

December 1992

## CMOS 8-Bit Addressable Latch

### Features

- High Voltage Type (20V Rating)
- Serial Data Input
- Active Parallel Output
- Storage Register Capability
- Master Clear
- Can Function as Demultiplexer
- Standardized Symmetrical Output Characteristics
- 100% Tested for Quiescent Current at 20V
- Maximum Input Current of  $1\mu\text{A}$  at 18V Over Full Package Temperature Range;  $100\text{nA}$  at 18V and  $+25^\circ\text{C}$
- Noise Margin (Over Full Package/Temperature Range)
  - 1V at  $V_{DD} = 5\text{V}$
  - 2V at  $V_{DD} = 10\text{V}$
  - 2.5V at  $V_{DD} = 15\text{V}$
- 5V, 10V and 15V Parametric Ratings
- Meets All Requirements of JEDEC Tentative Standard No. 13B, "Standard Specifications for Description of 'B' Series CMOS Devices"

### Applications

- Multi-line Decoders
- A/D Converters

### Description

CD4724BMS 8-bit addressable latch is a serial-input, parallel-output storage register that can perform a variety of functions.

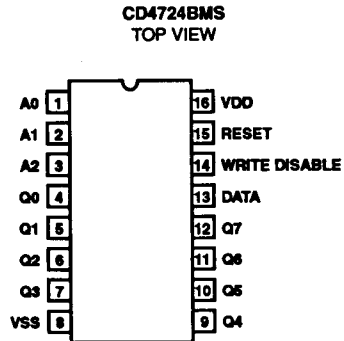
Data are inputted to a particular bit in the latch when that bit is addressed (by means of inputs A0, A1, A2) and when WRITE DISABLE is at a low level. When WRITE DISABLE is high, data entry is inhibited; however, all 8 outputs can be continuously read independent of WRITE DISABLE and address inputs.

A master RESET input is available, which resets all bits to a logic "0" level when RESET and WRITE DISABLE are at a high level. When RESET is at a high level, and WRITE DISABLE is at a low level, the latch acts as a 1-of-8 demultiplexer; the bit that is addressed has an active output which follows that data input, while all unaddressed bits are held to a logic "0" level.

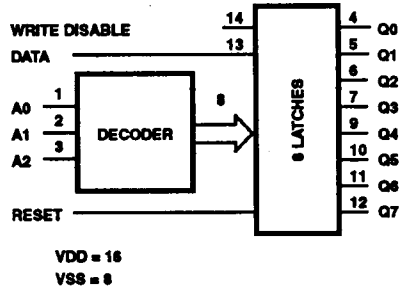
The CD4724BMS is supplied in these 16-lead outline packages:

|                  |     |
|------------------|-----|
| Braze Seal DIP   | H4W |
| Frit Seal DIP    | H1F |
| Ceramic Flatpack | H6W |

### Pinout



### Functional Diagram



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# Specifications CD4724BMS

## Absolute Maximum Ratings

|  |                    |
|--|--------------------|
| DC Supply Voltage Range, (VDD) .....                                     | -0.5V to +20V      |
| (Voltage Referenced to VSS Terminals)                                    |                    |
| Input Voltage Range, All Inputs .....                                    | -0.5V to VDD +0.5V |
| DC Input Current, Any One Input .....                                    | ±10mA              |
| Operating Temperature Range .....  | -55°C to +125°C    |
| Package Types D, F, K, H   |                    |
| Storage Temperature Range (TSTG) .....                                   | -65°C to +150°C    |
| Lead Temperature (During Soldering) .....                                | +265°C             |
| At Distance 1/16 ± 1/32 Inch (1.59mm ± 0.79mm) from case for 10s Maximum |                    |

## Reliability Information

|   |               |               |
|---|---------------|---------------|
| Thermal Resistance .....  | $\theta_{JA}$ | $\theta_{JC}$ |
| Ceramic DIP and FRIT Package .....                                    | 80°C/W        | 20°C/W        |
| Flatpack Package .....  | 70°C/W        | 20°C/W        |
| Maximum Package Power Dissipation (PD) at +125°C                      |               |               |
| For $T_A = -55^\circ\text{C}$ to +100°C (Package Type D, F, K) .....  | 500mW         |               |
| For $T_A = +100^\circ\text{C}$ to +125°C (Package Type D, F, K) ..... | Derate        |               |
| Linearity at 12mW/°C to 200mW   |               |               |
| Device Dissipation per Output Transistor .....                        | 100mW         |               |
| For $T_A = \text{Full Package Temperature Range (All Package Types)}$ |               |               |
| Junction Temperature .....  | +175°C        |               |

**TABLE 1. DC ELECTRICAL PERFORMANCE CHARACTERISTICS**

| PARAMETER                   | SYMBOL | CONDITIONS (NOTE 1)                | GROUP A SUBGROUPS | TEMPERATURE          | LIMITS      |             | UNITS |    |
|-----------------------------|--------|------------------------------------|-------------------|----------------------|-------------|-------------|-------|----|
|                             |        |                                    |                   |                      | MIN         | MAX         |       |    |
| Supply Current              | IDD    | VDD = 20V, VIN = VDD or GND        | 1                 | +25°C                | -           | 10          | μA    |    |
|                             |        |                                    | 2                 | +125°C               | -           | 1000        | μA    |    |
|                             |        |                                    | 3                 | -55°C                | -           | 10          | μA    |    |
| Input Leakage Current       | IIL    | VIN = VDD or GND                   | VDD = 20          | 1                    | +25°C       | -100        | -     | nA |
|                             |        |                                    |                   | 2                    | +125°C      | -1000       | -     | nA |
|                             |        |                                    |                   | 3                    | -55°C       | -100        | -     | nA |
| Input Leakage Current       | IIH    | VIN = VDD or GND                   | VDD = 20          | 1                    | +25°C       | -           | 100   | nA |
|                             |        |                                    |                   | 2                    | +125°C      | -           | 1000  | nA |
|                             |        |                                    |                   | 3                    | -55°C       | -           | 100   | nA |
| Output Voltage              | VOL15  | VDD = 15V, No Load                 | 1, 2, 3           | +25°C, +125°C, -55°C | -           | 50          | mV    |    |
| Output Voltage              | VOH15  | VDD = 15V, No Load (Note 3)        | 1, 2, 3           | +25°C, +125°C, -55°C | 14.95       | -           | V     |    |
| Output Current (Sink)       | IOL5   | VDD = 5V, VOUT = 0.4V              | 1                 | +25°C                | 0.53        | -           | mA    |    |
| Output Current (Sink)       | IOL10  | VDD = 10V, VOUT = 0.5V             | 1                 | +25°C                | 1.4         | -           | mA    |    |
| Output Current (Sink)       | IOL15  | VDD = 15V, VOUT = 1.5V             | 1                 | +25°C                | 3.5         | -           | mA    |    |
| Output Current (Source)     | IOH5A  | VDD = 5V, VOUT = 4.6V              | 1                 | +25°C                | -           | -0.53       | mA    |    |
| Output Current (Source)     | IOH5B  | VDD = 5V, VOUT = 2.5V              | 1                 | +25°C                | -           | -1.8        | mA    |    |
| Output Current (Source)     | IOH10  | VDD = 10V, VOUT = 9.5V             | 1                 | +25°C                | -           | -1.4        | mA    |    |
| Output Current (Source)     | IOH15  | VDD = 15V, VOUT = 13.5V            | 1                 | +25°C                | -           | -3.5        | mA    |    |
| N Threshold Voltage         | VNTH   | VDD = 10V, ISS = -10μA             | 1                 | +25°C                | -2.8        | -0.7        | V     |    |
| P Threshold Voltage         | VPTH   | VSS = 0V, IDD = 10μA               | 1                 | +25°C                | 0.7         | 2.8         | V     |    |
| Functional                  | F      | VDD = 2.8V, VIN = VDD or GND       | 7                 | +25°C                | VOH > VDD/2 | VOL < VDD/2 | V     |    |
|                             |        | VDD = 20V, VIN = VDD or GND        | 7                 | +25°C                |             |             |       |    |
|                             |        | VDD = 18V, VIN = VDD or GND        | 8A                | +125°C               |             |             |       |    |
|                             |        | VDD = 3V, VIN = VDD or GND         | 8B                | -55°C                |             |             |       |    |
| Input Voltage Low (Note 2)  | VIL    | VDD = 5V, VOH > 4.5V, VOL < 0.5V   | 1, 2, 3           | +25°C, +125°C, -55°C | -           | 1.5         | V     |    |
| Input Voltage High (Note 2) | VIH    | VDD = 5V, VOH > 4.5V, VOL < 0.5V   | 1, 2, 3           | +25°C, +125°C, -55°C | 3.5         | -           | V     |    |
| Input Voltage Low (Note 2)  | VIL    | VDD = 15V, VOH > 13.5V, VOL < 1.5V | 1, 2, 3           | +25°C, +125°C, -55°C | -           | 4           | V     |    |
| Input Voltage High (Note 2) | VIH    | VDD = 15V, VOH > 13.5V, VOL < 1.5V | 1, 2, 3           | +25°C, +125°C, -55°C | 11          | -           | V     |    |

NOTES: 1. All voltages referenced to device GND, 100% testing being implemented. 2. Go/No Go test with limits applied to inputs. 3. For accuracy, voltage is measured differentially to VDD. Limit is 0.050V max.

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**TABLE 2. AC ELECTRICAL PERFORMANCE CHARACTERISTICS**

| PARAMETER                                 | SYMBOL         | CONDITIONS (NOTE 1, 2)     | GROUP A SUBGROUPS | TEMPERATURE   | LIMITS |     | UNITS |
|---|----------------|----------------------------|-------------------|---------------|--------|-----|-------|
|   |                |                            |                   |               | MIN    | MAX |       |
| Propagation Delay Data to Output          | TPHL1<br>TPLH1 | VDD = 5V, VIN = VDD or GND | 9                 | +25°C         | -      | 400 | ns    |
|   |                |                            | 10, 11            | +125°C, -55°C | -      | 540 | ns    |
| Propagation Delay Write Disable to Output | TPHL2<br>TPLH2 | VDD = 5V, VIN = VDD or GND | 9                 | +25°C         | -      | 400 | ns    |
|   |                |                            | 10, 11            | +125°C, -55°C | -      | 540 | ns    |
| Propagation Delay Reset to Output         | TPHL3          | VDD = 5V, VIN = VDD or GND | 9                 | +25°C         | -      | 350 | ns    |
|   |                |                            | 10, 11            | +125°C, -55°C | -      | 473 | ns    |
| Propagation Delay Address to Output       | TPHL4<br>TPLH4 | VDD = 5V, VIN = VDD or GND | 9                 | +25°C         | -      | 450 | ns    |
|   |                |                            | 10, 11            | +125°C, -55°C | -      | 608 | ns    |
| Transition Time                           | TTHL<br>TTLH   | VDD = 5V, VIN = VDD or GND | 9                 | +25°C         | -      | 200 | ns    |
|   |                |                            | 10, 11            | +125°C, -55°C | -      | 270 | ns    |

**NOTES:**

1. CL = 50pF, RL = 200K, Input TR, TF < 20ns.
2. -55°C and +125°C limits guaranteed, 100% testing being implemented.

**TABLE 3. ELECTRICAL PERFORMANCE CHARACTERISTICS**

| PARAMETER               | SYMBOL | CONDITIONS                  | NOTES | TEMPERATURE          | LIMITS |       | UNITS |
|-------------------------|--------|-----------------------------|-------|----------------------|--------|-------|-------|
|                         |        |                             |       |                      | MIN    | MAX   |       |
| Supply Current          | IDD    | VDD = 5V, VIN = VDD or GND  | 1, 2  | -55°C, +25°C         | -      | 5     | µA    |
|                         |        |                             |       | +125°C               | -      | 150   | µA    |
|                         |        | VDD = 10V, VIN = VDD or GND | 1, 2  | -55°C, +25°C         | -      | 10    | µA    |
|                         |        |                             |       | +125°C               | -      | 300   | µA    |
|                         |        | VDD = 15V, VIN = VDD or GND | 1, 2  | -55°C, +25°C         | -      | 10    | µA    |
|                         |        |                             |       | +125°C               | -      | 600   | µA    |
| Output Voltage          | VOL    | VDD = 5V, No Load           | 1, 2  | +25°C, +125°C, -55°C | -      | 50    | mV    |
| Output Voltage          | VOL    | VDD = 10V, No Load          | 1, 2  | +25°C, +125°C, -55°C | -      | 50    | mV    |
| Output Voltage          | VOH    | VDD = 5V, No Load           | 1, 2  | +25°C, +125°C, -55°C | 4.95   | -     | V     |
| Output Voltage          | VOH    | VDD = 10V, No Load          | 1, 2  | +25°C, +125°C, -55°C | 9.95   | -     | V     |
| Output Current (Sink)   | IOL5   | VDD = 5V, VOUT = 0.4V       | 1, 2  | +125°C               | 0.36   | -     | mA    |
|                         |        |                             |       | -55°C                | 0.64   | -     | mA    |
| Output Current (Sink)   | IOL10  | VDD = 10V, VOUT = 0.5V      | 1, 2  | +125°C               | 0.9    | -     | mA    |
|                         |        |                             |       | -55°C                | 1.6    | -     | mA    |
| Output Current (Sink)   | IOL15  | VDD = 15V, VOUT = 1.5V      | 1, 2  | +125°C               | 2.4    | -     | mA    |
|                         |        |                             |       | -55°C                | 4.2    | -     | mA    |
| Output Current (Source) | IOH5A  | VDD = 5V, VOUT = 4.6V       | 1, 2  | +125°C               | -      | -0.36 | mA    |
|                         |        |                             |       | -55°C                | -      | -0.64 | mA    |
| Output Current (Source) | IOH5B  | VDD = 5V, VOUT = 2.5V       | 1, 2  | +125°C               | -      | -1.15 | mA    |
|                         |        |                             |       | -55°C                | -      | -2.0  | mA    |
| Output Current (Source) | IOH10  | VDD = 10V, VOUT = 9.5V      | 1, 2  | +125°C               | -      | -0.9  | mA    |
|                         |        |                             |       | -55°C                | -      | -1.6  | mA    |

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**TABLE 3. ELECTRICAL PERFORMANCE CHARACTERISTICS (Continued)**

| PARAMETER                                     | SYMBOL         | CONDITIONS                    | NOTES   | TEMPERATURE          | LIMITS |      | UNITS |
|---|----------------|-------------------------------|---------|----------------------|--------|------|-------|
|   |                |                               |         |                      | MIN    | MAX  |       |
| Output Current (Source)                       | IOH15          | VDD = 15V, VOUT = 13.5V       | 1, 2    | +125°C               | -      | -2.4 | mA    |
|   |                |                               |         | -55°C                | -      | -4.2 | mA    |
| Input Voltage Low                             | VIL            | VDD = 10V, VOH > 9V, VOL < 1V | 1, 2    | +25°C, +125°C, -55°C | -      | 3    | V     |
| Input Voltage High                            | VIH            | VDD = 10V, VOH > 9V, VOL < 1V | 1, 2    | +25°C, +125°C, -55°C | +7     | -    | V     |
| Propagation Delay Data to Output              | TPHL1<br>TPLH1 | VDD = 10V                     | 1, 2, 3 | +25°C                | -      | 150  | ns    |
|   |                | VDD = 15V                     | 1, 2, 3 | +25°C                | -      | 100  | ns    |
| Propagation Delay Write Disable to Output     | TPHL2<br>TPLH2 | VDD = 10V                     | 1, 2, 3 | +25°C                | -      | 160  | ns    |
|   |                | VDD = 15V                     | 1, 2, 3 | +25°C                | -      | 120  | ns    |
| Propagation Delay Reset to Output             | TPHL3          | VDD = 10V                     | 1, 2, 3 | +25°C                | -      | 160  | ns    |
|   |                | VDD = 15V                     | 1, 2, 3 | +25°C                | -      | 130  | ns    |
| Propagation Delay Address to Output           | TPHL4<br>TPLH4 | VDD = 10V                     | 1, 2, 3 | +25°C                | -      | 200  | ns    |
|   |                | VDD = 15V                     | 1, 2, 3 | +25°C                | -      | 150  | ns    |
| Transition Time                               | TTLH<br>TTHL   | VDD = 10V                     | 1, 2, 3 | +25°C                | -      | 100  | ns    |
|   |                | VDD = 15V                     | 1, 2, 3 | +25°C                | -      | 80   | ns    |
| Minimum Address Pulse Width                   | TW             | VDD = 5V                      | 1, 2, 3 | +25°C                | -      | 400  | MHz   |
|   |                | VDD = 10V                     | 1, 2, 3 | +25°C                | -      | 200  | MHz   |
|   |                | VDD = 15V                     | 1, 2, 3 | +25°C                | -      | 125  | MHz   |
| Minimum Reset Pulse Width                     | TW             | VDD = 5V                      | 1, 2, 3 | +25°C                | -      | 150  | ns    |
|   |                | VDD = 10V                     | 1, 2, 3 | +25°C                | -      | 75   | ns    |
|   |                | VDD = 15V                     | 1, 2, 3 | +25°C                | -      | 50   | ns    |
| Minimum Data Setup Time Data to Write Disable | TS             | VDD = 5V                      | 1, 2, 3 | +25°C                | -      | 100  | ns    |
|   |                | VDD = 10V                     | 1, 2, 3 | +25°C                | -      | 50   | ns    |
|   |                | VDD = 15V                     | 1, 2, 3 | +25°C                | -      | 35   | ns    |
| Minimum Data Hold Time Data to Write Disable  | TH             | VDD = 5V                      | 1, 2, 3 | +25°C                | -      | 150  | ns    |
|   |                | VDD = 10V                     | 1, 2, 3 | +25°C                | -      | 75   | ns    |
|   |                | VDD = 15V                     | 1, 2, 3 | +25°C                | -      | 50   | ns    |
| Minimum Data Pulse Width                      | TW             | VDD = 5V                      | 1, 2, 3 | +25°C                | -      | 200  | ns    |
|   |                | VDD = 10V                     | 1, 2, 3 | +25°C                | -      | 100  | ns    |
|   |                | VDD = 15V                     | 1, 2, 3 | +25°C                | -      | 80   | ns    |
| Input Capacitance                             | CIN            | Any Input                     | 1, 2    | +25°C                | -      | 7.5  | pF    |

**NOTES:**

1. All voltages referenced to device GND.
2. The parameters listed on Table 3 are controlled via design or process and are not directly tested. These parameters are characterized on initial design release and upon design changes which would affect these characteristics.
3. CL = 50pF, RL = 200K, Input TR, TF < 20ns.

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**TABLE 4. POST IRRADIATION ELECTRICAL PERFORMANCE CHARACTERISTICS**

| PARAMETER                 | SYMBOL       | CONDITIONS                  | NOTES      | TEMPERATURE | LIMITS      |                    | UNITS |
|---------------------------|--------------|-----------------------------|------------|-------------|-------------|--------------------|-------|
|                           |              |                             |            |             | MIN         | MAX                |       |
| Supply Current            | IDD          | VDD = 20V, VIN = VDD or GND | 1, 4       | +25°C       | -           | 25                 | μA    |
| N Threshold Voltage       | VNTH         | VDD = 10V, ISS = -10μA      | 1, 4       | +25°C       | -2.8        | -0.2               | V     |
| N Threshold Voltage Delta | ΔVTN         | VDD = 10V, ISS = -10μA      | 1, 4       | +25°C       | -           | ±1                 | V     |
| P Threshold Voltage       | VTP          | VSS = 0V, IDD = 10μA        | 1, 4       | +25°C       | 0.2         | 2.8                | V     |
| P Threshold Voltage Delta | ΔVTP         | VSS = 0V, IDD = 10μA        | 1, 4       | +25°C       | -           | ±1                 | V     |
| Functional                | F            | VDD = 18V, VIN = VDD or GND | 1          | +25°C       | VOH > VDD/2 | VOL < VDD/2        | V     |
|                           |              | VDD = 3V, VIN = VDD or GND  |            |             |             |                    |       |
| Propagation Delay Time    | TPHL<br>TPLH | VDD = 5V                    | 1, 2, 3, 4 | +25°C       | -           | 1.35 x +25°C Limit | ns    |

- NOTES: 1. All voltages referenced to device GND. 3. See Table 2 for +25°C limit.  
 2. CL = 50pF, RL = 200K, Input TR, TF < 20ns. 4. Read and Record

**TABLE 5. BURN-IN AND LIFE TEST DELTA PARAMETERS +25°C**

| PARAMETER               | SYMBOL | DELTA LIMIT              |
|-------------------------|--------|--------------------------|
| Supply Current - MSI-2  | IDD    | ± 1.0μA                  |
| Output Current (Sink)   | IOL5   | ± 20% x Pre-Test Reading |
| Output Current (Source) | IOH5A  | ± 20% x Pre-Test Reading |

**TABLE 6. APPLICABLE SUBGROUPS**

| CONFORMANCE GROUP             |              | MIL-STD-883 METHOD | GROUP A SUBGROUPS                     | READ AND RECORD              |
|-------------------------------|--------------|--------------------|---------------------------------------|------------------------------|
| Initial Test (Pre Burn-In)    |              | 100% 5004          | 1, 7, 9                               | IDD, IOL5, IOH5A             |
| Interim Test 1 (Post Burn-In) |              | 100% 5004          | 1, 7, 9                               | IDD, IOL5, IOH5A             |
| Interim Test 2 (Post Burn-In) |              | 100% 5004          | 1, 7, 9                               | IDD, IOL5, IOH5A             |
| PDA (Note 1)                  |              | 100% 5004          | 1, 7, 9, Deltas                       |                              |
| Interim Test 3 (Post Burn-In) |              | 100% 5004          | 1, 7, 9                               | IDD, IOL5, IOH5A             |
| PDA (Note 1)                  |              | 100% 5004          | 1, 7, 9, Deltas                       |                              |
| Final Test                    |              | 100% 5004          | 2, 3, 8A, 8B, 10, 11                  |                              |
| Group A                       |              | Sample 5005        | 1, 2, 3, 7, 8A, 8B, 9, 10, 11         |                              |
| Group B                       | Subgroup B-5 | Sample 5005        | 1, 2, 3, 7, 8A, 8B, 9, 10, 11, Deltas | Subgroups 1, 2, 3, 9, 10, 11 |
|                               | Subgroup B-6 | Sample 5005        | 1, 7, 9                               |                              |
| Group D                       |              | Sample 5005        | 1, 2, 3, 8A, 8B, 9                    | Subgroups 1, 2, 3            |

NOTE: 1. 5% Parametric, 3% Functional; Cumulative for Static 1 and 2.

**TABLE 7. TOTAL DOSE IRRADIATION**

| CONFORMANCE GROUPS | MIL-STD-883 METHOD | TEST      |            | READ AND RECORD |            |
|--------------------|--------------------|-----------|------------|-----------------|------------|
|                    |                    | PRE-IRRAD | POST-IRRAD | PRE-IRRAD       | POST-IRRAD |
| Group E Subgroup 2 | 5005               | 1, 7, 9   | Table 4    | 1, 9            | Table 4    |

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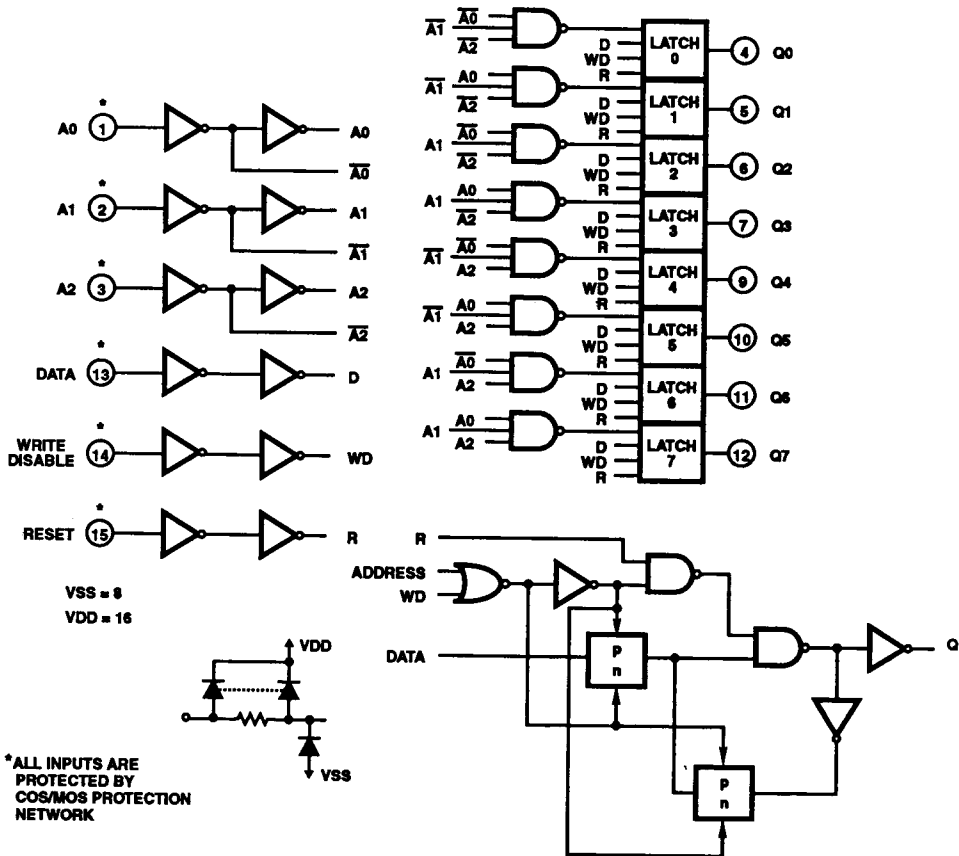
**TABLE 8. BURN-IN AND IRRADIATION TEST CONNECTIONS**

| FUNCTION                   | OPEN          | GROUND            | VDD            | 9V ± 0.5V     | OSCILLATOR |       |
|----------------------------|---------------|-------------------|----------------|---------------|------------|-------|
|                            |               |                   |                |               | 50kHz      | 25kHz |
| Static Burn-In 1<br>Note 1 | 4 - 7, 9 - 12 | 1 - 3, 8, 13 - 15 | 16             |               |            |       |
| Static Burn-In 2<br>Note 1 | 4 - 7, 9 - 12 | 8                 | 1 - 3, 13 - 16 |               |            |       |
| Dynamic Burn-In<br>Note 1  | -             | 1 - 3, 8          | 16             | 4 - 7, 9 - 12 | 14, 15     | 13    |
| Irradiation<br>Note 2      | 4 - 7, 9 - 12 | 8                 | 1 - 3, 13 - 16 |               |            |       |

**NOTES:**

1. Each pin except VDD and GND will have a series resistor of 10K ± 5%, VDD = 18V ± 0.5V
2. Each pin except VDD and GND will have a series resistor of 47K ± 5%; Group E, Subgroup 2, sample size is 4 dice/wafer, 0 failures, VDD = 10V ± 0.5V

## Logic Diagram



**FIGURE 1. LOGIC DIAGRAM OF CD4724BMS AND DETAIL OF 1 OF 8 LATCHES**

Typical Performance Characteristics

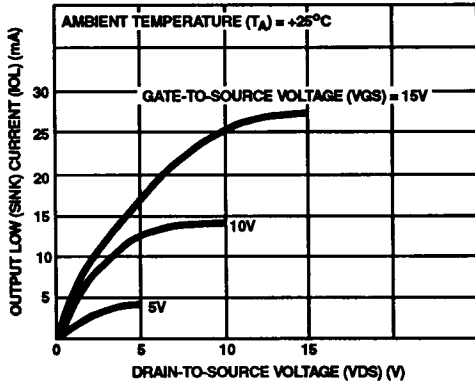


FIGURE 2. TYPICAL OUTPUT LOW (SINK) CURRENT CHARACTERISTICS

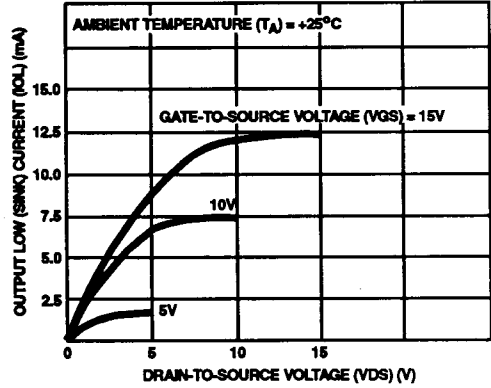


FIGURE 3. MINIMUM OUTPUT LOW (SINK) CURRENT CHARACTERISTICS

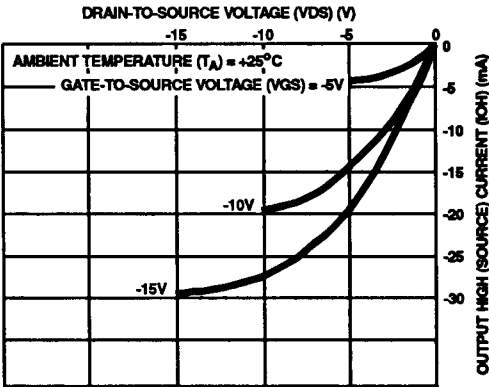


FIGURE 4. TYPICAL OUTPUT HIGH (SOURCE) CURRENT CHARACTERISTICS

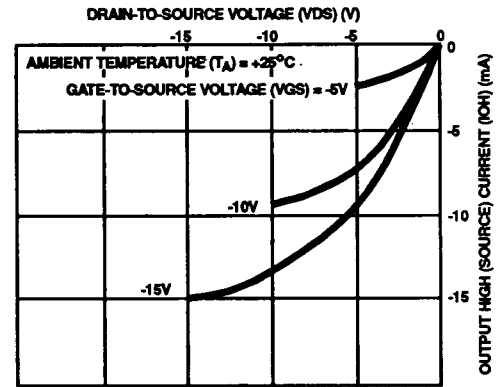


FIGURE 5. MINIMUM OUTPUT HIGH (SOURCE) CURRENT CHARACTERISTICS

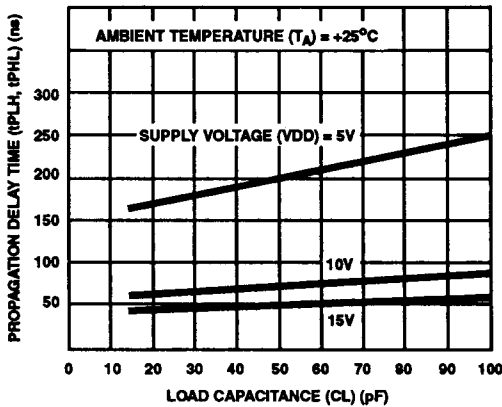


FIGURE 6. TYPICAL PROPAGATION DELAY TIME (DATA TO QN) vs LOAD CAPACITANCE

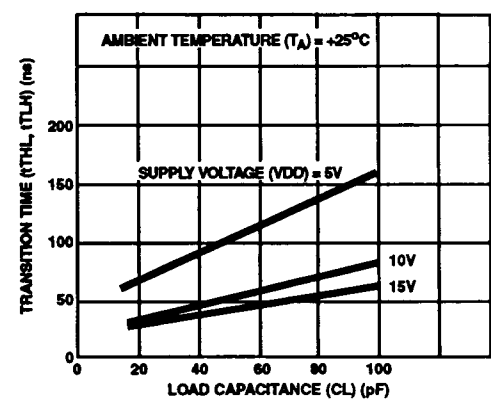


FIGURE 7. TYPICAL TRANSITION TIME vs LOAD CAPACITANCE

Typical Performance Characteristics (Continued)

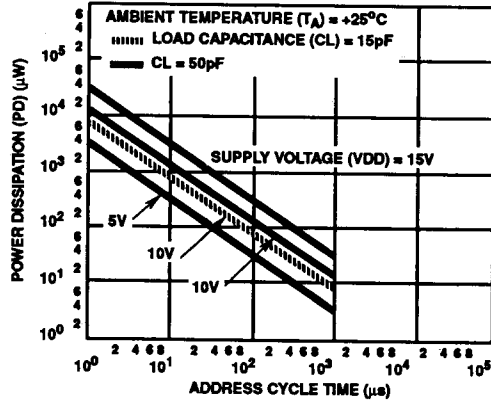


FIGURE 8. TYPICAL DYNAMIC POWER DISSIPATION vs ADDRESS CYCLE TIME

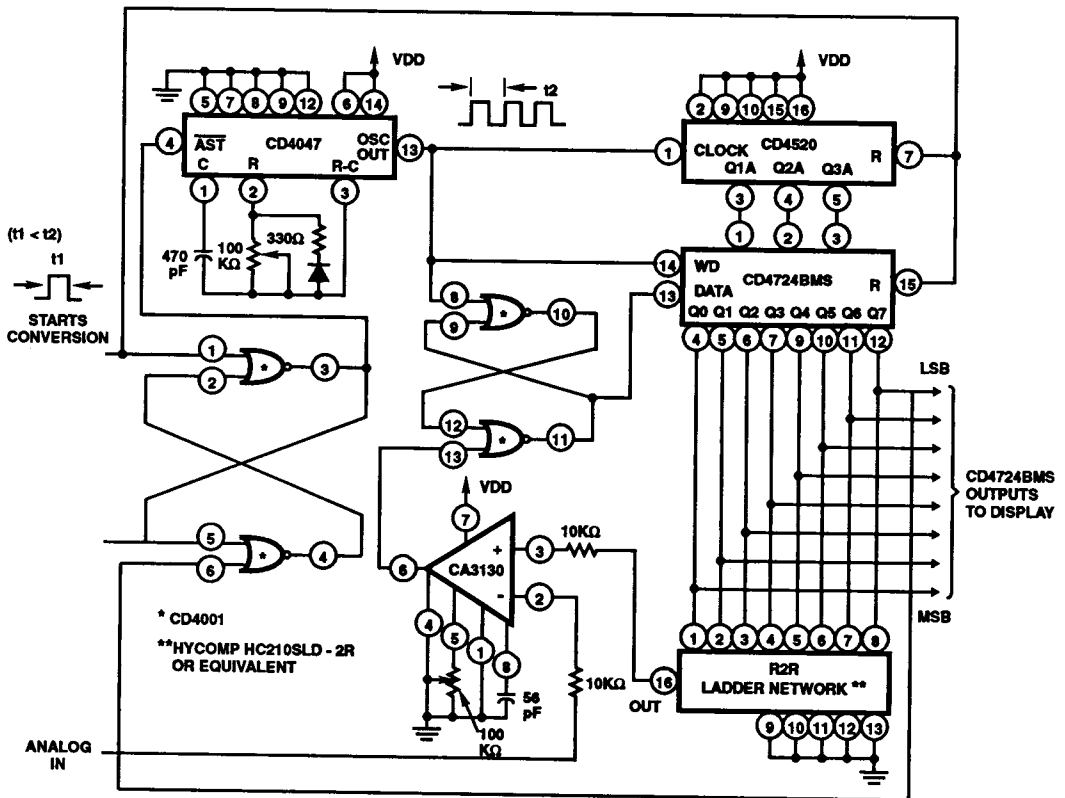


FIGURE 9. A/D CONVERTER



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| MODE SELECTION |   |  |                      |
|----------------|---|--|----------------------|
| WD             | R | ADDRESSED LATCH                                    | UNADDRESSED LATCH    |
| 0              | 0 | Follows Data                                       | Holds Previous State |
| 0              | 1 | Follows Data (Active High 8-Channel Demultiplexer) | Reset to "0"         |
| 1              | 0 | Holds Previous State                               |                      |
| 1              | 1 | Reset to "0"                                       | Reset to "0"         |

WD = Write Disable

R = Reset

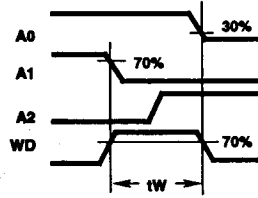


FIGURE 10. DEFINITION OF WRITE DISABLE ON TIME

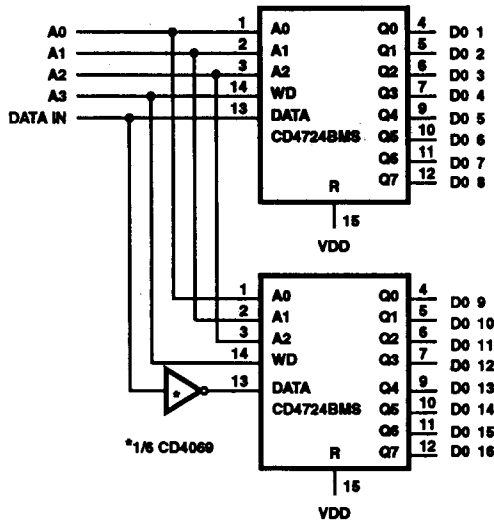


FIGURE 11. 1 OF 16 DECODER/DEMULTEPLEXER

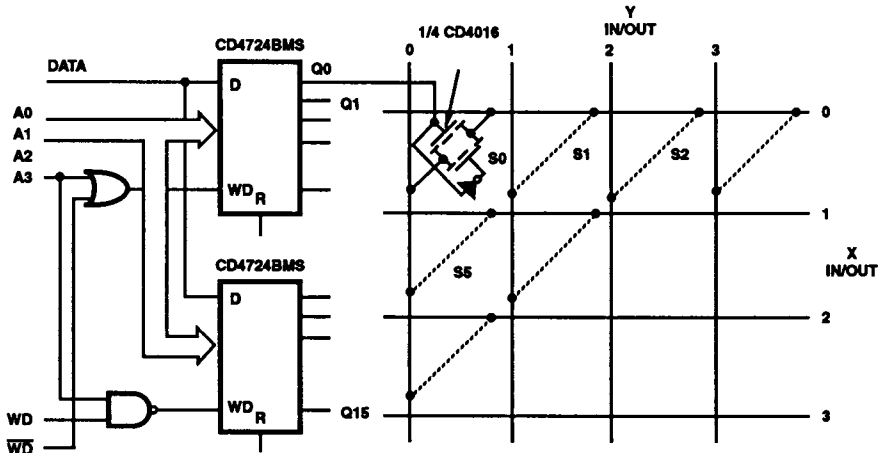
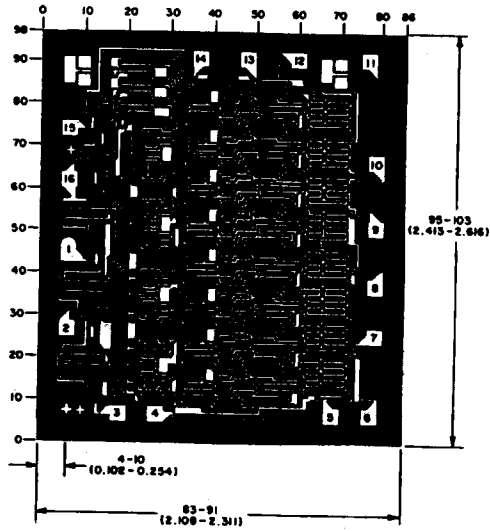


FIGURE 12. MULTIPLE SELECTION DECODING - 4 X 4 CROSSPOINT SWITCH

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## Chip Dimensions and Pad Layout



Dimensions in parentheses are in millimeters and are derived from the basic inch dimensions as indicated. Grid graduations are in mils ( $10^{-3}$  inch)

- METALLIZATION:** Thickness:  $11\text{k}\text{\AA}$  -  $14\text{k}\text{\AA}$ , AL.
- PASSIVATION:**  $10.4\text{k}\text{\AA}$  -  $15.6\text{k}\text{\AA}$ , Silane
- BOND PADS:** 0.004 inches X 0.004 inches MIN
- DIE THICKNESS:** 0.0198 inches - 0.0218 inches