line $(X_1, Y_1) - (X_2, Y_2)$, , B

National Semiconductor

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DM74LS123 Dual Retriggerable One-Shot with Clear and Complementary Outputs

General Description

The DM74LS123 is a dual retriggerable monostable multivibrator capable of generating output pulses from a few nanoseconds to extremely long duration up to 100% duty cycle. Each device has three inputs permitting the choice of either leading edge or trailing edge triggering. Pin (A) is an active-low transition trigger input and pin (B) is an active-high transition trigger input. The clear (CLR) input terminates the output pulse at a predetermined time independent of the timing components. The clear input also serves as a trigger input when it is pulsed with a low level pulse transition (⎍⎍). To obtain the best trouble free operation from this device please read the operating rules as well as the NSC one-shot application notes carefully and observe recommendations.

Features

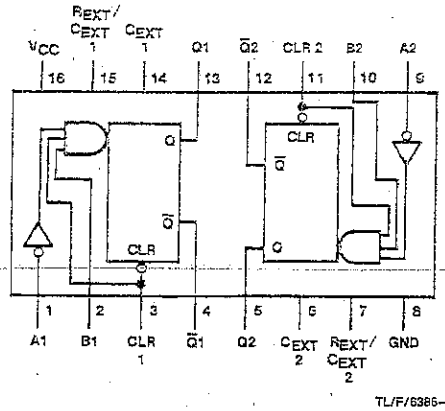
- DC triggered from active-high transition or active-low transition inputs
- Retriggerable to 100% duty cycle
- Compensated for V_{CC} and temperature variations
- Triggerable from CLEAR input
- DTL, TTL compatible
- Input clamp diodes

Functional Description

The basic output pulse width is determined by selection of an external resistor (R_X) and capacitor (C_X). Once triggered, the basic pulse width may be extended by retriggering the gated active-low transition or active-high transition inputs or be reduced by use of the active-low or CLEAR input. Retriggering to 100% duty cycle is possible by application of an input pulse train whose cycle time is shorter than the output cycle time such that a continuous "HIGH" logic state is maintained at the "Q" output.

Connection Diagram

Dual-in-Line Package



TL/F/6386–1

Order Number DM74LS123M or DM74LS123N
See NS Package Number M16A or N16E

Function Table

Inputs			Outputs	
CLEAR	A	B	Q	$\overline{Q}$
L	X	X	L	H
X	H	X	L	H
X	X	L	L	H
H	L	↑	⎍⎍	⎍⎍
H	↓	H	⎍⎍	⎍⎍
↑	L	H	⎍⎍	⎍⎍

H = High Logic Level
L = Low Logic Level
X = Can Be Either Low or High
↑ = Positive Going Transition
↓ = Negative Going Transition
⎍⎍ = A Positive Pulse
⎍⎍ = A Negative Pulse

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