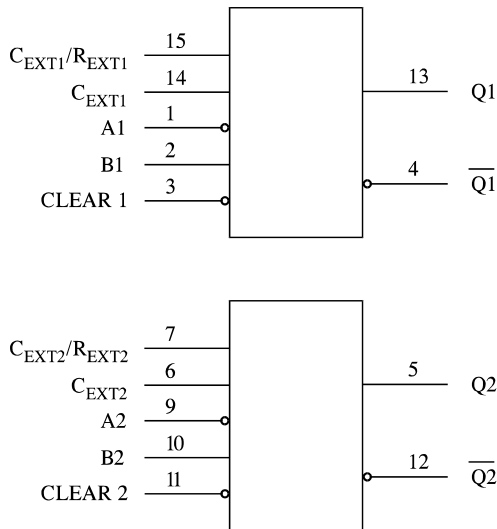


### KK74123

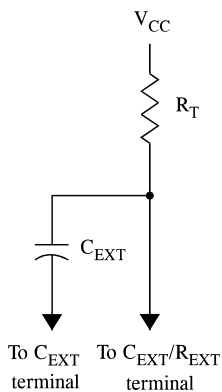
## Dual Monostable Multivibrator with Clear

The KK74123 multivibrator feature d-c triggering from gated low-level-active (A) and high-level-active (B) inputs, and also provide overriding direct clear inputs. Complementary outputs are provided. The retrigger capability simplifies the output pulse is terminated, the output pulse may be extended. The overriding clear capability permits any output pulse to be terminated at a predetermined time independently of the timing components R and C. Figure 1 illustrates triggering the one-shot with the high-level-active (B) inputs.

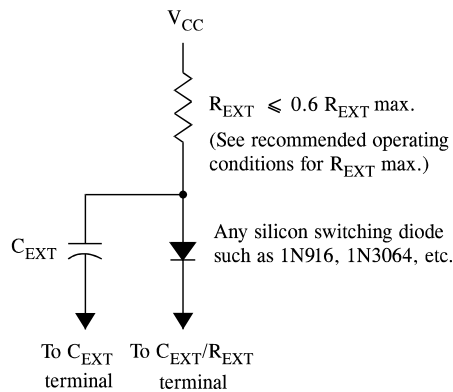
### LOGIC DIAGRAM



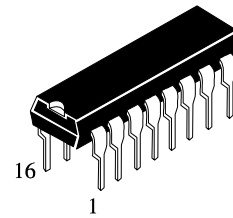
Pin 16 =  $V_{CC}$   
Pin 8 = GND



Timing Component Connections when  $C_{EXT} \leq 1000 \text{ pF}$



Timing Component Connections when  $C_{EXT} > 1000 \text{ pF}$  and Clear is used



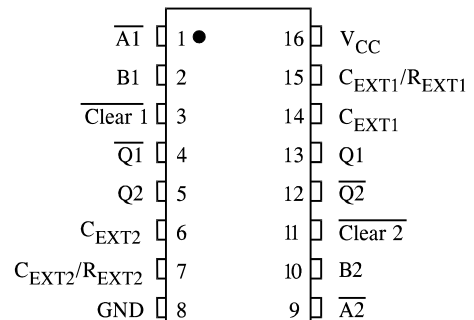
N SUFFIX  
PLASTIC

### ORDERING INFORMATION

KK74123N Plastic

$T_A = -10^\circ \text{ to } 70^\circ \text{ C}$  for package

### PIN ASSIGNMENT



### 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		

X = don't care

**MAXIMUM RATINGS\***

Symbol	Parameter	Value	Unit
V <sub>CC</sub>	Supply Voltage	6.0	V
V <sub>IN</sub>	Input Voltage	-0.5 to 6.0	V
T <sub>stg</sub>	Storage Temperature Range	-65 to +150	°C

\*Maximum Ratings are those values beyond which damage to the device may occur.

**RECOMMENDED OPERATING CONDITIONS**

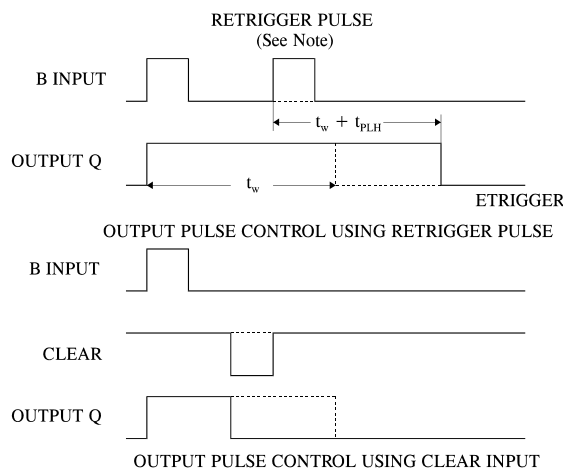
Symbol	Parameter		Min	Max	Unit
V <sub>CC</sub>	Supply Voltage		4.75	5.25	V
V <sub>IH</sub>	High Level Input Voltage		2.0		V
V <sub>IL</sub>	Low Level Input Voltage			0.8	V
I <sub>OL</sub>	Low Level Output Current			16	mA
I <sub>OH</sub>	High Level Output Current			-0.8	mA
R <sub>EXT</sub>	External Timing Resistance		5.0	50	kΩ
C <sub>EXT</sub>	External Capacitance		No Restriction		
R <sub>EXT</sub> /C <sub>EXT</sub>	Wiring Capacitance at R <sub>EXT</sub> /C <sub>EXT</sub> Terminale			50	pF
T <sub>A</sub>	Operating Temperature		-10	+70	°C
t <sub>w</sub>	Pulse Width	A or B inputs high	40	50	ns
		A or B inputs low	40	50	
		Clear low	40	50	

**DC ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=+25°C)**

Symbol	Parameter	Test Conditions	Guaranteed Limit			Unit
			Min	Typ	Max	
V <sub>IK</sub>	Input Clamp Voltage	V <sub>CC</sub> =min, I <sub>IN</sub> =-12 mA			-1.5	V
V <sub>OH</sub>	High-Level Output Voltage	V <sub>CC</sub> =min, I <sub>OH</sub> =-0.8 mA V <sub>IL</sub> =0.8 V, V <sub>IH</sub> =2.0 V	2.4	3.5		V
V <sub>OL</sub>	Low-Level Output Voltage	V <sub>CC</sub> =min, I <sub>OL</sub> =16 mA V <sub>IL</sub> =0.8 V, V <sub>IH</sub> =2.0 V		0.3	0.4	V
I <sub>IH</sub>	High Level Input Current	V <sub>CC</sub> =max, V <sub>IN</sub> =2.4V	A, B inputs		40	μA
			Clear input		80	
I <sub>I</sub>	Input Current at Maximum Input Voltage	V <sub>CC</sub> =max, V <sub>IN</sub> =5.5 V			1.0	mA
I <sub>IL</sub>	Low Level Input Current	V <sub>CC</sub> =max, V <sub>IN</sub> =0.4V	A, B inputs		-1.6	mA
			Clear input		-3.2	
I <sub>OS</sub>	Short Circuit Current One Output Shorted at a Time	V <sub>CC</sub> =max, V <sub>O</sub> =0 V	-10		-40	mA
I <sub>CC</sub>	Supply Current	V <sub>CC</sub> =max		47	66	mA

**AC ELECTRICAL CHARACTERISTICS** ( $V_{CC}=5.0\text{ V}$ ,  $T_A=+25^\circ\text{C}$ , Input  $t_r=t_f=6.0\text{ ns}$ )

Symbol	Parameter	Test Conditions	Guaranteed Limit			Unit
			Min	Typ	Max	
$t_{PLH}$	Propagation Delay, A to Q	$C_{EXT}=0$ , $R_{EXT}=5.1\text{ k}\Omega$ , $C_L=15\text{ pF}$ , $R_L=390\ \Omega$		32	33	ns
$t_{PHL}$	Propagation Delay, $\overline{A}$ to Q			30	40	ns
$t_{PLH}$	Propagation Delay, B to Q			19	28	ns
$t_{PHL}$	Propagation Delay, $\overline{B}$ to Q			27	36	ns
$t_{PLH}$	Propagation Delay, Clear to Q			30	40	ns
$t_{PHL}$	Propagation Delay, $\overline{\text{Clear}}$ to Q			18	27	ns
$t_{wQmin}$	Pulse Width, A or B to Q			45	65	ns
$t_{wQ}$	Pulse Width, A or B to Q	$C_{EXT}=1000\text{ pF}$ , $R_{EXT}=10\text{ k}\Omega$ , $R_L=390\ \Omega$ , $C_L=15\text{ pF}$	2.76	3.2	3.37	$\mu\text{s}$



NOTE: Retrigger pulse must not start before  $0.22 C_{EXT}$  (in picofarads) nonoseconds after previous trigger pulse.

**Figure 1. Typical Input/Output Pulses**

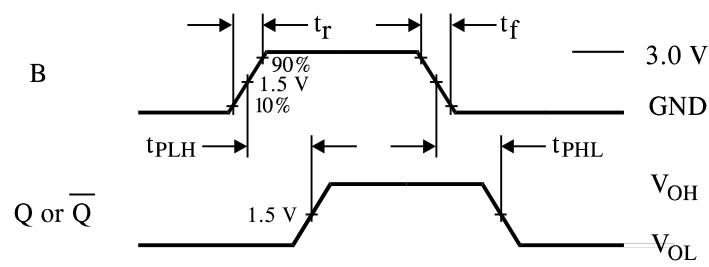


Figure 2. Switching Waveforms

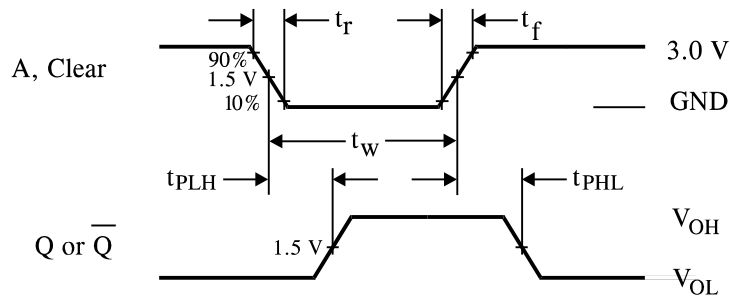
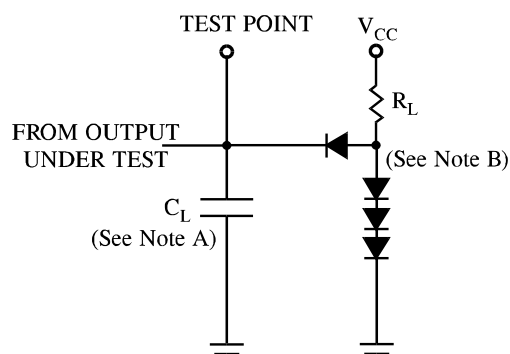


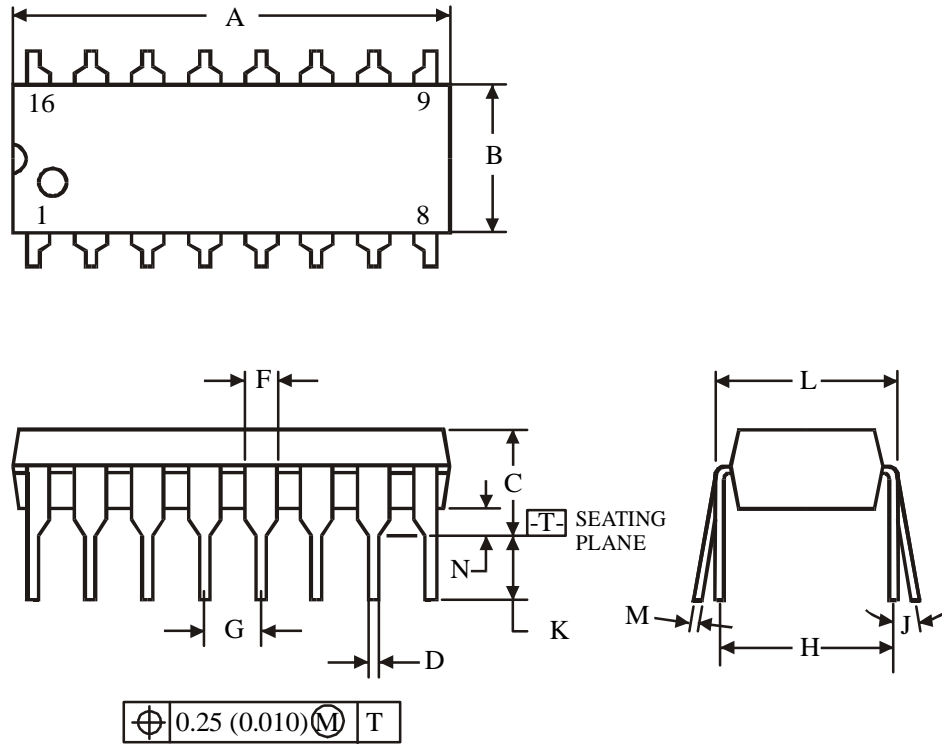
Figure 3. Switching Waveforms



NOTES A.  $C_L$  includes probe and jig capacitance.  
 B. All diodes are 1N916 or 1N3064/

Figure 4. Test Circuit

**N SUFFIX PLASTIC  
(MS - 001BB)**



Symbol	Dimensions, mm	
	MIN	MAX
A	18.67	19.69
B	6.10	7.11
C		5.33
D	0.36	0.56
F	1.14	1.78
G	2.54	
H	7.62	
J	0°	10°
K	2.92	3.81
L	7.62	8.26
M	0.20	0.36
N	0.38	

**NOTES:**

Dimensions "A", "B" do not include mold flash or protrusions. Maximum mold flash or protrusions 0.25 mm (0.010) per side