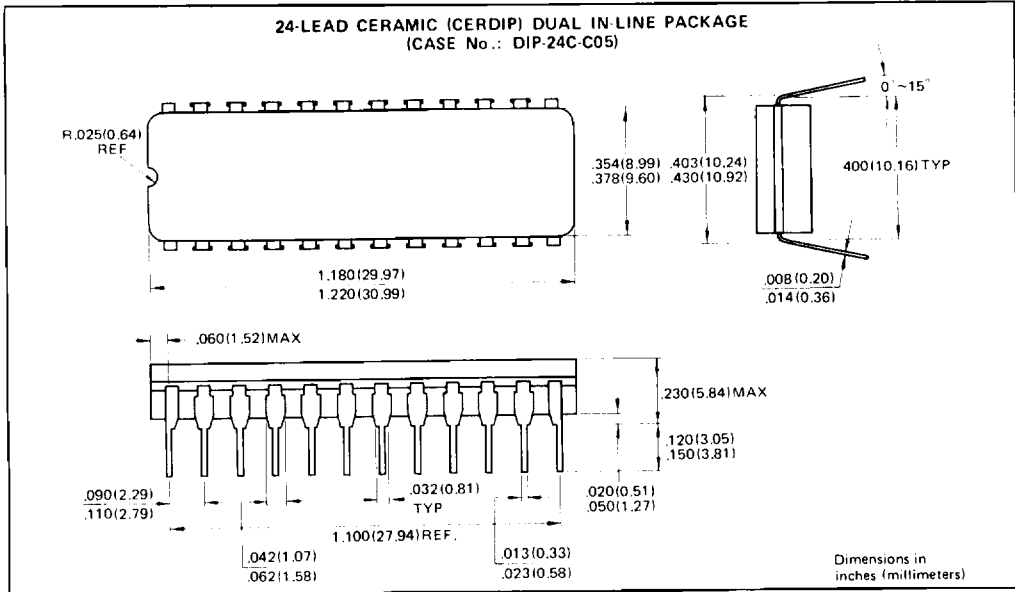
TYPICAL CHARACTERISTICS CURVES

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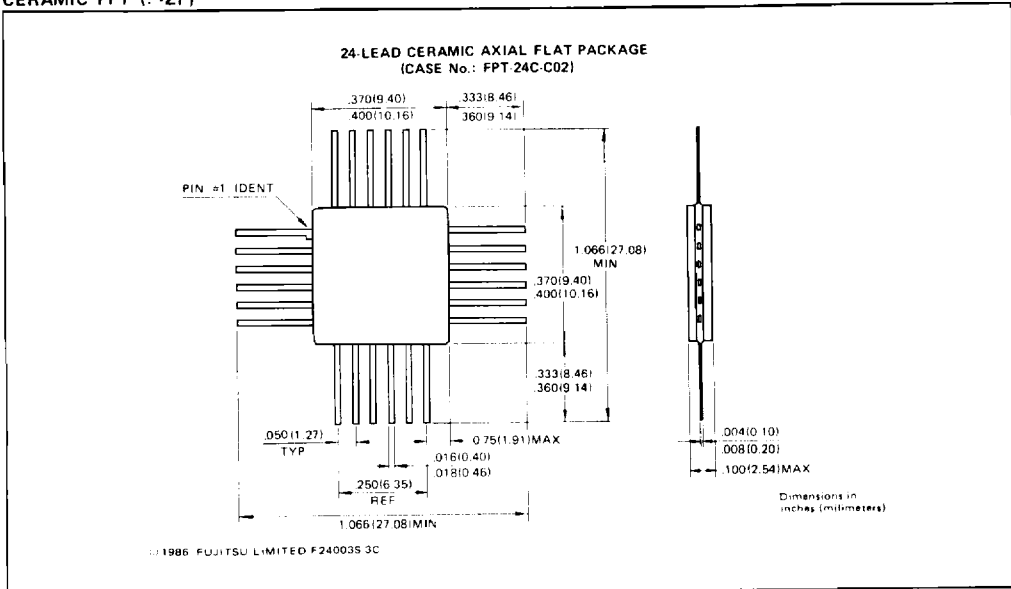


PACKAGE DIMENSIONS

CERAMIC DIP (-CZ)



CERAMIC FPT (-ZF)



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FUJITSU MBM 10422A-5
MBM 10422A-7

PACKAGE DIMENSIONS

CERAMIC LCC (-TV)

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