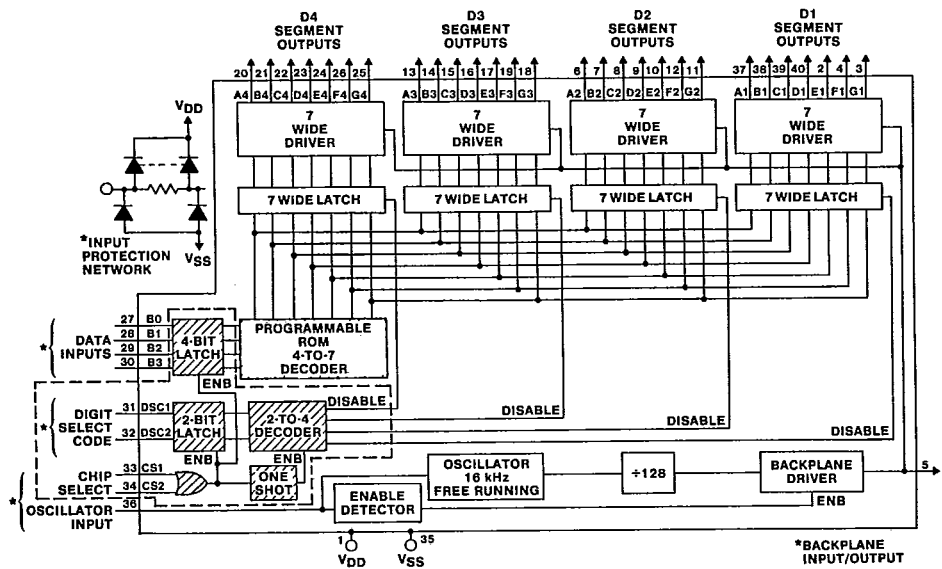


Interface Circuits

CD7211 Series

CMOS Four-Digit LCD Decoder-Drivers

Contain all the circuitry necessary to drive conventional liquid-crystal displays (no external components required)



NOTE: CIRCUITRY WITHIN DOTTED LINE INCLUDED IN CD7211M, CD7211AM ONLY.

92CM-40601

Features:

- 6-V supply-voltage rating
- No external components necessary
- 4-digit segment drive capability
- Backplane input/output allows synchronization for cascading devices to drive more digits
- Direct microprocessor interface (CD7211M, CD7211AM)
- Decodes binary into hexadecimal (CD7211, CD7211M) and decimal (CD7211A, CD7211AM) outputs

Applications:

- Digital meters and calculators
- General-purpose displays
- Wall and table clocks
- Automobile dashboard displays
- Appliance control panels

The CD7211M and CD7211AM are intended for microprocessor-control of the applications listed above.

NOTE: Cross-hatched area included only in CD7211M and CD7211AM.

| Type No. | Package | Operating Temp. Range |
|-----------------------|-------------|-----------------------|
| CD7211E CD7211AE | 40-Lead DIP | -20 to +70°C |
| CD7211ME CD7211AME | 40-Lead DIP | -20 to +70°C |

The RCA CD7211, CD7211A, CD7211M and CD7211AM are non-multiplexed, four-digit, seven-segment, liquid-crystal display decoder-drivers.

They contain all the circuitry necessary to drive conventional liquid-crystal displays (no external components required). Outputs are four sets of seven-segment driver signals and a backplane driver signal. The backplane signal, derived from an on-board free-running oscillator, is common to all four-digit displays.

The CD7211M and CD7211AM simplify designing a seven-segment display into a microprocessor system, without requiring extensive ROM or CPU time for decoding and display updating.

The CD7211, CD7211A, CD7211M, and CD7211AM are pin compatible with Intersil types ICM72111PL, ICM7211A1PL, ICM7211M1PL, and ICM7211AM1PL, respectively.

Static Electrical Characteristics at

$T_A = 25^\circ\text{C}$, $V_{DD} = 5\text{V}$, $V_{SS} = 0\text{V}$

| Characteristic | Limits | | | Units |
|--------------------------------|--------|------------|----------|---------------|
| | Min. | Typ. | Max. | |
| Operating Supply Voltage Range | 3 | 5 | 6 | V |
| Operating Current | — | 10 | 50 | μA |
| Oscillator Input Current | — | ± 2 | ± 10 | μA |
| Segment Rise and Fall Time | — | 0.5 | — | μs |
| Backplane Rise and Fall Time | — | 1.5 | — | μs |
| Oscillator Frequency | — | 16 | — | kHz |
| Backplane Frequency | — | 125 | — | Hz |
| Input High Voltage | 3.5 | — | — | V |
| Input Low Voltage | — | — | 1.5 | V |
| Input Leakage Current | — | ± 0.01 | ± 1 | μA |
| Input Capacitance | — | 5 | — | pF |
| Backplane Input Leakage | — | ± 0.01 | ± 1 | μA |
| Backplane Input Capacitance | — | 200 | — | pF |

Dynamic Electrical Characteristics

$T_A = 25^\circ\text{C}$, $V_{DD} = 5\text{V}$, $V_{SS} = 0\text{V}$

| Characteristic | Typical | | Units |
|--|----------|------------|---------------|
| | CD7211,A | CD7211M,AM | |
| Chip [®] -Select Active Pulse Width | 0-5 | 100 | ns |
| Data Setup Time | 250 | 50 | ns |
| Data Hold Time | 100 | 25 | ns |
| Inter-Chip [®] Select Time | 1 | 1 | μs |

• Digit for CA7211, CD7211A