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HARRIS SEMICONDUCTOR

CD54HC238/3A
CD54HCT238/3A

June 1997

COMPLETE DATA SHEET COMING SOON!

3-to-8-Line Decoder/Demultiplexer

Description

The CD54HC238/3A and CD54HCT238/3A are high-speed silicon-gate CMOS decoders well suited to memory address decoding or data routing applications. Both circuits feature low power consumption usually associated with CMOS circuitry, yet have speeds comparable to low-power Schottky TTL logic. Both circuits have three binary select inputs (A0, A1, and A2). If the device is enabled, these inputs determine which one of the eight normally low outputs of the CD54HC/HCT228 series will go high.

Two active low and one active high enables ($\overline{E1}$, $\overline{E2}$, and E3) are provided to ease the cascading of decoders. The decoder's outputs can drive 10 low-power Schottky TTL equivalent loads.

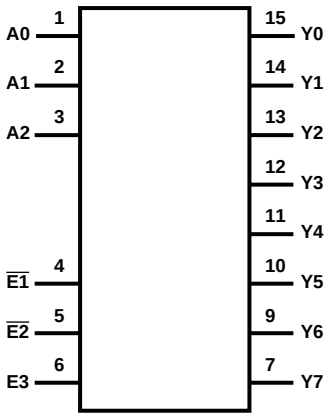
HCT INPUT LOAD TABLE

INPUT	UNIT LOAD (NOTE 1)
A0 - A2	1.5
$\overline{E1}$, $\overline{E2}$	1.25
E3	1

NOTE:

1. Unit load is ΔI_{CC} limit specified in DC Electrical Specifications Table, e.g., 360µA Max at +25°C.

Functional Diagram



Absolute Maximum Ratings

DC Supply Voltage, V_{CC}
- Voltages Referenced to GND . . . . . -0.5V to +7.0V

DC Input Voltage Range, All Inputs, V_{IN} . . . . . -0.5V to V_{CC} +0.5V

DC Output Voltage Range, All Outputs, V_{OUT} . . -0.5V to V_{CC} +0.5V

DC Input Diode Current, I_{IK}
- For V_I < -0.5V or V_I > V_{CC} + 0.5V . . . . . ±20mA

DC Output Diode Current, I_{OK}
- For V_O < -0.5V or V_O > V_{CC} + 0.5V . . . . . ±20mA

DC Drain Current, Per Output, I_O, For -0.5V < V_O < V_{CC} + 0.5V
- Standard Output . . . . . ±25mA
- Bus Driver Output . . . . . ±35mA

DC V_{CC} or GND Current, I_{CC}
- Standard Output . . . . . ±50mA
- Bus Driver Output . . . . . ±70mA

Power Dissipation Per Package, P_D
- T_A = -55°C to +100°C (Package F) 500mW
- T_A = +100°C to +125°C (Package F) . . . . . Derate Linearly at 8mW/°C to 300mW

Operating Temperature Range, T_A
- Package Type F . . . . . -55°C to +125°C

Storage Temperature, T_{STG} . . . . . -65°C to +150°C

Lead Temperature (During Soldering)
- At Distance 1/16in. ± 1/32in. (1.59mm ± 0.79mm)
- From Case For 10s Max . . . . . +265°C
- Unit Inserted Into a PC Board (Min Thickness 1/16in., 1.59mm)
- With Solder Contacting Lead Tips Only . . . . . +300°C

CAUTION: Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.

Recommended Operating Conditions

Supply Voltage Range, V_{CC}
- T_A = Full Package Temperature Range
- CD54HC Types . . . . . 2V to 6V
- CD54HCT Types . . . . . 4.5V to 5.5V

DC Input or Output Voltage, V_{IN}, V_{OUT} . . . . . 0V to V_{CC}

Operating Temperature Range, T_A . . . . . -55°C to +125°C

Input Rise and Fall Times, t_R, t_F
- at 2V . . . . . 0ns to 1000ns
- at 4.5V . . . . . 0ns to 500ns
- at 6V . . . . . 0ns to 400ns

CAUTION: These devices are sensitive to electrostatic discharge. Users should follow proper I.C. Handling Procedures.
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