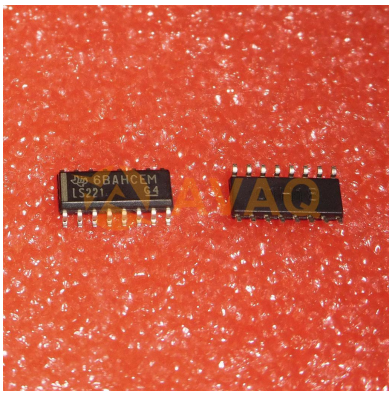
SN74LS221D

Monostable Multivibrator Dual-Element 0°C 70°C 16-Pin SOIC Tube

Manufacturer:	Texas Instruments, Inc
Package/Case:	SOIC-16
Product Type:	Logic ICs
RoHS:	RoHS Compliant/Lead free
Lifecycle:	Active



Images are for reference only

Inquiry

General Description

The '221 and 'LS221 devices are monolithic dual multivibrators with performance characteristics virtually identical to those of the '121 devices. Each multivibrator features a negative-transition- triggered input and a positive-transition-triggered input, either of which can be used as an inhibit input.

Pulse triggering occurs at a particular voltage level and is not directly related to the transition time of the input pulse. Schmitt-trigger input circuitry (TTL hysteresis) for B input allows jitter-free triggering from inputs with transition rates as slow as 1 V/s, providing the circuit with excellent noise immunity, typically of 1.2 V. A high immunity to VCC noise, typically of 1.5 V, is also provided by internal latching circuitry.

Once fired, the outputs are independent of further transitions of the A and B inputs and are a function of the timing components, or the output pulses can be terminated by the overriding clear. Input pulses can be of any duration relative to the output pulse. Output pulse length can be varied from 35 ns to the maximums shown in the above table by choosing appropriate timing components. With Rext = 2 k and Cext = 0, an output pulse typically of 30 ns is achieved, which can be used as a dc-triggered reset signal. Output rise and fall times are TTL compatible and independent of pulse length. Typical triggering and clearing sequences are shown as a part of the switching characteristics waveforms.

Pulse-width stability is achieved through internal compensation and is virtually independent of VCC and temperature. In most applications, pulse stability is limited only by the accuracy of external timing components.

Jitter-free operation is maintained over the full temperature and VCC ranges for more than six decades of timing capacitance (10 pF to 10 µF) and more than one decade of timing resistance (2 k can be used. Also, the range of jitter-free output pulse widths is extended if VCC is held to 5 V and free-air temperature is 25°C. Duty cycles as high as 90% are achieved when using maximum recommended RT. Higher duty cycles are available if a certain amount of pulse-width jitter is allowed.

The variance in output pulse width from device to device typically is less than ±0.5% for given external timing components. An example of this distribution for the '221 is shown in Figure 3. Variations in output pulse width versus supply voltage and temperature for the '221 are shown in Figures 4 and 5, respectively.

Pin assignments for these devices are identical to those of the SN54123/SN74123 or SN54LS123/SN74LS123 so that the '221 or 'LS221 devices can be substituted for those products in systems not using the retrigger by merely changing the value of Rext and/or Cext; however, the polarity of the capacitor must be changed.

Key Features

Dual Versions of Highly Stable SN54121 and SN74121 One Shots

SN54221 and SN74221 Demonstrate Electrical and Switching Characteristics That Are Virtually Identical to the SN54121 and SN74121 One Shots

Pinout Is Identical to the SN54123, SN74123, SN54LS123, and SN74LS123

Overriding Clear Terminates Output Pulse

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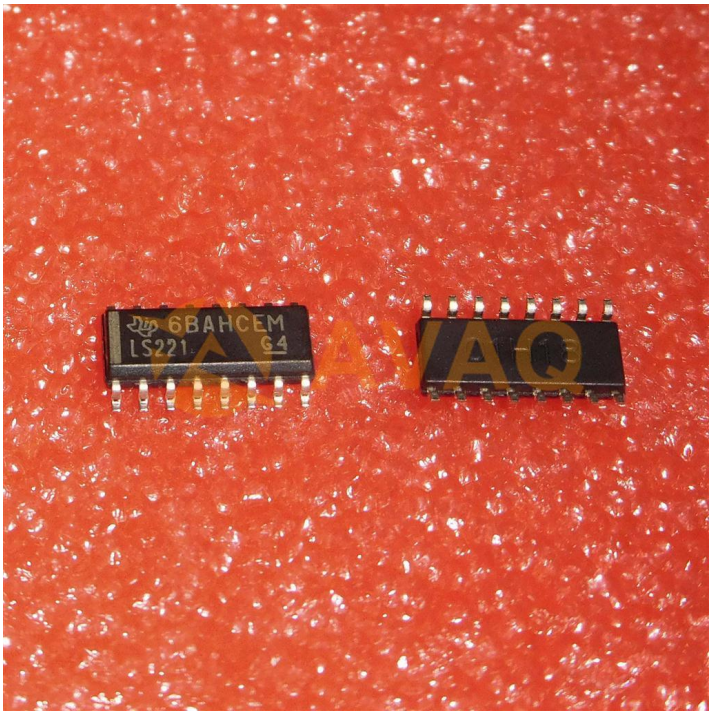

Recommended For You

SN74S38N

Texas Instruments, Inc

DIP

SN7438N

Texas Instruments, Inc

DIP14

SN75462P

Texas Instruments, Inc

DIP8

SN74F08D

Texas Instruments, Inc

SOP-14

SN74LS257BN

Texas Instruments, Inc

DIP16

SN75452BP

Texas Instruments, Inc

DIP8

SN74LS245DW

Texas Instruments, Inc

SOP20

SN74LS74AN

Texas Instruments, Inc

DIP

SN74S74N

Texas Instruments, Inc

DIP

SN7406N

Texas Instruments, Inc

DIP-14

SN74CBTLV3257D

Texas Instruments, Inc

SOP-16P

SN74HC138DR

Texas Instruments, Inc

SOP16

SN74LS14N

Texas Instruments, Inc

DIP

SN74HC139N

Texas Instruments, Inc

DIP

SN74AVC16T245DGGR

Texas Instruments, Inc

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