

December 1992

### Features

- High Voltage Type (20V Rating)
- CD4555BMS: Outputs High on Select
- CD4556BMS: Outputs Low on Select
- Expandable with Multiple Packages
- 100% Tested for Quiescent Current at 20V
- Standardized, Symmetrical Output Characteristics
- Maximum Input Current of 1 $\mu$ A at 18V Over Full Package Temperature Range; 100nA at 18V and +25°C
- Noise Margin (Over Full Package/Temperature Range)
  - 1V at VDD = 5V
  - 2V at VDD = 10V
  - 2.5V at VDD = 15V
- 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

- Decoding
- Code Conversion
- Demultiplexing (Using Enable Input as a Data Input)
- Memory Chip-Enable Selection
- Function Selection

### Description

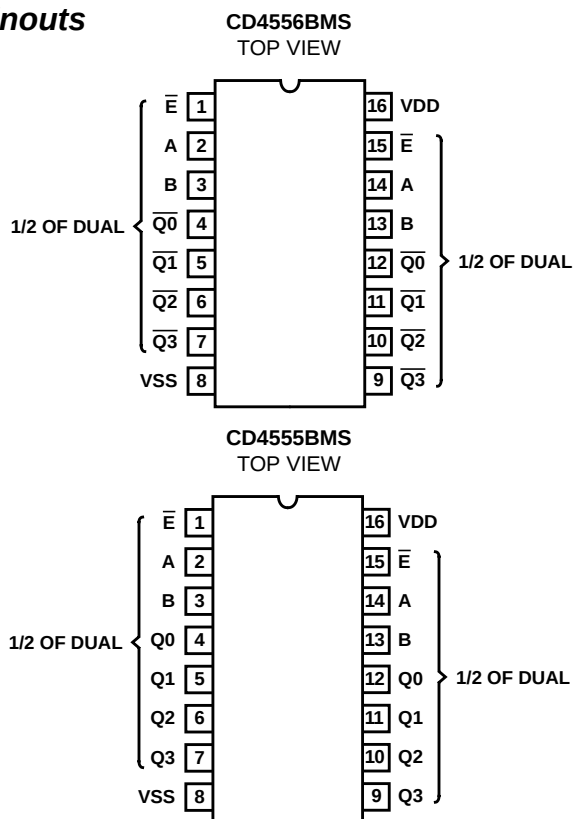
CD4555BMS and CD4556BMS are dual one-of-four decoders/demultiplexers. Each decoder has two select inputs (A and B), an Enable input ( $\bar{E}$ ), and four mutually exclusive outputs. On the CD4555BMS the outputs are high on select; on the CD4556BMS the outputs are low on select.

When the Enable input is high, the outputs of the CD4555BMS remain low and the outputs of the CD4556BMS remain high regardless of the state of the select inputs A and B. The CD4555BMS and CD4556BMS are similar to types MC14555 and MC14556, respectively.

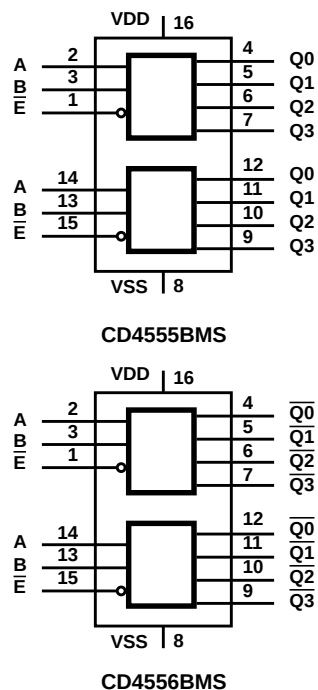
The CD4555BMS and CD4556BMS are supplied in these 16-lead outline packages:

|                  |               |      |
|------------------|---------------|------|
| Braze Seal DIP   | *H46          | †H4T |
| Frit Seal DIP    | H1E           |      |
| Ceramic Flatpack | H6W           |      |
| *CD4555B Only    | †CD4556B Only |      |

### Pinouts



### Functional Diagrams



## Specifications CD4555BMS, CD4556BMS

### 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 .....  $\pm 10\text{mA}$   
 Operating Temperature Range .....  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$   
 Package Types D, F, K, H  
 Storage Temperature Range (TSTG) .....  $-65^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$   
 Lead Temperature (During Soldering) .....  $+265^{\circ}\text{C}$   
 At Distance  $1/16 \pm 1/32$  Inch ( $1.59\text{mm} \pm 0.79\text{mm}$ ) from case for  
 10s Maximum

### Reliability Information

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

**TABLE 1. DC ELECTRICAL PERFORMANCE CHARACTERISTICS**

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

## Specifications CD4555BMS, CD4556BMS

**TABLE 2. AC ELECTRICAL PERFORMANCE CHARACTERISTICS**

| PARAMETER                                       | SYMBOL         | CONDITIONS (NOTE 1, 2)     | GROUP A<br>SUBGROUPS | TEMPERATURE   | LIMITS |     | UNITS |
|-------------------------------------------------|----------------|----------------------------|----------------------|---------------|--------|-----|-------|
|                                                 |                |                            |                      |               | MIN    | MAX |       |
| Propagation Delay<br>A or B Input to any Output | TPHL1<br>TPLH1 | VDD = 5V, VIN = VDD or GND | 9                    | +25°C         | -      | 440 | ns    |
|                                                 |                |                            | 10, 11               | +125°C, -55°C | -      | 594 | ns    |
| Propagation Delay<br>E to any Output            | TPHL2<br>TPLH2 | VDD = 5V, VIN = VDD or GND | 9                    | +25°C         | -      | 400 | ns    |
|                                                 |                |                            | 10, 11               | +125°C, -55°C | -      | 540 | 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,<br>-55°C | -      | 50    | mV    |
| Output Voltage          | VOL    | VDD = 10V, No Load            | 1, 2  | +25°C, +125°C,<br>-55°C | -      | 50    | mV    |
| Output Voltage          | VOH    | VDD = 5V, No Load             | 1, 2  | +25°C, +125°C,<br>-55°C | 4.95   | -     | V     |
| Output Voltage          | VOH    | VDD = 10V, No Load            | 1, 2  | +25°C, +125°C,<br>-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    |
| 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,<br>-55°C | -      | 3     | V     |
| Input Voltage High      | VIH    | VDD = 10V, VOH > 9V, VOL < 1V | 1, 2  | +25°C, +125°C,<br>-55°C | 7      | -     | V     |

## Specifications CD4555BMS, CD4556BMS

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

| PARAMETER                                       | SYMBOL         | CONDITIONS | NOTES   | TEMPERATURE | LIMITS |     | UNITS |
|-------------------------------------------------|----------------|------------|---------|-------------|--------|-----|-------|
|                                                 |                |            |         |             | MIN    | MAX |       |
| Propagation Delay<br>A or B Input to any Output | TPHL1<br>TPLH1 | VDD = 10V  | 1, 2, 3 | +25°C       | -      | 190 | ns    |
|                                                 |                | VDD = 15V  | 1, 2, 3 | +25°C       | -      | 140 | ns    |
| Propagation Delay<br>$\bar{E}$ to any Output    | TPHL2<br>TPLH2 | VDD = 10V  | 1, 2, 3 | +25°C       | -      | 170 | ns    |
|                                                 |                | VDD = 15V  | 1, 2, 3 | +25°C       | -      | 130 | ns    |
| Transition Time                                 | TTHL<br>TTLH   | 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.

**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<br>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<br>Delta | ΔVTP         | VSS = 0V, IDD = 10μA        | 1, 4       | +25°C       | -              | ±1                       | V     |
| Functional                   | F            | VDD = 18V, VIN = VDD or GND | 1          | +25°C       | VOH ><br>VDD/2 | VOL <<br>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<br>+25°C<br>Limit | ns    |

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

## Specifications CD4555BMS, CD4556BMS

**TABLE 6. APPLICABLE SUBGROUPS**

| CONFORMANCE GROUP |              | MIL-STD-883 METHOD | GROUP A SUBGROUPS                     | READ AND RECORD              |
|-------------------|--------------|--------------------|---------------------------------------|------------------------------|
| 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    |

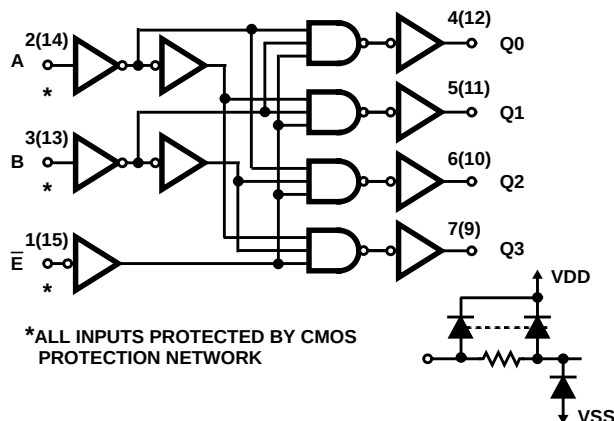
**TABLE 8. BURN-IN AND IRRADIATION TEST CONNECTIONS**

| FUNCTION                   | OPEN                  | GROUND            | VDD            | 9V ± -0.5V    | OSCILLATOR |       |
|----------------------------|-----------------------|-------------------|----------------|---------------|------------|-------|
|                            |                       |                   |                |               | 50kHz      | 25kHz |
| PART NUMBER                | CD4555BMS & CD4556BMS |                   |                |               |            |       |
| 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, 8, 15          | 16             | 4 - 7, 9 - 12 | 2, 14      | 3, 13 |
| Irradiation<br>Note 2      |                       |                   |                |               |            |       |

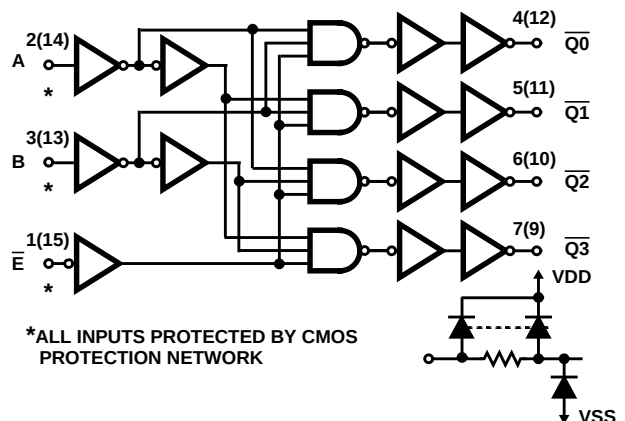
NOTE:

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

### Logic Diagrams



**FIGURE 1. CD4555BMS LOGIC DIAGRAM (1 OF 2 IDENTICAL CIRCUITS)**



**FIGURE 2. CD4556BMS LOGIC DIAGRAM (1 OF 2 IDENTICAL CIRCUITS)**

# CD4555BMS, CD4556BMS

TRUTH TABLE

| INPUTS ENABLE SELECT |   |   | OUTPUTS CD4555BMS |    |    |    | OUTPUTS CD4556BMS |    |    |    |
|----------------------|---|---|-------------------|----|----|----|-------------------|----|----|----|
| E                    | B | A | Q3                | Q2 | Q1 | Q0 | Q3                | Q2 | Q1 | Q0 |
| 0                    | 0 | 0 | 0                 | 0  | 0  | 1  | 1                 | 1  | 1  | 0  |
| 0                    | 0 | 1 | 0                 | 0  | 1  | 0  | 1                 | 1  | 0  | 1  |
| 0                    | 1 | 0 | 0                 | 1  | 0  | 0  | 1                 | 0  | 1  | 1  |
| 0                    | 1 | 1 | 1                 | 0  | 0  | 0  | 0                 | 1  | 1  | 1  |
| 1                    | X | X | 0                 | 0  | 0  | 0  | 1                 | 1  | 1  | 1  |

X = Don't Care

Logic 1 = High

Logic 0 = Low

## Typical Performance Characteristics

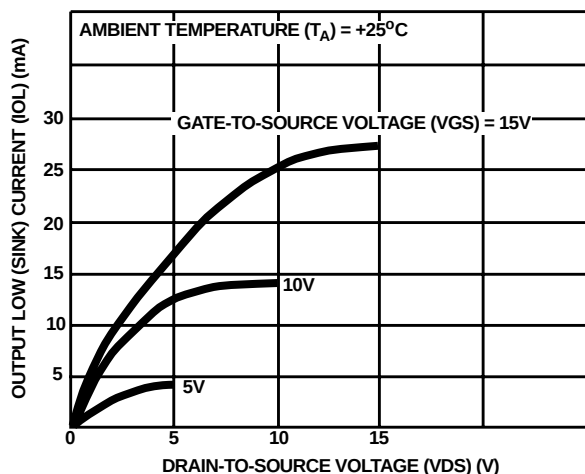


FIGURE 3. TYPICAL OUTPUT LOW (SINK) CURRENT CHARACTERISTICS

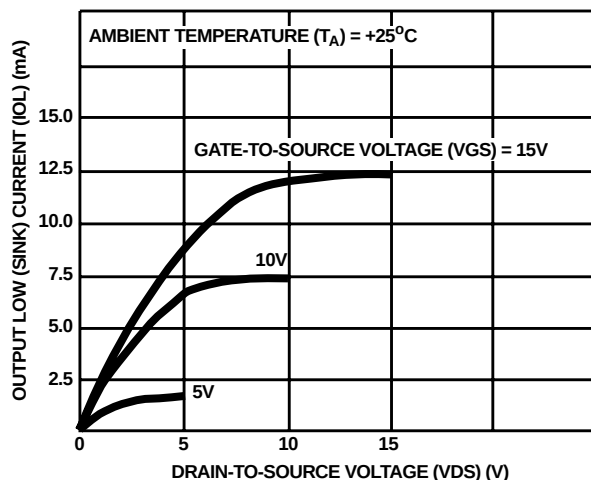


FIGURE 4. MINIMUM OUTPUT LOW (SINK) CURRENT CHARACTERISTICS

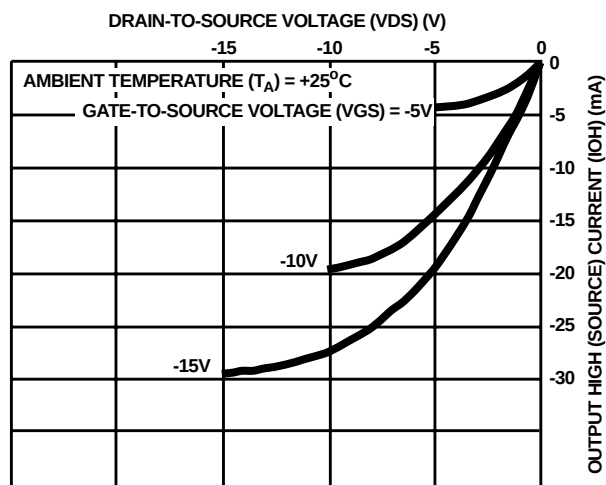


FIGURE 5. TYPICAL OUTPUT HIGH (SOURCE) CURRENT CHARACTERISTICS

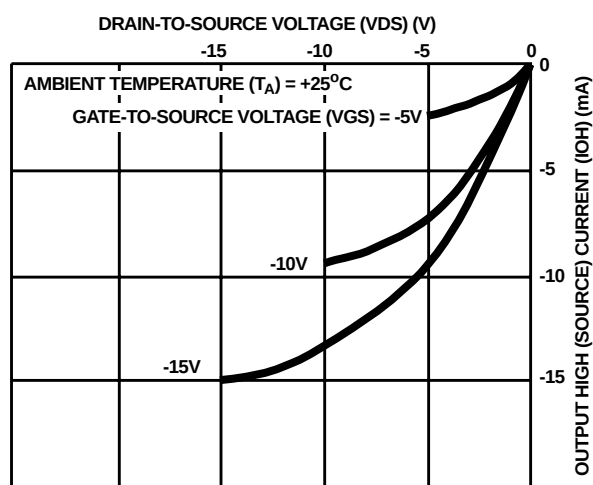


FIGURE 6. MINIMUM OUTPUT HIGH (SOURCE) CURRENT CHARACTERISTICS

Typical Performance Characteristics (Continued)

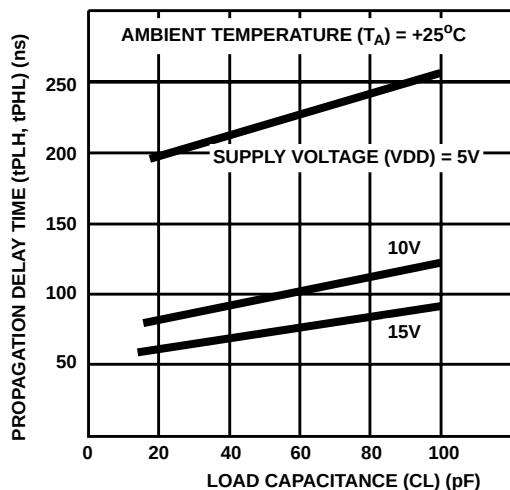


FIGURE 7. TYPICAL PROPAGATION DELAY TIME vs LOAD CAPACITANCE (A OR B INPUT TO ANY OUTPUT)

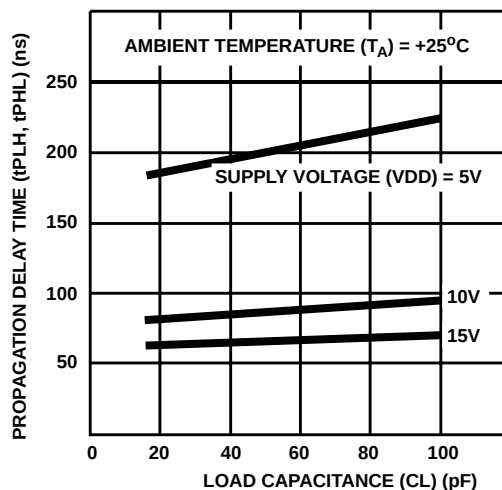


FIGURE 8. TYPICAL PROPAGATION DELAY TIME vs LOAD CAPACITANCE (E INPUTS TO ANY OUTPUT)

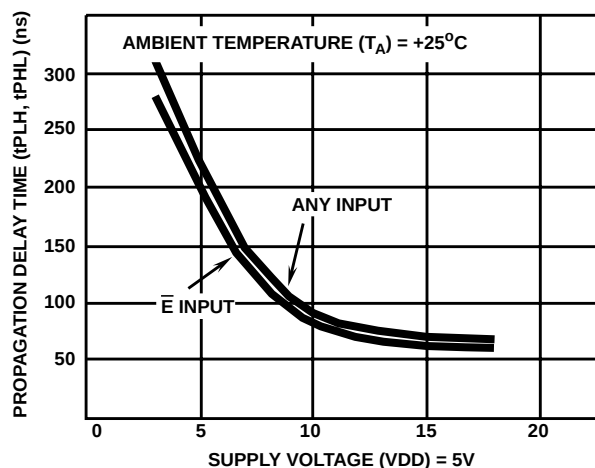


FIGURE 9. TYPICAL PROPAGATION DELAY TIME vs SUPPLY VOLTAGE

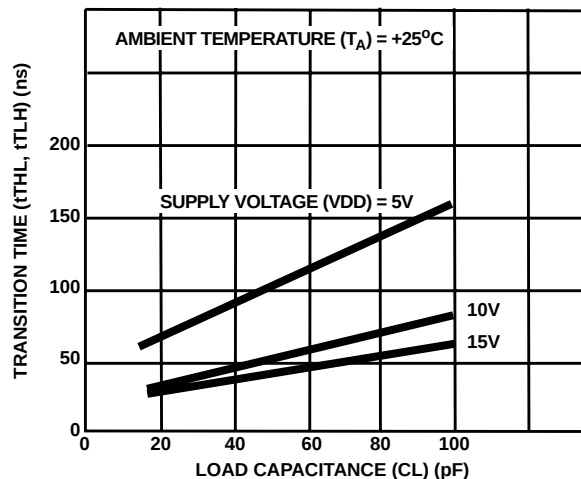


FIGURE 10. TYPICAL TRANSITION TIME vs LOAD CAPACITANCE

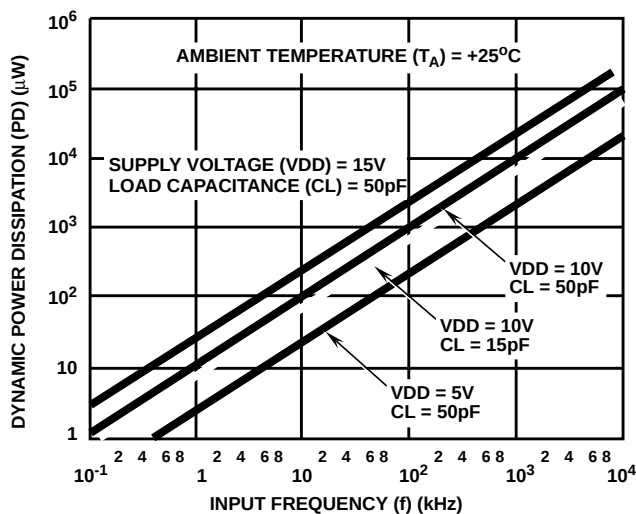


FIGURE 11. TYPICAL DYNAMIC POWER DISSIPATION vs FREQUENCY

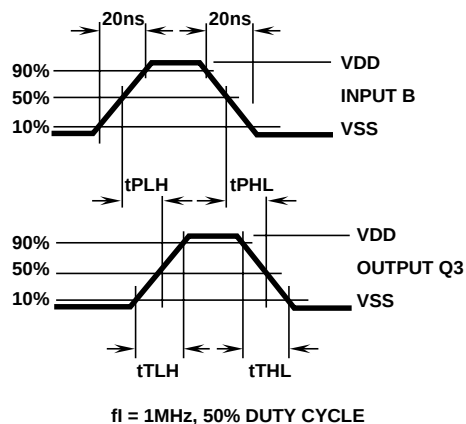


FIGURE 12. CD4555BMS B INPUT TO Q3 OUTPUT DYNAMIC SIGNAL WAVEFORMS

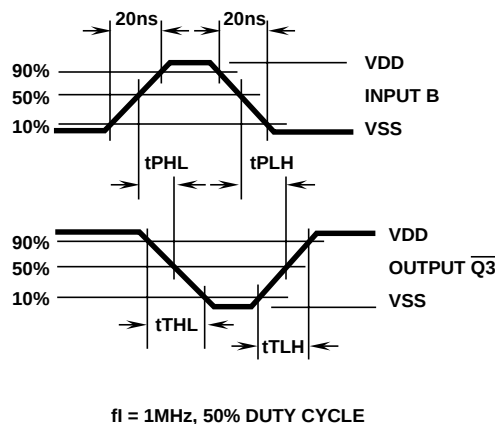


FIGURE 13. CD4556BMS B INPUT TO  $\overline{Q3}$  OUTPUT DYNAMIC SIGNAL WAVEFORMS

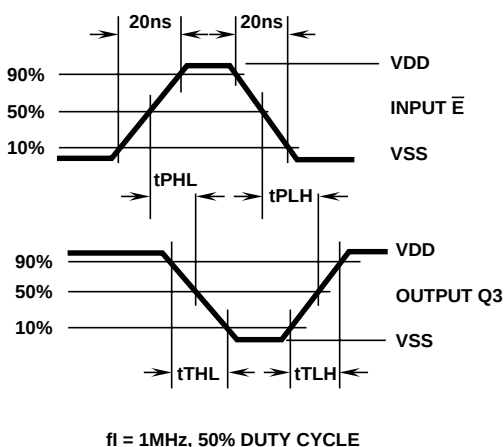


FIGURE 14. CD4555BMS  $\overline{E}$  INPUT TO Q3 OUTPUT DYNAMIC SIGNAL WAVEFORMS

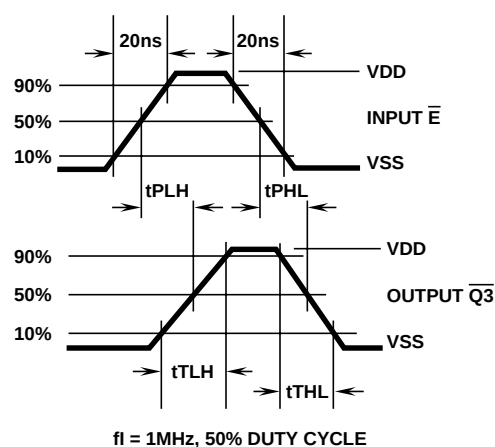


FIGURE 15. CD4556BMS  $\overline{E}$  INPUT TO  $\overline{Q3}$  OUTPUT DYNAMIC SIGNAL WAVEFORMS

## Applications

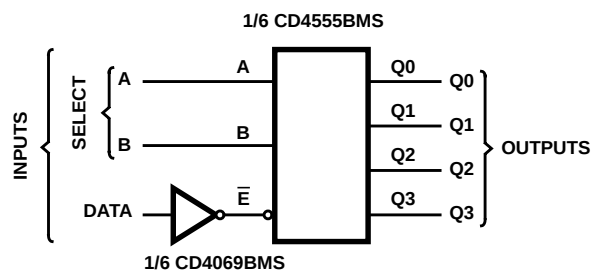


FIGURE 16. 1 OF 4 LINE DATA DEMULTIPLEXER USING CD4555BMS

TRUTH TABLE

| SELECT INPUTS |   | OUTPUTS |      |      |      |
|---------------|---|---------|------|------|------|
| B             | A | Q0      | Q1   | Q2   | Q3   |
| 0             | 0 | DATA    | 0    | 0    | 0    |
| 0             | 1 | 0       | DATA | 0    | 0    |
| 1             | 0 | 0       | 0    | DATA | 0    |
| 1             | 1 | 0       | 0    | 0    | DATA |

**Applications** (Continued)

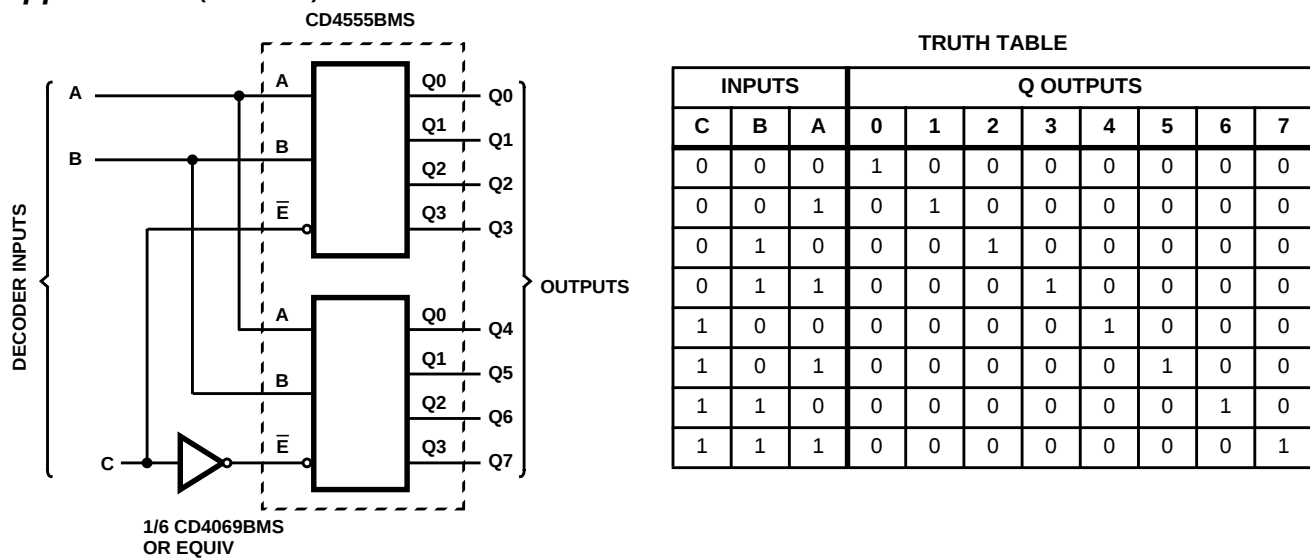


FIGURE 17. 1 OF 8 DECODER USING CD4555BMS

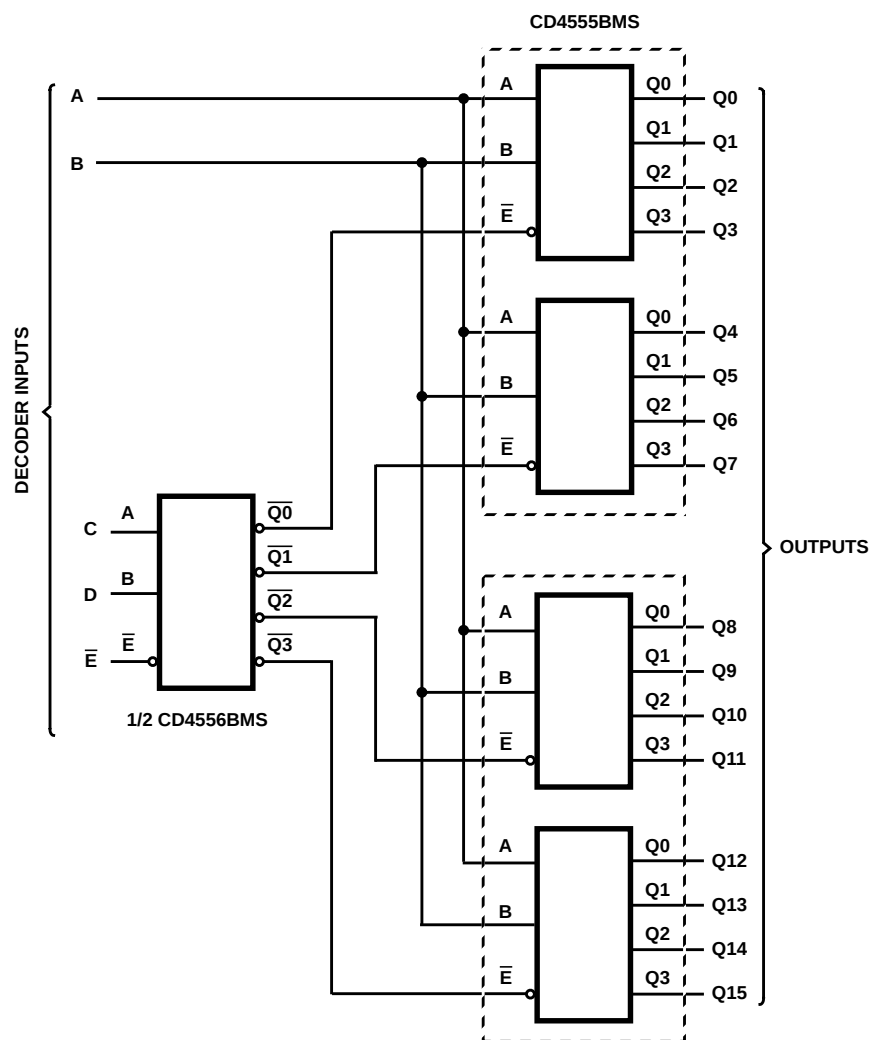


FIGURE 18. 1 OF 16 DECODER USING CD4555BMS AND CD4556BMS

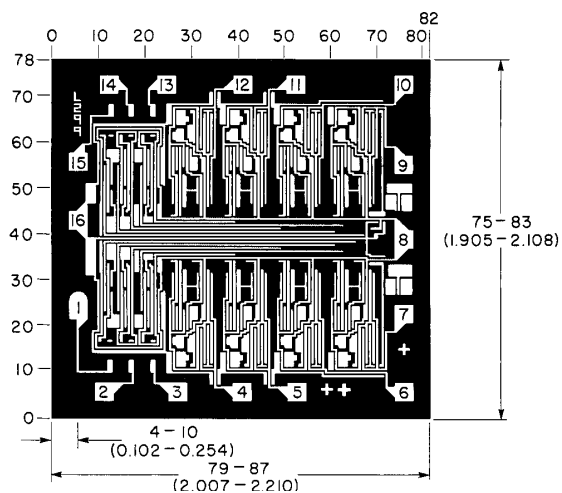
# CD4555BMS, CD4556BMS

TRUTH TABLE

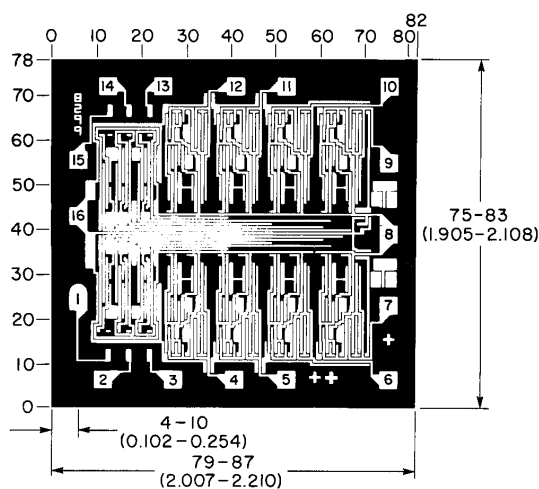
| INPUTS |   |   |   |   | Q OUTPUTS |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
|--------|---|---|---|---|-----------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| E      | D | C | B | A | 0         | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 0      | 0 | 0 | 0 | 0 | 1         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  |
| 0      | 0 | 0 | 0 | 1 | 0         | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  |
| 0      | 0 | 0 | 1 | 0 | 0         | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  |
| 0      | 0 | 0 | 1 | 1 | 0         | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  |
| 0      | 0 | 1 | 0 | 0 | 0         | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  |
| 0      | 0 | 1 | 0 | 1 | 0         | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  |
| 0      | 0 | 1 | 1 | 0 | 0         | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  |
| 0      | 0 | 1 | 1 | 1 | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  |
| 0      | 1 | 0 | 0 | 0 | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0  | 0  | 0  | 0  | 0  | 0  |
| 0      | 1 | 0 | 0 | 1 | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0  | 0  | 0  | 0  | 0  | 0  |
| 0      | 1 | 0 | 1 | 0 | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 0  | 0  | 0  | 0  | 0  |
| 0      | 1 | 0 | 1 | 1 | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 1  | 0  | 0  | 0  | 0  |
| 0      | 1 | 1 | 0 | 0 | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 1  | 0  | 0  | 0  |
| 0      | 1 | 1 | 0 | 1 | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 1  | 0  | 0  |
| 0      | 1 | 1 | 1 | 0 | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 1  | 0  |
| 0      | 1 | 1 | 1 | 1 | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 1  |
| 1      | X | X | X | 0 | 0         | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  |

X = Don't Care

## Chip Dimensions and Pad Layouts



CD4555BMSH



CD4556BMSH

Dimensions in parenthesis 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

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