The MTTL complex functions are designed for digital applications in the medium to high-speed range.

These MTTL devices provide significant reduction in package count and increased logic per function over devices in the basic MTTL and MDTL families.

## INDEX

| Function | Operating Temperature Range | | Packages | | |
|---|---|---|---|---|---|
| | | | Dual-in-line | | |
| | −55°C TO +125°C | 0°C TO +70°C | Plastic | Ceramic | Flat |
| Dual 5 Bit Buffer Register | MC8200 | MC7200 | P | L | F |
| Dual 5 Bit Buffer Register W/D Inputs | MC8201 | MC7201 | P | L | F |
| 10 Bit Buffer Register | MC8202 | MC7202 | P | L | F |
| 10 Bit Buffer Register W/D Inputs | MC8203 | MC7203 | P | L | F |
| 2 Input 4-Bit Digital Multiplexer | MC8233 | MC7233 | P | L | F |
| 2 Input 4-Bit Digital Multiplexer | MC8234 | MC7234 | P | L | F |
| 2 Input 4-Bit Digital Multiplexer | MC8235 | MC7235 | P | L | F |
| Quad Exclusive OR | MC8241 | MC7241 | P | L | F |
| Quad Exclusive NOR | MC8242 | MC7242 | P | L | F |
| Binary To Octal Decoder | MC8250 | MC7250 | P | L | F |
| BCD To Decimal Decoder | MC8251 | MC7251 | P | L | F |
| Arithmetic Logic Unit | MC8260 | MC7260 | P | L | F |
| Fast Carry Extender | MC8361 | MC7261 | P | L | F |
| 2 Input 4-Bit Digital Multiplexer | MC8266 | MC7266 | P | L | F |
| 2 Input 4-Bit Digital Multiplexer | MC8267 | MC7267 | P | L | F |
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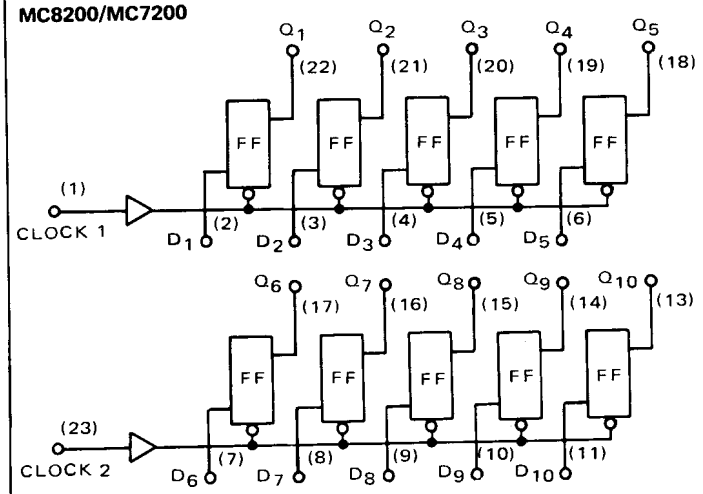
| Presettable Decode Counter | MC8280 | MC7280 | P | L | F |
| Presettable Binary Counter | MC8281 | MC7281 | P | L | F |
| Binary Up/Down Counter | MC8284 | MC7284 | P | L | F |
| Decade Up/Down Counter | MC8285 | MC7285 | P | L | F |
| Divide by Twelve Counter | MC8288 | MC7288 | P | L | F |
| Presettable High Speed Decade Counter | MC8290 | MC7290 | P | L | F |
| Presettable High Speed Binary Counter | MC8291 | MC7291 | P | L | F |

# MC8200 • MC8201 • MC8202 • MC8203 BUFFER REGISTERS

## DUAL 5-BIT BUFFER REGISTER

**MC8200/MC7200**

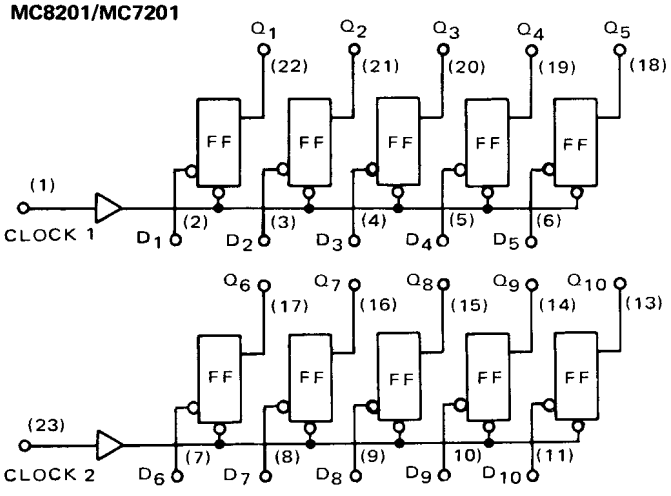



$V_{CC}$ = (24)
GND = (12)
( ) = Denotes Pin Numbers

| $D_n$ | $Q_{n+1}$ |
|---|---|
| 1 | 1 |
| 0 | 0 |

## DUAL 5-BIT BUFFER REGISTER—INVERTED INPUTS

**MC8201/MC7201**

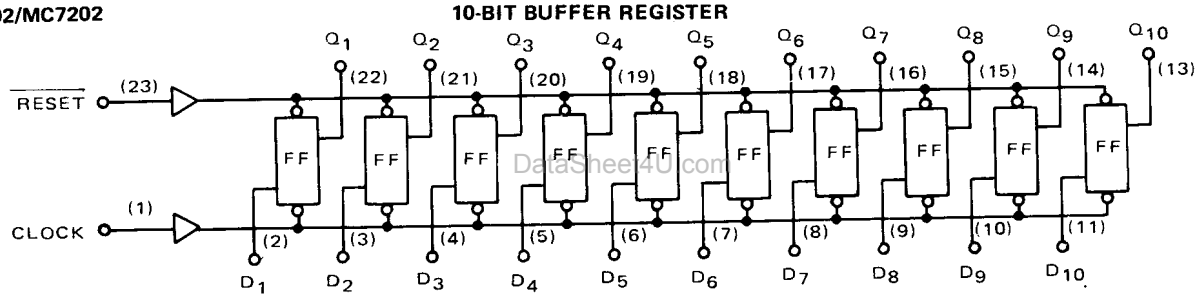



$V_{CC}$ = (24)
GND = (12)
( ) = Denotes Pin Numbers

| $D_n$ | $Q_{n+1}$ |
|---|---|
| 1 | 0 |
| 0 | 1 |

**MC8202/MC7202**

## 10-BIT BUFFER REGISTER



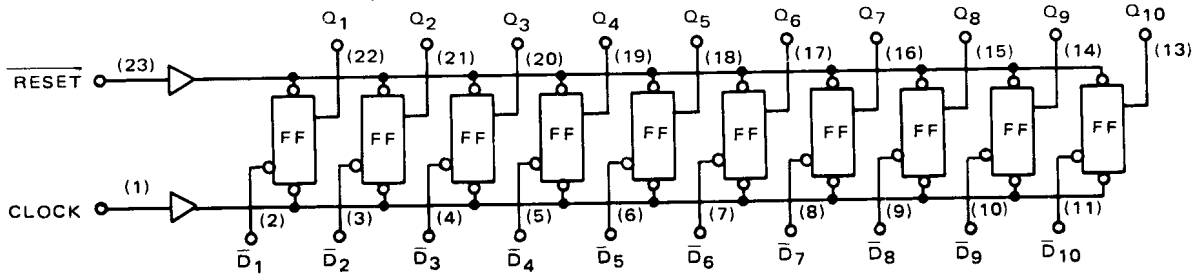

$V_{CC}$ = (24)
GND = (12)
( ) = Denotes Pin Number

| $D_n$ | $\overline{RESET}$ | $Q_{n+1}$ |
|---|---|---|
| 1 | 1 | 1 |
| 0 | 1 | 0 |

$\overline{RESET}$ = 0 ⇒ Q = 0
(OVERRIDES CLOCK)
n IS TIME PRIOR TO CLOCK
n+1 IS TIME FOLLOWING CLOCK

**MC8203/MC7203**

## 10-BIT BUFFER REGISTER—INVERTED INPUTS



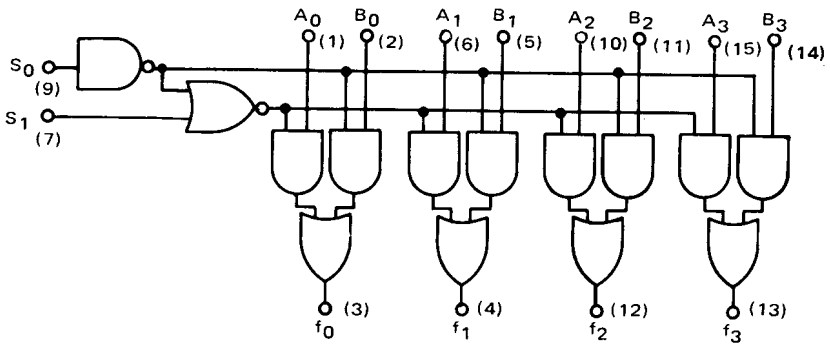

$V_{CC}$ = (24)
GND = (12)
( ) = Denotes Pin Numbers

| $D_n$ | $\overline{RESET}$ | $Q_{n+1}$ |
|---|---|---|
| 0 | 1 | 1 |
| 1 | 1 | 0 |

$\overline{RESET}$ = 0 ⇒ Q = 0
(OVERRIDES CLOCK)
n IS TIME PRIOR TO CLOCK
n+1 IS TIME FOLLOWING CLOCK

# MC8233 • MC8234 • MC8235 2-INPUT 4-BIT DIGITAL MULTIPLEXER

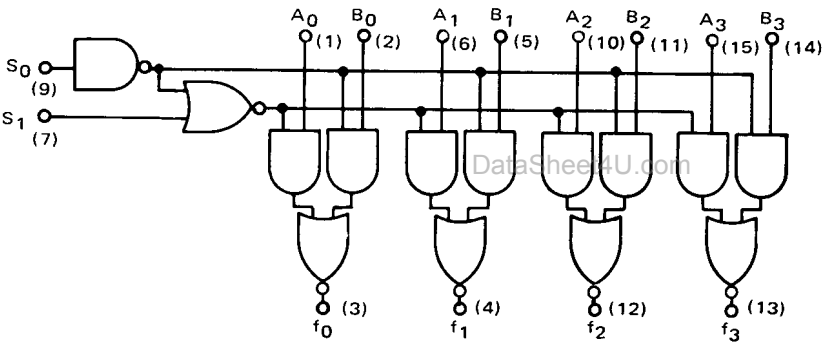
## MC8233/MC7233 (ACTIVE PULL-UP)




| $S_0$ | $S_1$ | $f_n$ |
|---|---|---|
| 0 | 0 | B |
| 1 | 0 | A |
| 0 | 1 | B |
| 1 | 1 | 0 |

$V_{CC}$ = (16)
GND = (8)
( ) = Denotes Pin Numbers

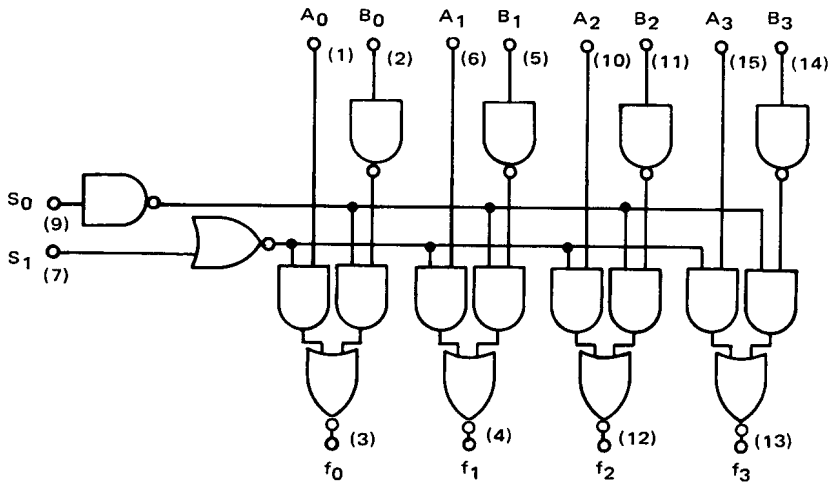
## MC8234/MC7234 (OPEN COLLECTOR)




| $S_0$ | $S_1$ | $f_n$ |
|---|---|---|
| 0 | 0 | $\overline{B}$ |
| 1 | 0 | $\overline{A}$ |
| 0 | 1 | $\overline{B}$ |
| 1 | 1 | 1 |

$V_{CC}$ = (16)
GND = (8)
( ) = Denotes Pin Numbers

## MC8235/MC7235 (OPEN COLLECTOR)



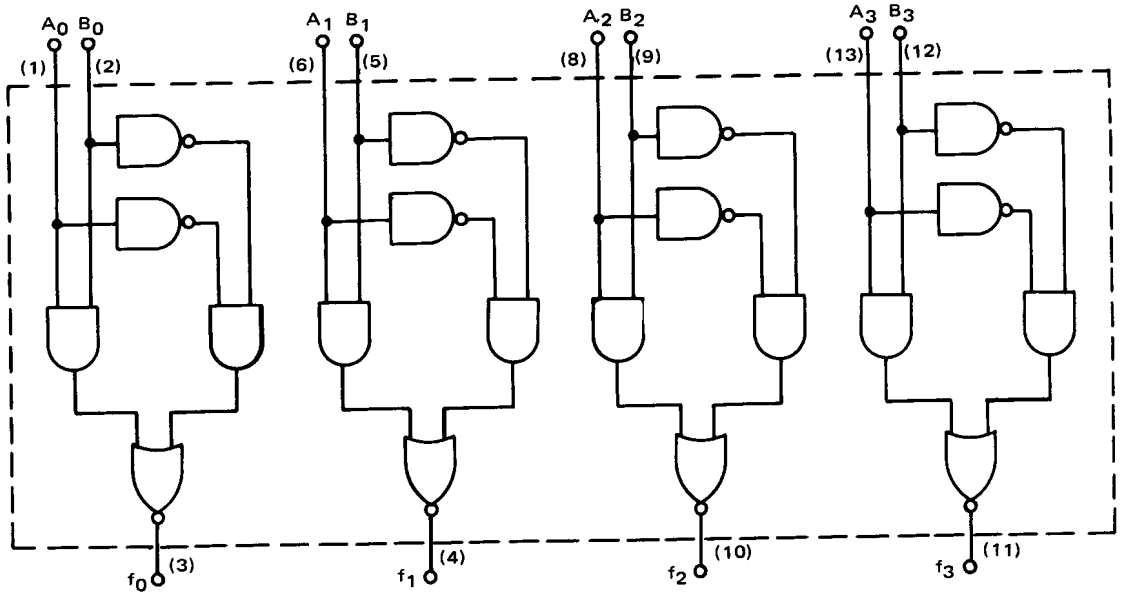

| $S_0$ | $S_1$ | $f_n$ |
|---|---|---|
| 0 | 0 | $\overline{A}_n B_n$ |
| 0 | 1 | $B_n$ |
| 1 | 0 | $\overline{A}_n$ |
| 1 | 1 | 1 |

$V_{CC}$ = (16)
GND = (8)
( ) = Denotes Pin Numbers

# MC8341 QUAD EXCLUSIVE OR • MC8242 QUAD EXCLUSIVE NOR

**MC8241/MC7241**

**QUAD EXCLUSIVE – OR**



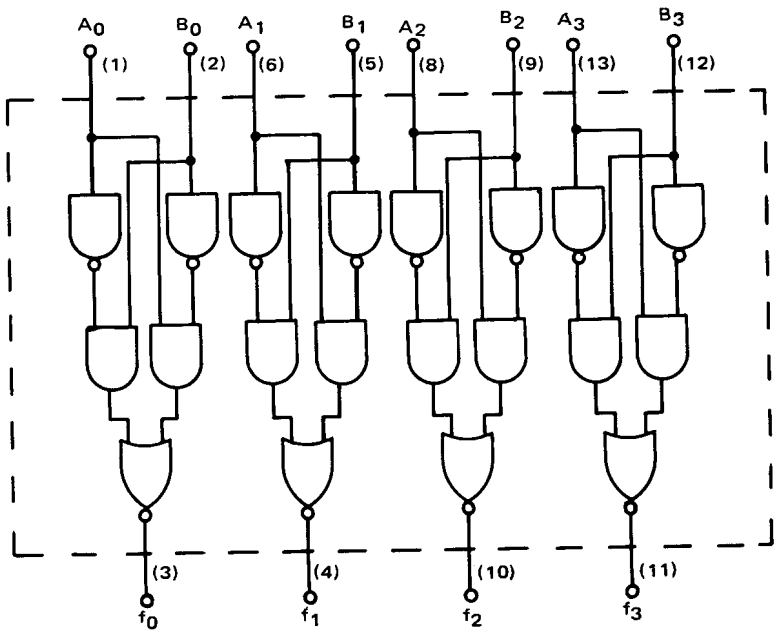

| A | B | f |
|---|---|---|
| 0 | 0 | 0 |
| 1 | 0 | 1 |
| 0 | 1 | 1 |
| 1 | 1 | 0 |

$V_{CC}$ = (14)
GND = (7)
( ) = Denotes Pin Numbers for 14 pin Dual-in-Line Package



**MC8242/MC7242**

**4-BIT DIGITAL COMPARATOR (OPEN COLLECTOR)**

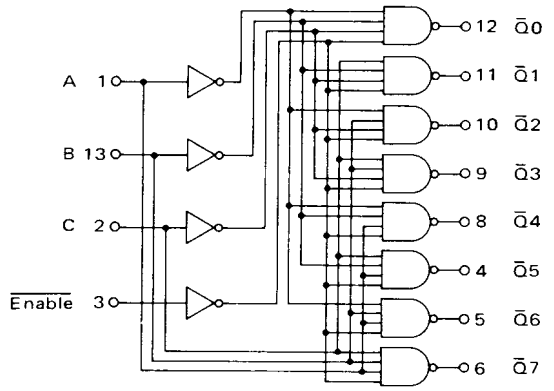



| A | B | f |
|---|---|---|
| 0 | 0 | 1 |
| 1 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 1 | 1 |

$V_{CC}$ = (14)
GND = (7)
( ) = Denotes Pin Numbers for 14 pin Dual-in-Line Package

# MC8250 BINARY TO ONE-OF-EIGHT DECODER • MC8251 BINARY TO ONE-OF-TEN DECODER

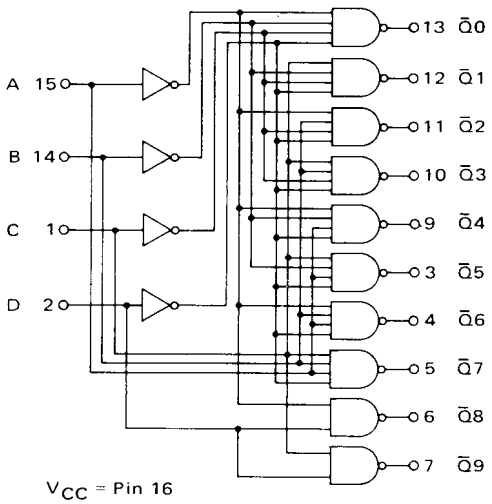
**MC8250/MC7250**




$V_{CC}$ = Pin 14
Gnd = Pin 7

Total Power Dissipation = 75 mW typ/pkg
Output Loading Factor = 10

**MC8251/MC7251**




$V_{CC}$ = Pin 16
Gnd = Pin 8

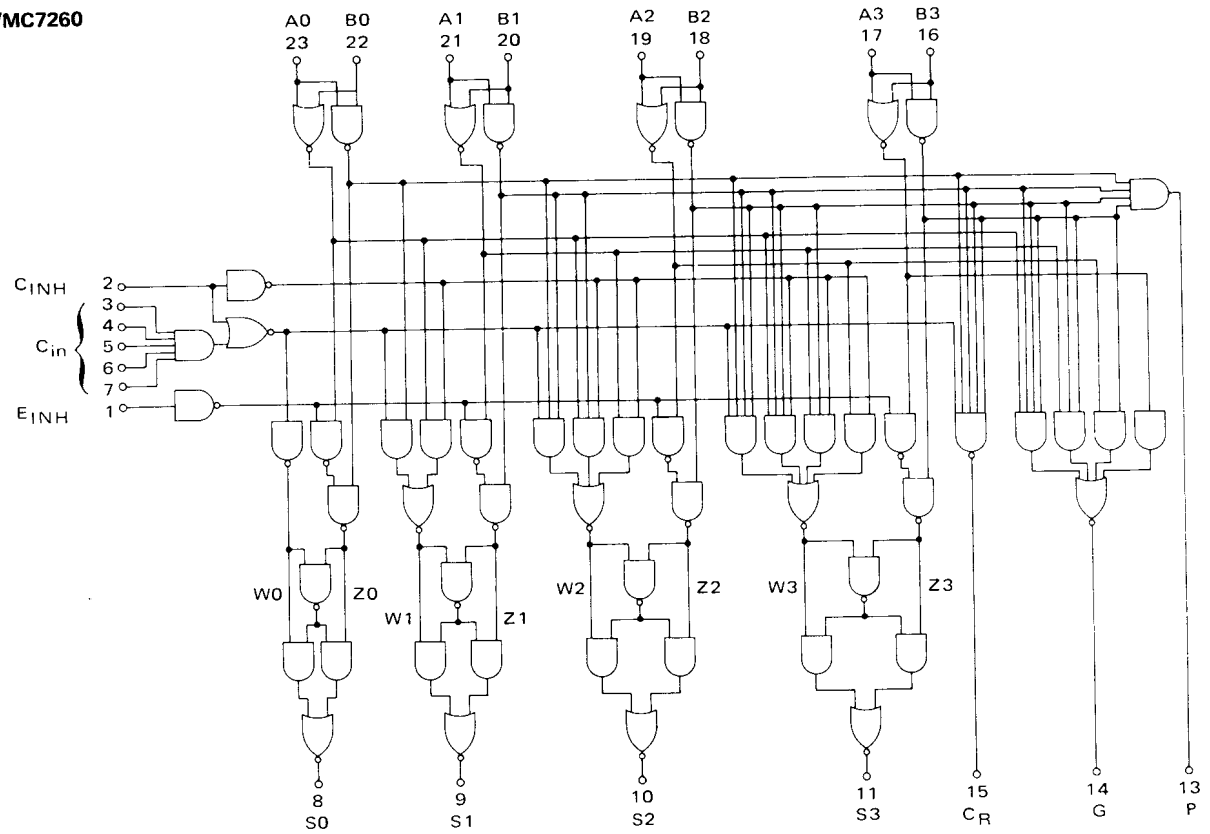
Total Power Dissipation = 80 mW typ/pkg
Output Loading Factor = 10



| BOTH TYPES INPUT | | | | MC8250/MC7250 OUTPUT | | | | | | | | MC8251/MC7251 OUTPUT | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\overline{E}$/D | C | B | A | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
| 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
| 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| | | | | | | | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| | | | | | | | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| | | | | | | | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |

# MC8260 ARITHMETIC LOGIC ELEMENT • MC8261 FAST CARRY EXTENDER

**MC8260/MC7260**




Input Loading Factor
Data, $C_{INH}$ = 2
Other Inputs = 1
Output Loading Factor = 6
Power Dissipation = 400 mW typ/pkg

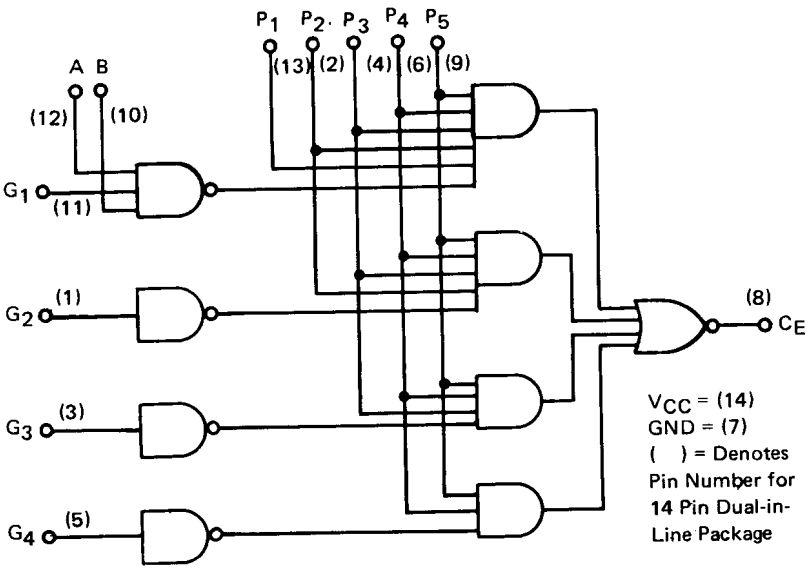
$V_{CC}$ = Pin 24
GND = Pin 12



**MC8261/MC7261**

## DESCRIPTION

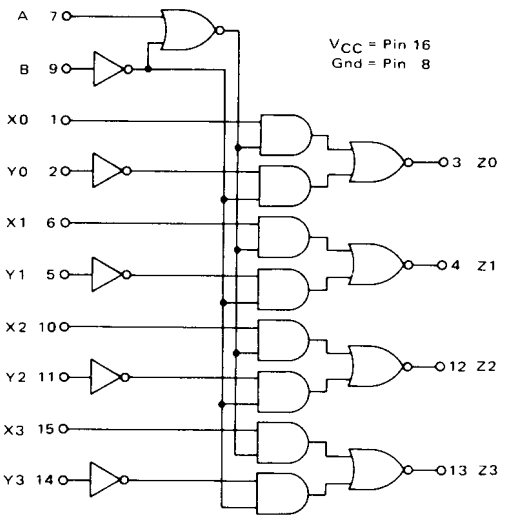
The MC8261 Fast Carry Extender is a monolithic gate array designed specifically to be used in conjunction with the MC8260 Arithmetic Logic element. A MC8260/MC8261 combination facilitates the implementation of the look-ahead technique in adder systems, thus considerably improving propagation times. The circuit structure of this array is of the familiar TTL type.




$V_{CC}$ = (14)
GND = (7)
( ) = Denotes Pin Number for 14 Pin Dual-in-Line Package

# MC8266 2-INPUT, 4-BIT DATA SELECTOR • MC8267 2-INPUT, 4-BIT DATA SELECTOR
# MC8270 • MC8271 4-BIT SHIFT REGISTERS

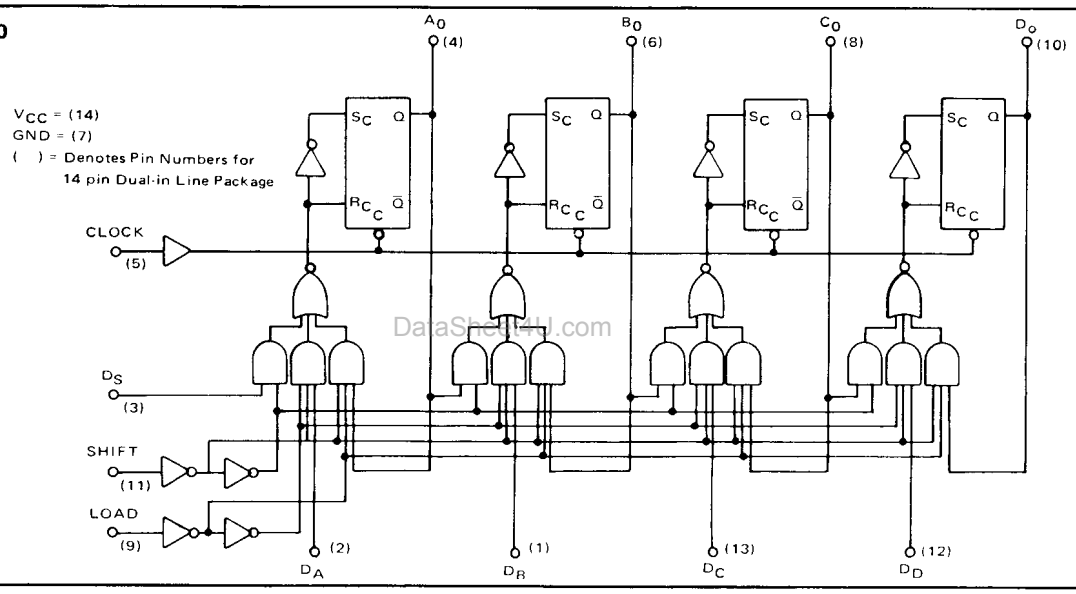
**MC8266/MC7266**
**MC8267/MC7267 (Open Collector)**



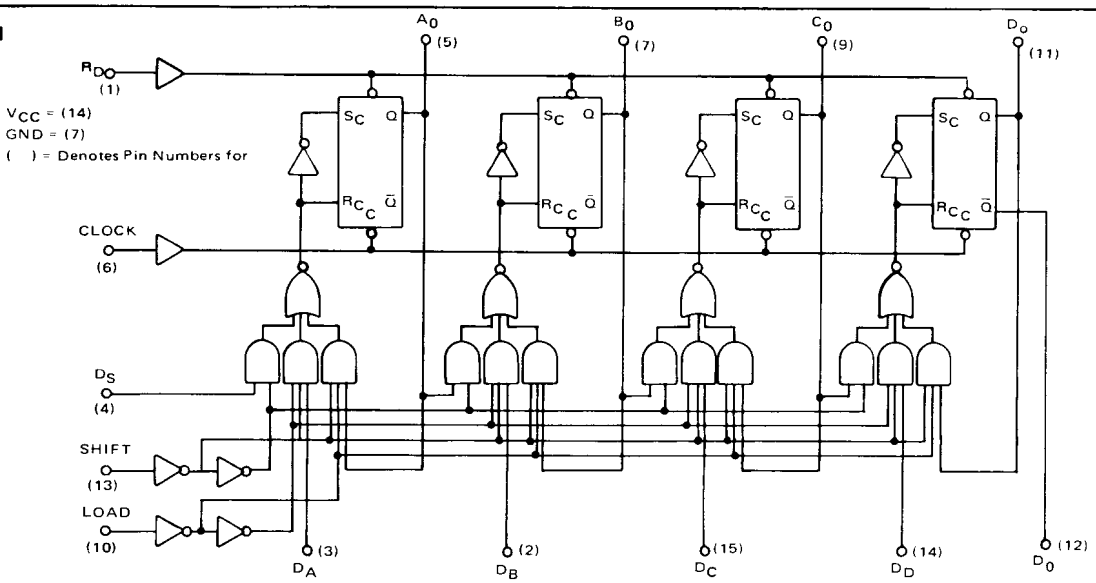

| B | A | $X_n$ | $Y_n$ | $Z_n$ |
|---|---|---|---|---|
| 0 | 0 | ϕ | 1 | 1 |
| 0 | 0 | ϕ | 0 | 0 |
| 0 | 1 | ϕ | 1 | 1 |
| 0 | 1 | ϕ | 0 | 0 |
| 1 | 0 | 1 | ϕ | 0 |
| 1 | 0 | 0 | ϕ | 1 |
| 1 | 1 | ϕ | ϕ | 1 |

ϕ = Don't Care

**MC8270/MC7270**




**MC8271/MC7271**

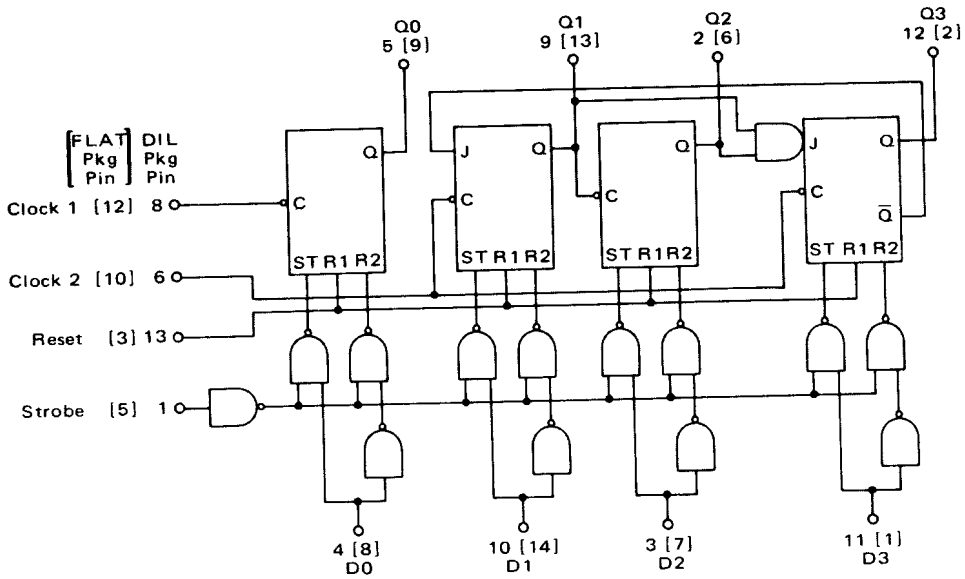


# MC8280 PRESETTABLE DECADE COUTNER • MC8281 PRESETTABLE BINARY COUNTER

## MC8280/MC7280

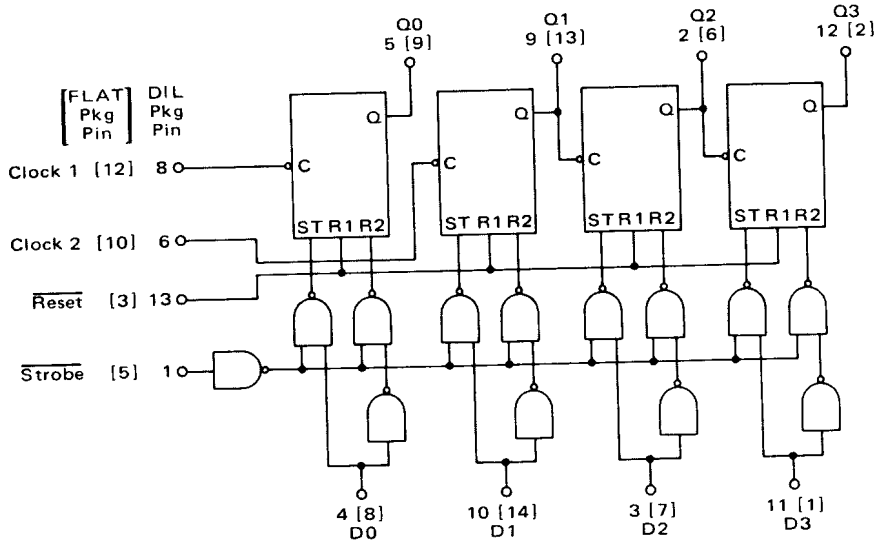
Output Loading Factor = 4
Total Power Dissipation = 130 mW typ/pkg
Toggle Frequency = 25 MHz typ

$V_{CC}$ = Pin 14 [4]
Gnd = 7 [11]





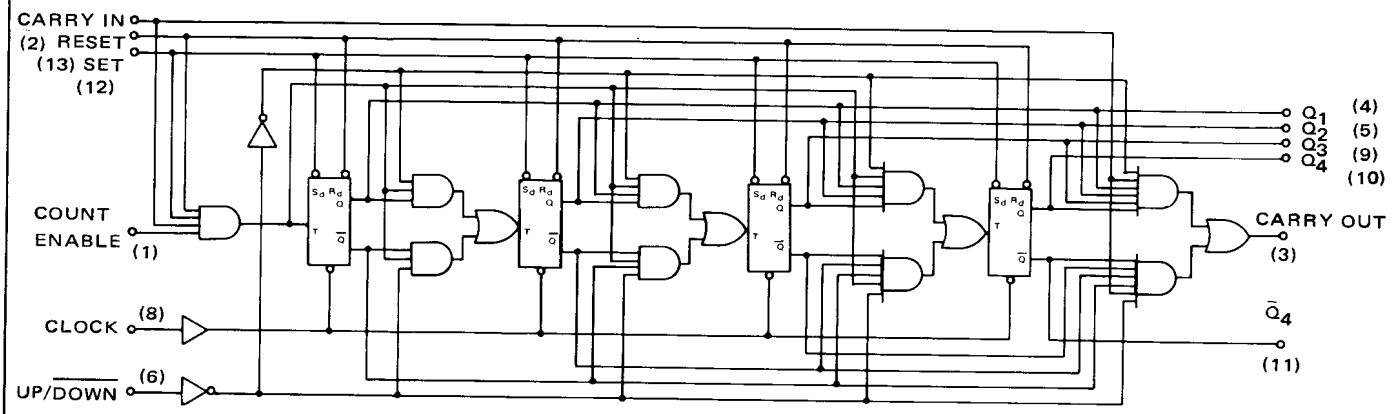

## MC8281/MC7281




$V_{CC}$ = Pin 14 [4]
GND = Pin 7 [11]

# MC8284 • MC8285 BINARY HEXADECIMAL AND BCD DECADE, SYNCHRONOUS UP/DOWN COUNTERS

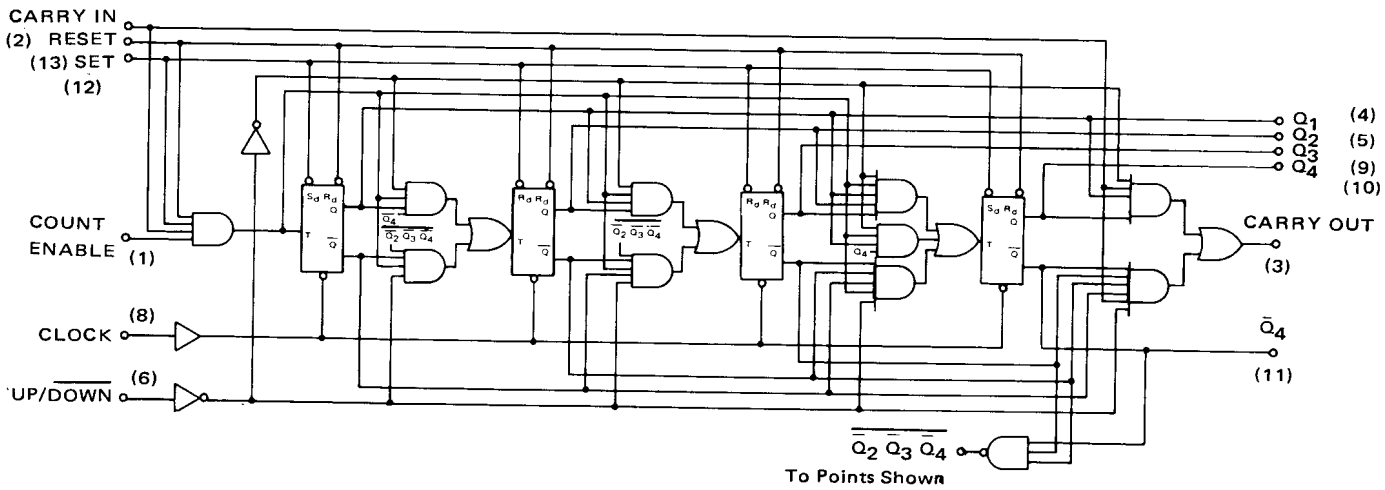
**MC8284/MC7284**




$V_{CC}$ = (14)
GND = (7)
( ) = Denotes Pin Numbers for 14 Pin Dual-in-Line Package



**MC8285/MC7285**

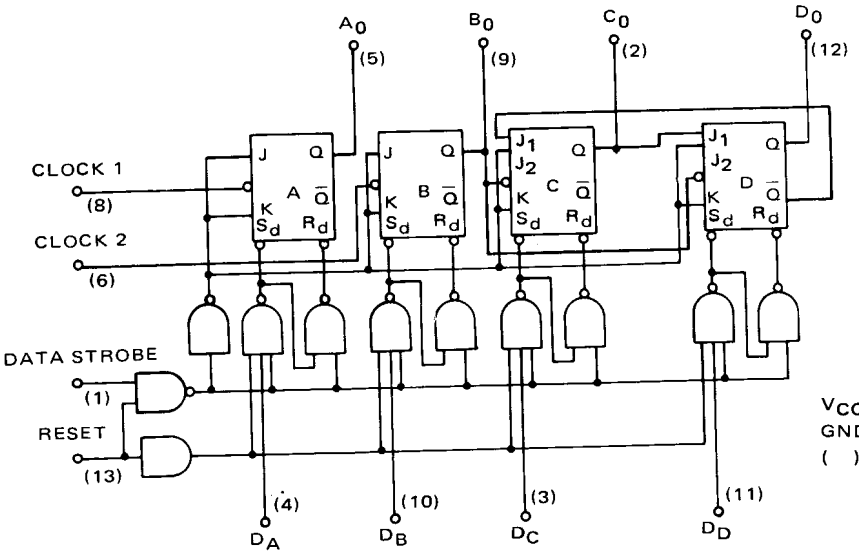



$V_{CC}$ = (14)
GND = (7)
( ) = Denotes Pin Numbers for 14 Pin Dual-in-Line Package

# MC8288 DIVIDE-BY-TWELVE COUNTER/STORAGE ELEMENT

# MCM8290 • MC8291 PRESETTABLE HIGH SPEED • DECADE/BINARY COUNTER

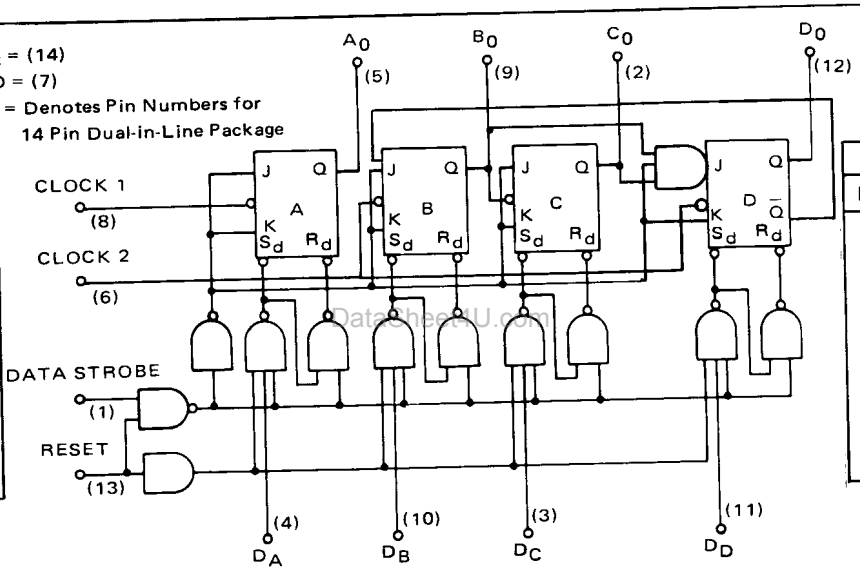
## MC8288/MC7288




$V_{CC}$ = (14)
GND = (7)
( ) = Denotes Pin Numbers for 14 Pin Dual-in-Line Package

## MC8290/MC7290

$V_{CC}$ = (14)
GND = (7)
( ) = Denotes Pin Numbers for 14 Pin Dual-in-Line Package

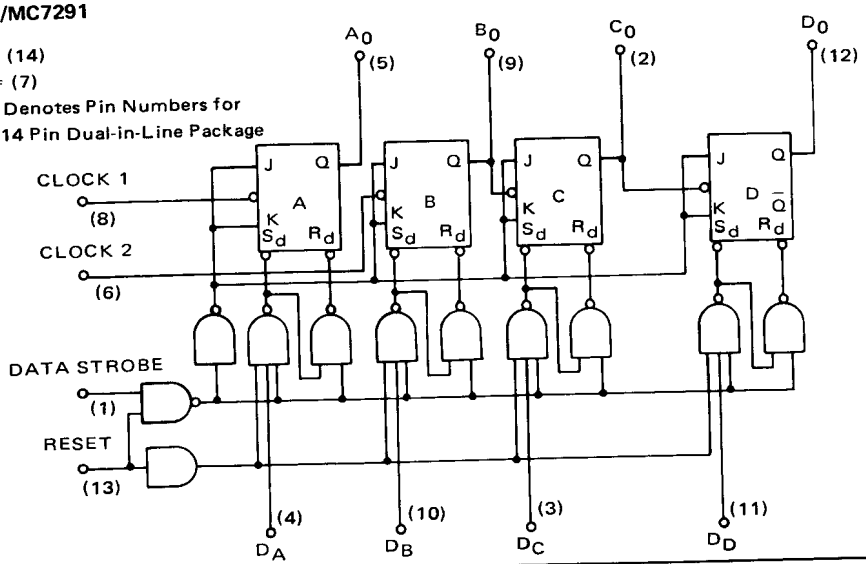



| Bi-Quinary (5-2) | | | | |
|---|---|---|---|---|
| Input | $B_0$ | $C_0$ | $D_0$ | $A_0$ |
| 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 0 | 0 | 0 |
| 2 | 0 | 1 | 0 | 0 |
| 3 | 1 | 1 | 0 | 0 |
| 4 | 0 | 0 | 1 | 0 |
| 5 | 0 | 0 | 0 | 1 |
| 6 | 1 | 0 | 0 | 1 |
| 7 | 0 | 1 | 0 | 1 |
| 8 | 1 | 1 | 0 | 1 |
| 9 | 0 | 0 | 1 | 1 |

| Decade (BCD) | | | | |
|---|---|---|---|---|
| Input | $A_0$ | $B_0$ | $C_0$ | $D_0$ |
| 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 0 | 0 | 0 |
| 2 | 0 | 1 | 0 | 0 |
| 3 | 1 | 1 | 0 | 0 |
| 4 | 0 | 0 | 1 | 0 |
| 5 | 1 | 0 | 1 | 0 |
| 6 | 0 | 1 | 1 | 0 |
| 7 | 1 | 1 | 1 | 0 |
| 8 | 0 | 0 | 0 | 1 |
| 9 | 1 | 0 | 0 | 1 |

## MC8291/MC7291

$V_{CC}$ = (14)
GND = (7)
( ) = Denotes Pin Numbers for 14 Pin Dual-in-Line Package




| Binary | | | | |
|---|---|---|---|---|
| Input | $A_0$ | $B_0$ | $C_0$ | $D_0$ |
| 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 0 | 0 | 0 |
| 2 | 0 | 1 | 0 | 0 |
| 3 | 1 | 1 | 0 | 0 |
| 4 | 0 | 0 | 1 | 0 |
| 5 | 1 | 0 | 1 | 0 |
| 6 | 0 | 1 | 1 | 0 |
| 7 | 1 | 1 | 1 | 0 |
| 8 | 0 | 0 | 0 | 1 |
| 9 | 1 | 0 | 0 | 1 |
| 10 | 0 | 1 | 0 | 1 |
| 11 | 1 | 1 | 0 | 1 |
| 12 | 0 | 0 | 1 | 1 |
| 13 | 1 | 0 | 1 | 1 |
| 14 | 0 | 1 | 1 | 1 |
| 15 | 1 | 1 | 1 | 1 |