FAIRCHILD

SEMICONDUCTOR

74VHC221A Dual Non-Retriggerable Monostable Multivibrator

General Description

The VHC221A is an advanced high speed CMOS Monostable Multivibrator fabricated with silicon gate CMOS technology. It achieves the high speed operation similar to equivalent Bipolar Schottky TTL while maintaining the CMOS low power dissipation. Each multivibrator features both a negative, A, and a positive, B, transition triggered input, either of which can be used as an inhibit input. Also included is a clear input that when taken LOW resets the one-shot. The VHC221A can be triggered on the positive transition of the clear while A is held LOW and B is held HIGH. The VHC221A is non-retriggerable, and therefore cannot be retriggered until the output pulse times out. The output pulse width is determined by the equation:

PW = (Rx)(Cx); where PW is in seconds, R is in ohms, and C is in farads.

Limits for R_x and C_x are:

External capacitor, C_x : No limit External resistors, R_x : V_{CC}= 2.0V, 5 k\Omega min

V_{CC} > 3.0V, 1 k Ω min

An input protection circuit ensures that 0 to 7V can be applied to the input pins without regard to the supply voltage. This device can be used to interface 5V to 3V systems and two supply systems such as battery back up. This circuit prevents device destruction due to mismatched supply and input voltages.

April 1994

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Features

- High Speed: t_{PD} = 8.1 ns (typ) at V_{CC} = 5V
- Low Power Dissipation: $I_{CC} = 4 \ \mu A$ (Max) at $T_A = 25^{\circ}C$
- Active State: $I_{CC} = 600 \ \mu A$ (Max) at $T_A = 25^{\circ}C$
- High Noise Immunity: $V_{NIH} = V_{NIL} = 28\% V_{CC}$ (min)
- Power down protection is provided on all inputs
- Pin and function compatible with 74HC221A

Connection Diagram

Ordering Code:

Order Number	Package Number	Package Description
74VHC221AM	M16A	16-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150 Narrow
74VHC221ASJ	M16D	16-Lead Small Outline Package (SOP), EIAJ TYPE II, 5.3mm Wide
74VHC221AMTC	MTC16	16-Lead Thin Shrink Small Outline Package (TSSOP), JEDEC MO-153, 4.4mm Wide
74VHC221AN	N16E	16-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300 Wide

Surface mount packages are also available on Tape and Reel. Specify by appending the suffix letter "X" to the ordering code.

Logic Symbol



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