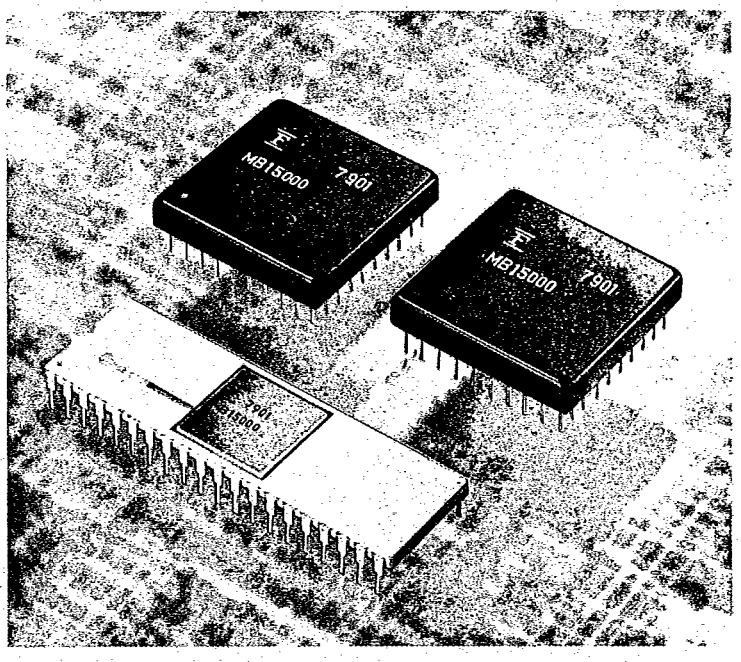
B-500 Gate Array

MB 15K Low Power Schottky TTL

The Fujitsu B-500 (MB15K series) is an integrated circuit gate array fabricated with a low power Schottky TTL (Transistor-Transistor Logic) process. The array consists of 512 internal 2-input NAND gates, 60 input buffers, and 48 output buffers. With the application of a customized double-layer metal mask, the gates and buffers may be interconnected to form a wide variety of random logic configurations. To assure quick, simple and error-free implementation of the metal interconnection routing, Fujitsu utilizes a unique Computer-Aided Design System (CAD) to interface customer specifications with the manufacturing function. This CAD software provides the physical layout of the array, line routing, mask pattern data generation, and test programs as well as computer simulation of the final circuit.

The B-500 can be packaged in plug-in type 64-pin square package or 42-pin DIP depending on the number of input and output connections required by the design.



Features

* Fast turn-around on design
  (10~12 weeks)
* Simplified customer interface with CAD support
  (Only logic design and test pattern information required)
* Replaces typically 70~100 TTL SSI/MSI packages
* Thirteen pre-designed logic cells available
* Internal Gate
  High speed with low power
  (1.8 ns/gate at 2.3 mw/gate)
* Output buffer
  Versatile output option
  (Darlington, Open collector, 3-state, Bi-directional bus)
  Powerful drive capability
  (Low level 10 mA, High level 1mA)
* Input buffer
  Input clamped with Schottky Diode
  (I_{IL} = 18 mA max. at-1.2V)
  High input impedance with PNP Transistor
  (typical 10 μA input current)

Absolute Maximum Ratings

Rating	Symbol	Value	Unit
Supply Voltage	V_{CC}	7	V
Input Voltage	V_I	−0.5 to +5.5	V
Output Voltage	V_O	−0.5 to +5.5	V
Operating Temperature	V_{OP}	−25 to +85	°C
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 the data sheet. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Guaranteed Operating Conditions

(Referenced to Ground)

Parameter	Symbol	Condition	Ambient Temperature (T_a)
Supply Voltage	V_{CC}	5.0V ±5%	0°C to +70°C
Output High Current	I_{OH}	1mA Max.	
Output Low Current	I_{OL}	10mA Max.	

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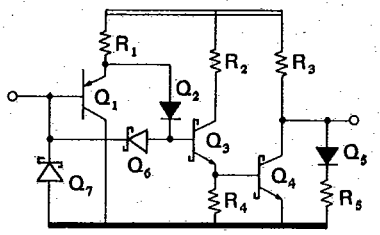
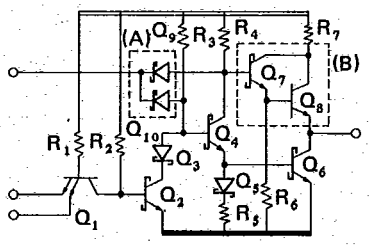
Circuitry Information

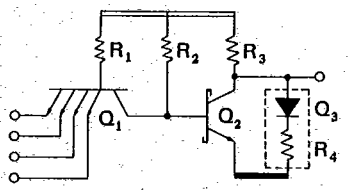
Input Buffer Gate



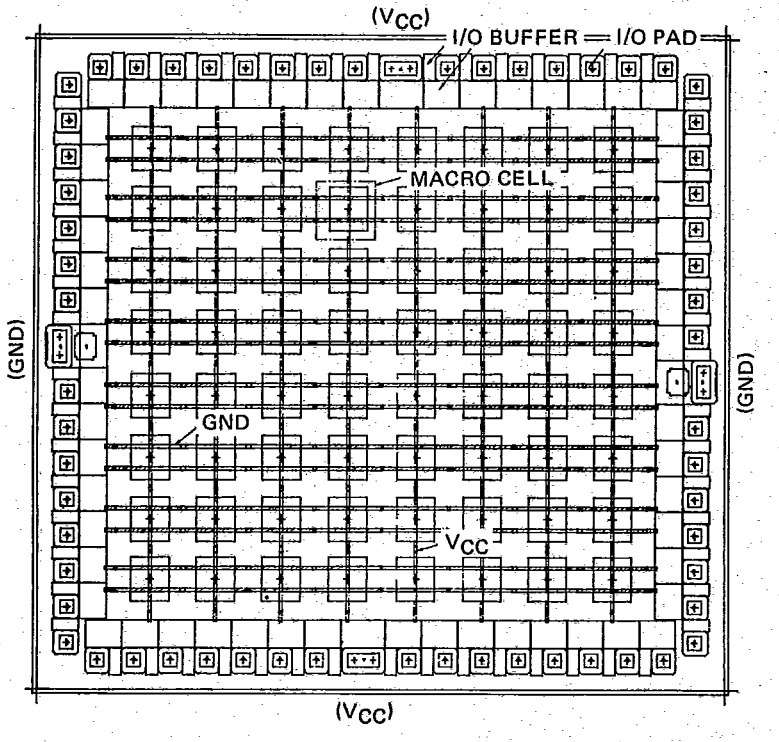
Output Buffer Gate



Internal Basic Gate



Chip Layout



Design Information

Power consumption/speed

	Typ. Power (mW)	Typ. Speed (ns)
Internal Gate	2.3	1.8
Input Buffer	3.0	2.5
Output Buffer	8.0	6.0

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