

# DATA SHEET

## **74LV123**

Dual retriggerable monostable  
multivibrator with reset

Product data  
Supersedes data of 1998 Apr 20

2003 Mar 13

# Dual retriggerable monostable multivibrator with reset

## 74LV123

### FEATURES

- Optimized for Low Voltage applications: 1.0 V to 5.5 V
- Accepts TTL input levels between  $V_{CC} = 2.7$  V and  $V_{CC} = 3.6$  V
- Typical  $V_{OLP}$  (output ground bounce)  $< 0.8$  V @  $V_{CC} = 3.3$  V,  $T_{amb} = 25$  °C
- Typical  $V_{OHV}$  (output  $V_{OH}$  undershoot)  $> 2$  V @  $V_{CC} = 3.3$  V,  $T_{amb} = 25$  °C
- DC triggered from active HIGH or active LOW inputs
- Retriggerable for very long pulses up to 100% duty factor
- Direct reset terminates output pulses
- Schmitt-trigger action on all inputs except for the reset input
- Output capability: standard (except for  $nR_{EXT}/C_{EXT}$ )
- $I_{CC}$  category: MSI

### DESCRIPTION

The 74LV123 is a low-voltage Si-gate CMOS device and is pin and function compatible with the 74HC/HCT123.

The 74LV123 is a dual retriggerable monostable multivibrator with output pulse width control by three methods. The basic pulse time is programmed by selection of an external resistor ( $R_{EXT}$ ) and capacitor ( $C_{EXT}$ ). They are normally connected as shown in Figure 1. Once triggered, the basic output pulse width may be extended by retriggering the gated active LOW-going edge input ( $n\bar{A}$ ) or the active HIGH-going edge input ( $nB$ ). By repeating this process, the output pulse period ( $nQ = \text{HIGH}$ ,  $n\bar{Q} = \text{LOW}$ ) can be made as long as desired. Alternatively, an output delay can be terminated at any time by a LOW-going edge on input  $n\bar{R}_D$ , which also inhibits the triggering. Figures 1 and 2 illustrate pulse control by retriggering and early reset. The basic output pulse width is essentially determined by the values of the external timing components  $R_{EXT}$  and  $C_{EXT}$ . For pulse width when  $C_{EXT} < 10000$  pF, see Figure 5. When  $C_{EXT} > 10,000$  pF, the typical output pulse width is defined as:  $t_W = 0.45 \times R_{EXT} \times C_{EXT}$  (typ.), where  $t_W$  = pulse width in ns;  $R_{EXT}$  = external resistor in k $\Omega$ ; and  $C_{EXT}$  = external capacitor in pF. Schmitt-trigger action in the  $n\bar{A}$  and  $nB$  inputs makes the circuit highly tolerant of slower input rise and fall times.

### QUICK REFERENCE DATA

GND = 0V;  $T_{amb} = 25$ °C;  $t_r = t_f \leq 2.5$  ns

SYMBOL	PARAMETER	CONDITIONS	TYPICAL	UNIT
$t_{PHL}/t_{PLH}$	Propagation delay $n\bar{A}$ , $nB$ to $nQ$ , $n\bar{Q}$ $n\bar{R}_D$ to $nQ$ , $n\bar{Q}$	$C_L = 15$ pF $V_{CC} = 3.3$ V $R_{EXT} = 5$ k $\Omega$ $C_{EXT} = 0$ pF	25 20	ns ns
$C_I$	Input capacitance		3.5	pF
$C_{PD}$	Power dissipation capacitance per monostable	$V_{CC} = 3.3$ V, $V_I = \text{GND to } V_{CC}^1$	60	pF

#### NOTES:

- $C_{PD}$  is used to determine the dynamic power dissipation ( $P_D$  in  $\mu$ W)  
 $P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma (C_L \times V_{CC}^2 \times f_o)$  where:  
 $N$  = number of outputs switching;  
 $f_i$  = input frequency in MHz;  $C_L$  = output load capacitance in pF;  
 $f_o$  = output frequency in MHz;  $V_{CC}$  = supply voltage in V;  
 $\Sigma (C_L \times V_{CC}^2 \times f_o)$  = sum of the outputs.

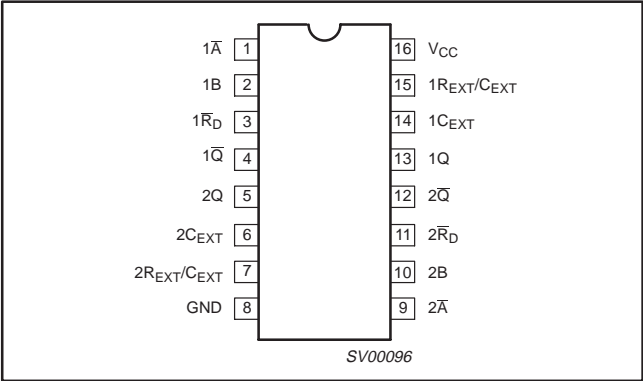
### ORDERING INFORMATION

PACKAGES	TEMPERATURE RANGE	ORDER CODE	PKG. DWG. #
16-Pin Plastic DIL	-40°C to +125°C	74LV123N	SOT38-1
16-Pin Plastic SO	-40°C to +125°C	74LV123D	SOT109-1
16-Pin Plastic SSOP Type II	-40°C to +125°C	74LV123DB	SOT338-1
16-Pin Plastic TSSOP Type I	-40°C to +125°C	74LV123PW	SOT403-1

Dual retriggerable monostable multivibrator  
with reset

74LV123

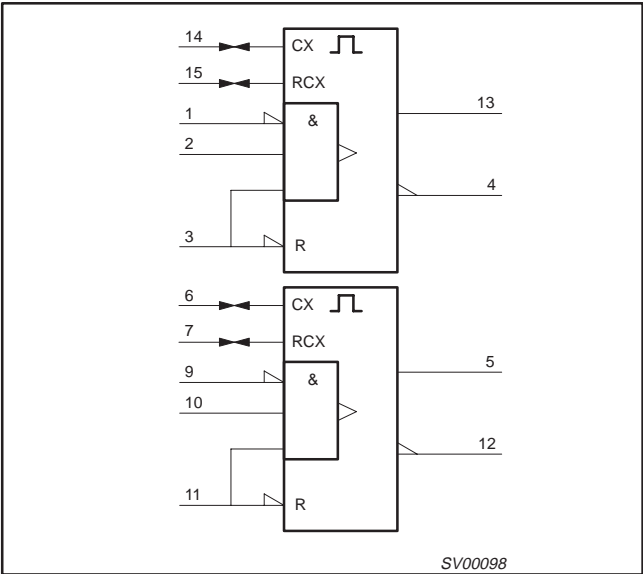
PIN CONFIGURATION



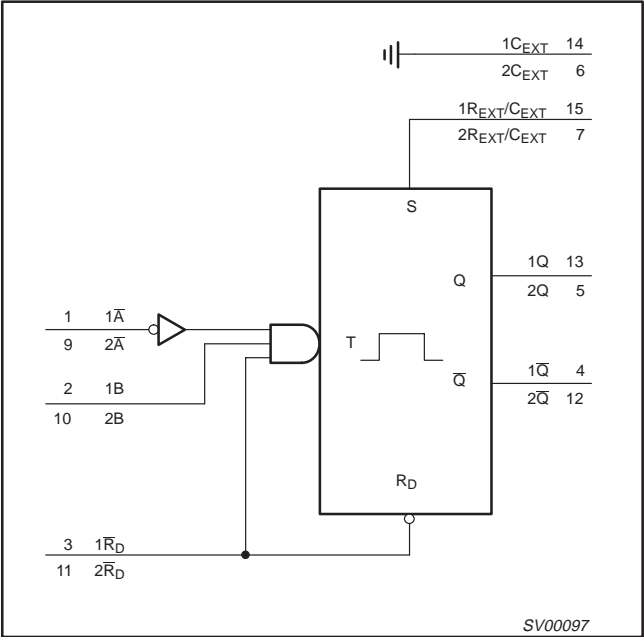
PIN DESCRIPTION

PIN NUMBER	SYMBOL	FUNCTION
1,9	1A, 2A	Trigger inputs (negative-edge triggered)
2,10	1B, 2B	Trigger inputs (positive-edge triggered)
3,11	1RD, 2RD	Direct reset LOW and trigger action at positive edge
4, 12	1Q, 2Q	Outputs (active LOW)
7	2REXT/CEXT	External resistor/capacitor connection
8	GND	Ground (0V)
13, 5	1Q, 2Q	Outputs (active HIGH)
14, 6	1CEXT, 2CEXT	External capacitor connection
15	1REXT/CEXT	External resistor/capacitor connection
16	VCC	Positive supply voltage

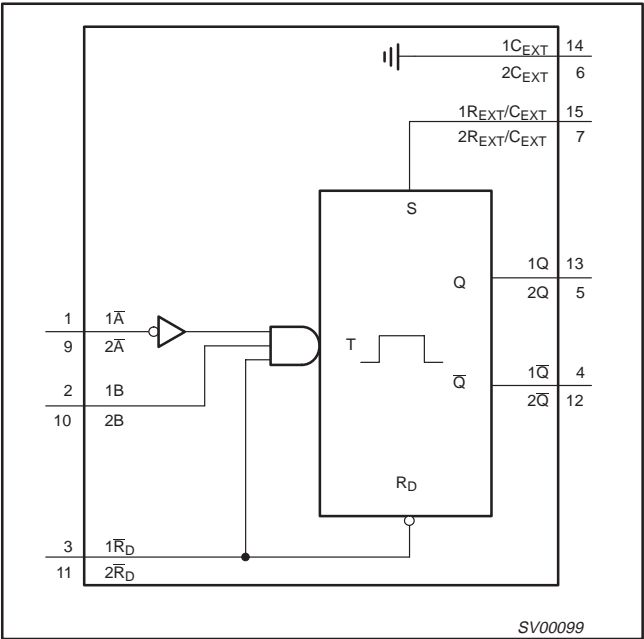
LOGIC SYMBOL (IEEE/IEC)



LOGIC SYMBOL



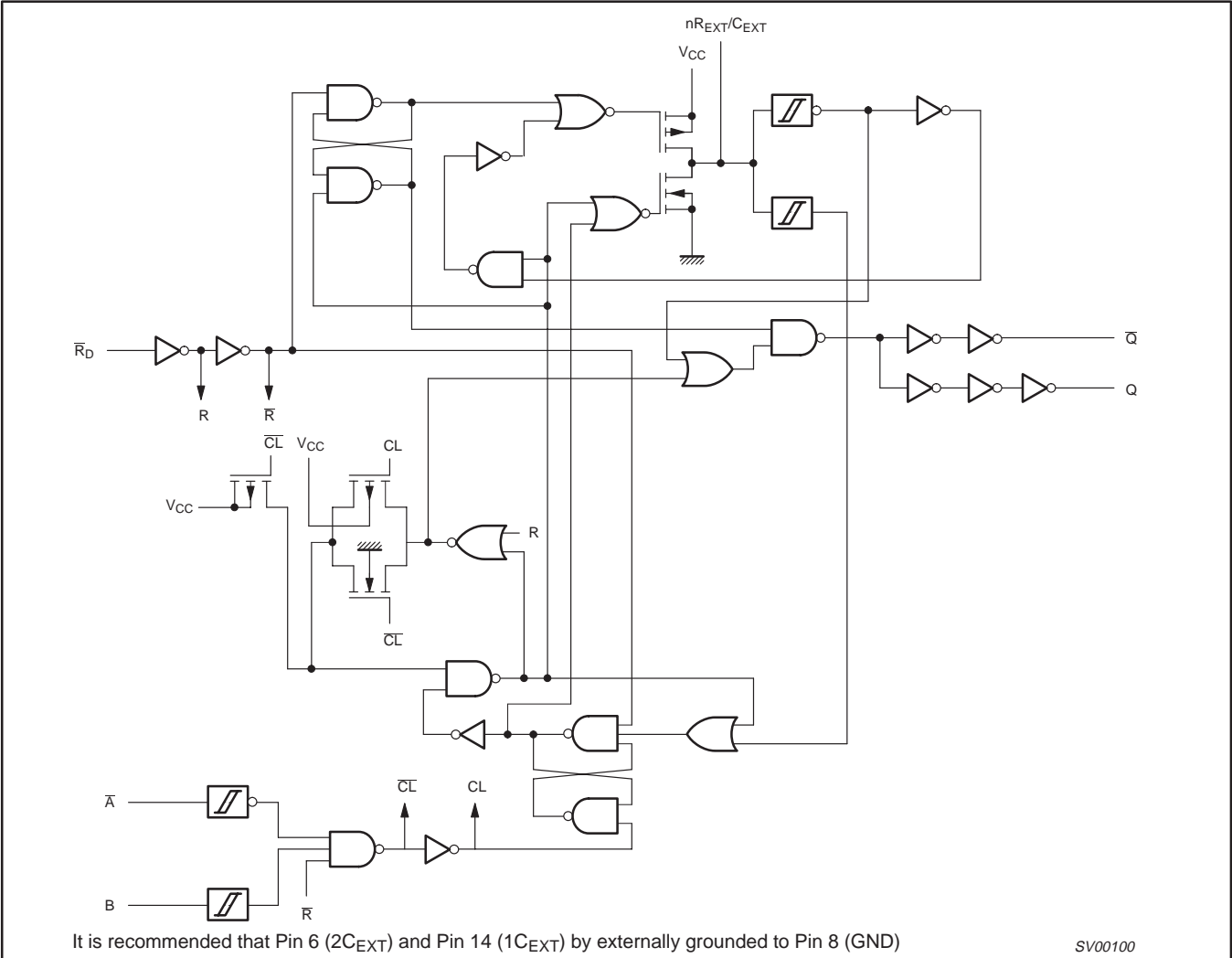
FUNCTIONAL DIAGRAM



Dual retriggerable monostable multivibrator  
with reset

74LV123

LOGIC DIAGRAM



FUNCTION TABLE

INPUTS			OUTPUTS	
nR <sub>D</sub>	nA	nB	nQ	nQ
L	X	X	L	H
X	H	X	L *	H *
X	X	L	L *	H *
H	L	↑		
H	↓	H		
↑	L	H		

NOTES:

\* If the monostable was triggered before this condition was established, the pulse will continue as programmed.

H = HIGH voltage level

L = LOW voltage level

X = don't care

↑ = LOW-to-HIGH transition

↓ = HIGH-to-LOW transition

= one HIGH level output pulse

= one LOW level output pulse

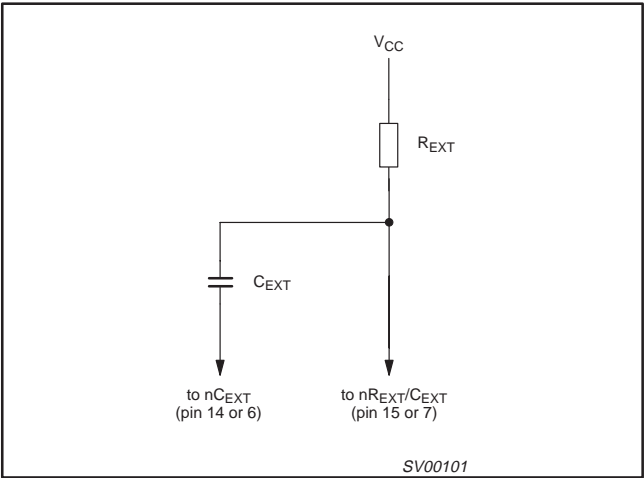


Figure 1. Timing component connection

# Dual retriggerable monostable multivibrator with reset

74LV123

## RECOMMENDED OPERATING CONDITIONS

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$V_{CC}$	DC supply voltage	See Note <sup>1</sup>	1.0	3.3	5.5	V
$V_I$	Input voltage		0	–	$V_{CC}$	V
$V_O$	Output voltage		0	–	$V_{CC}$	V
$T_{amb}$	Operating ambient temperature range in free air	See DC and AC characteristics	–40 –40		+85 +125	°C
$t_r, t_f$	Input rise and fall times except for Schmitt-trigger inputs	$V_{CC} = 1.0 \text{ V to } 2.0 \text{ V}$	–	–	500	ns/V
		$V_{CC} = 2.0 \text{ V to } 2.7 \text{ V}$	–	–	200	ns/V
		$V_{CC} = 2.7 \text{ V to } 3.6 \text{ V}$	–	–	100	ns/V
		$V_{CC} = 3.6 \text{ V to } 5.5 \text{ V}$	–	–	50	ns/V

### NOTE:

- The LV is guaranteed to function down to  $V_{CC} = 1.0 \text{ V}$  (input levels GND or  $V_{CC}$ ); DC characteristics are guaranteed from  $V_{CC} = 1.2 \text{ V}$  to  $V_{CC} = 5.5 \text{ V}$ .

## ABSOLUTE MAXIMUM RATINGS<sup>1, 2</sup>

In accordance with the Absolute Maximum Rating System (IEC 134).

Voltages are referenced to GND (ground = 0 V).

SYMBOL	PARAMETER	CONDITIONS	RATING	UNIT
$V_{CC}$	DC supply voltage		–0.5 to +7.0	V
$\pm I_{IK}$	DC input diode current	$V_I < -0.5 \text{ V}$ or $V_I > V_{CC} + 0.5 \text{ V}$	20	mA
$\pm I_{OK}$	DC output diode current	$V_O < -0.5 \text{ V}$ or $V_O > V_{CC} + 0.5 \text{ V}$	50	mA
$\pm I_O$	DC output source or sink current (standard outputs)	$-0.5 \text{ V} < V_O < V_{CC} + 0.5 \text{ V}$	25	mA
$\pm I_{GND}, \pm I_{CC}$	DC $V_{CC}$ or GND current for types with standard outputs		50	mA
$T_{stg}$	Storage temperature range		–65 to +150	°C
$P_{TOT}$	Power dissipation per package – plastic DIL – plastic mini-pack (SO) – plastic shrink mini-pack (SSOP and TSSOP)	for temperature range: –40 °C to +125 °C above +70 °C derate linearly with 12 mW/K above +70 °C derate linearly with 8 mW/K above +60 °C derate linearly with 5.5 mW/K	750 500 500	mW

### NOTES:

- Stresses beyond those listed may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated under “recommended operating conditions” is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.
- The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

# Dual retriggerable monostable multivibrator with reset

74LV123

## DC ELECTRICAL CHARACTERISTICS

Over recommended operating conditions. Voltages are referenced to GND (ground = 0 V).

SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS					UNIT
			−40 °C to +85 °C			−40 °C to +125 °C		
			MIN	TYP <sup>1</sup>	MAX	MIN	MAX	
V <sub>IH</sub>	HIGH level Input voltage	V <sub>CC</sub> = 1.2 V	0.9			0.9		V
		V <sub>CC</sub> = 2.0 V	1.4			1.4		
		V <sub>CC</sub> = 2.7 V to 3.6 V	2.0			2.0		
		V <sub>CC</sub> = 4.5 V to 5.5 V	0.7*V <sub>CC</sub>			0.7*V <sub>CC</sub>		
V <sub>IL</sub>	LOW level Input voltage	V <sub>CC</sub> = 1.2 V			0.3		0.3	V
		V <sub>CC</sub> = 2.0 V			0.6		0.6	
		V <sub>CC</sub> = 2.7 V to 3.6 V			0.8		0.8	
		V <sub>CC</sub> = 4.5 V to 5.5 V			0.3*V <sub>CC</sub>		0.3*V <sub>CC</sub>	
V <sub>OH</sub>	HIGH level output voltage; all outputs	V <sub>CC</sub> = 1.2 V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; −I <sub>O</sub> = 100 μA		1.2				V
		V <sub>CC</sub> = 2.0 V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; −I <sub>O</sub> = 100 μA	1.8	2.0		1.8		
		V <sub>CC</sub> = 2.7 V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; −I <sub>O</sub> = 100 μA	2.5	2.7		2.5		
		V <sub>CC</sub> = 3.0 V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; −I <sub>O</sub> = 100 μA	2.8	3.0		2.8		
		V <sub>CC</sub> = 4.5 V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; −I <sub>O</sub> = 100 μA	4.3	4.5		4.3		
V <sub>OH</sub>	HIGH level output voltage; STANDARD outputs	V <sub>CC</sub> = 3.0 V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; −I <sub>O</sub> = 6 mA	2.40	2.82		2.20		V
		V <sub>CC</sub> = 4.5 V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; −I <sub>O</sub> = 12 mA	3.60	4.20		3.50		
V <sub>OL</sub>	LOW level output voltage; all outputs	V <sub>CC</sub> = 1.2 V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; I <sub>O</sub> = 100 μA		0				V
		V <sub>CC</sub> = 2.0 V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; I <sub>O</sub> = 100 μA		0	0.2		0.2	
		V <sub>CC</sub> = 2.7 V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; I <sub>O</sub> = 100 μA		0	0.2		0.2	
		V <sub>CC</sub> = 3.0 V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; I <sub>O</sub> = 100 μA		0	0.2		0.2	
		V <sub>CC</sub> = 4.5 V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; I <sub>O</sub> = 100 μA		0	0.2		0.2	
V <sub>OL</sub>	LOW level output voltage; STANDARD outputs	V <sub>CC</sub> = 3.0 V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; I <sub>O</sub> = 6 mA		0.25	0.40		0.50	V
		V <sub>CC</sub> = 4.5 V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; I <sub>O</sub> = 12 mA		0.35	0.55		0.65	
I <sub>I</sub>	Input leakage current	V <sub>CC</sub> = 5.5 V; V <sub>I</sub> = V <sub>CC</sub> or GND			1.0		1.0	μA
I <sub>CC</sub>	Quiescent supply current; MSI	V <sub>CC</sub> = 5.5 V; V <sub>I</sub> = V <sub>CC</sub> or GND; I <sub>O</sub> = 0			20.0		160	μA
ΔI <sub>CC</sub>	Additional quiescent supply current	V <sub>CC</sub> = 2.7 V to 3.6 V; V <sub>I</sub> = V <sub>CC</sub> − 0.6 V			500		850	μA

### NOTE:

1. All typical values are measured at  $T_{amb} = 25 \text{ }^\circ\text{C}$ .

# Dual retriggerable monostable multivibrator with reset

74LV123

## AC CHARACTERISTICS

GND = 0 V;  $t_r = t_f \leq 2.5$  ns;  $C_L = 50$  pF;  $R_L = 1$  k $\Omega$ 

SYMBOL	PARAMETER	WAVEFORM	CONDITION	LIMITS					UNIT
				−40 °C to +85 °C			−40 °C to +125 °C		
			V <sub>CC</sub> (V)	MIN	TYP <sup>1</sup>	MAX	MIN	MAX	
t <sub>PHL</sub>	Propagation delay nR <sub>D</sub> , nA, nB, to nQ	Figure 3 C <sub>EXT</sub> = 0 pF R <sub>EXT</sub> = 5 kΩ	1.2		120				ns
			2.0		40	76		92	
			2.7		30	56		68	
			3.0 to 3.6		25 <sup>2</sup>	48		57	
			4.5 to 5.5		18 <sup>2</sup>	40		46	
t <sub>PLH</sub>	Propagation delay nR <sub>D</sub> , nA, nB, to nQ	Figure 3 C <sub>EXT</sub> = 0 pF R <sub>EXT</sub> = 5 kΩ	1.2		120				ns
			2.0		40	76		92	
			2.7		30	56		68	
			3.0 to 3.6		25 <sup>2</sup>	48		57	
			4.5 to 5.5		18 <sup>2</sup>	40		46	
t <sub>PHL</sub>	Propagation delay nR <sub>D</sub> to nQ (reset)	Figure 3 C <sub>EXT</sub> = 0 pF R <sub>EXT</sub> = 5 kΩ	1.2		100				ns
			2.0		30	57		68	
			2.7		23	43		51	
			3.0 to 3.6		20 <sup>2</sup>	38		45	
			4.5 to 5.5		14 <sup>2</sup>	31		36	
t <sub>PLH</sub>	Propagation delay nR <sub>D</sub> to nQ (reset)	Figure 3 C <sub>EXT</sub> = 0 pF R <sub>EXT</sub> = 5 kΩ	1.2		100				ns
			2.0		30	57		68	
			2.7		23	43		51	
			3.0 to 3.6		20 <sup>2</sup>	38		45	
			4.5 to 5.5		14 <sup>2</sup>	31		36	
t <sub>W</sub>	Trigger pulse width nA = LOW	Figure 3	2.0	30	5		40		ns
			2.7	25	3.5		30		
			3.0 to 3.6	20	3.0 <sup>2</sup>		25		
			4.5 to 5.5	15	2.5 <sup>2</sup>		20		
t <sub>W</sub>	Trigger pulse width nB = HIGH	Figure 3	2.0	30	13		40		ns
			2.7	25	8		30		
			3.0 to 3.6	20	7 <sup>2</sup>		25		
			4.5 to 5.5	15	5 <sup>2</sup>		20		
t <sub>W</sub>	Reset pulse width nR <sub>D</sub> = LOW	Figure 2	2.0	35	6		45		ns
			2.7	30	5		40		
			3.0 to 3.6	25	4 <sup>2</sup>		30		
			4.5 to 5.5	20	3 <sup>2</sup>		25		
t <sub>W</sub>	Output pulse width nQ = HIGH nQ = LOW	Figures 1, 2 C <sub>EXT</sub> = 100 nF R <sub>EXT</sub> = 10 kΩ	2.0		470				μs
			2.7		460				
			3.0 to 3.6		450 <sup>2</sup>				
			4.5 to 5.5		430 <sup>2</sup>				
t <sub>W</sub>	Output pulse width nQ = HIGH nQ = LOW	Figures 1, 2 C <sub>EXT</sub> = 0 pF R <sub>EXT</sub> = 5 kΩ	2.0		100				ns
			2.7		90				
			3.0 to 3.6		80 <sup>2</sup>				
			4.5 to 5.5		70 <sup>2</sup>				
t <sub>rt</sub>	Retrigger time nA, nB	Figure 1 C <sub>EXT</sub> = 0 pF R <sub>EXT</sub> = 5 kΩ	2.0		70				ns
			2.7		55				
			3.0 to 3.6		45 <sup>2</sup>				
			4.5 to 5.5		40 <sup>2</sup>				

Dual retriggerable monostable multivibrator  
with reset

74LV123

AC CHARACTERISTICS (Continued)

GND = 0 V;  $t_r = t_f \leq 2.5$  ns;  $C_L = 50$  pF;  $R_L = 1$  k $\Omega$

SYMBOL	PARAMETER	WAVEFORM	CONDITION	LIMITS					UNIT
				−40 °C to +85 °C			−40 °C to +125 °C		
			V <sub>CC</sub> (V)	MIN	TYP <sup>1</sup>	MAX	MIN	MAX	
R <sub>EXT</sub>	External timing resistor	Figure 5	1.2	10		1000			kΩ
			2.0	5		1000			
			2.7	3		1000			
			3.0 to 3.6	2		1000			
			4.5 to 5.5	2		1000			
C <sub>EXT</sub>	External timing capacitor	Figure 5 <sup>3</sup>	1.2	No limits					pF
			2.0						
			2.7						
			3.0 to 3.6						
			4.5 to 5.5						

NOTES:

- Unless otherwise stated, all typical values are at  $T_{amb} = 25$  °C.
- Typical value measured at  $V_{CC} = 3.3$  V.
- Typical value measured at  $V_{CC} = 5.0$  V.
- For other  $R_{EXT}$  and  $C_{EXT}$  combinations see Figure 5.  
if  $C_{EXT} > 10$  nF, the next formula is valid:  
 $t_W = K \times R_{EXT} \times C_{EXT}$  (typ.)  
where,  $t_W$  = output pulse width in ns;  
 $R_{EXT}$  = external resistor in k $\Omega$ ;  $C_{EXT}$  = external capacitor in pF;  
 $K$  = constant = 0.45 for  $V_{CC} = 5.0$  V and 0.48 for  $V_{CC} = 2.0$  V.  
The inherent test jig and pin capacitance at pins 15 and 7 ( $nR_{EXT}/C_{EXT}$ ) is approximately 7 pF.
- The time to retrigger the monostable multivibrator depends on the values of  $R_{EXT}$  and  $C_{EXT}$ .  
The output pulse width will only be extended when the time between the active-going edges of the trigger pulses meets the minimum retrigger time.  
If  $C_{EXT} > 10$  pF, the next formula (at  $V_{CC} = 5.0$  V) for the set-up time of a retrigger pulse is valid:  
 $t_{rt} = 30 + 0.19R \times C^{0.9} + 13 \times R^{1.05}$  (typ.)  
If  $C_{EXT} > 10$  pF, the next formula (at  $V_{CC} = 3.0$  V) for the set-up time of a retrigger pulse is valid:  
 $t_{rt} = 41 + 0.15R \times C^{0.9} \times R^{1.05}$  (typ.)  
where,  $t_{rt}$  = retrigger time in ns;  
 $C_{EXT}$  = external capacitor in pF;  
 $R_{EXT}$  = external resistor in k $\Omega$ .  
The inherent test jig and pin capacitance at pins 15 and 7 ( $nR_{EXT}/C_{EXT}$ ) is approximately 7 pF.
- When the device is powered up, initiate the device via a reset pulse, when  $C_{EXT} < 50$  pF.

AC WAVEFORMS

$V_M = 1.5$  V at  $V_{CC} \geq 2.7$  V;  $V_M = 0.5 V_{CC}$  at  $V_{CC} < 2.7$  V;  
 $V_{OL}$  and  $V_{OH}$  are the typical output voltage drop that occur with the output load.

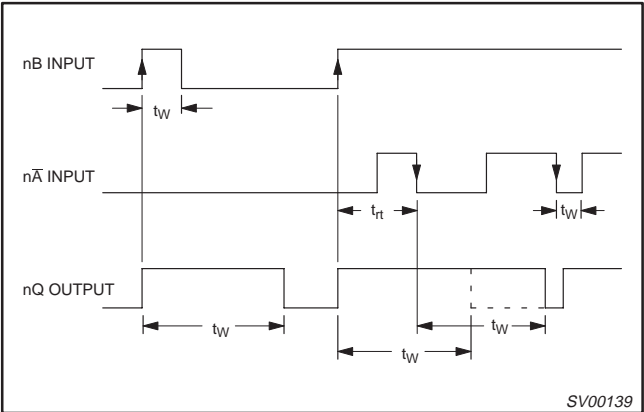


Figure 1. Output pulse control using retrigger pulse;  
 $n\overline{R}_D = \text{HIGH}$ .

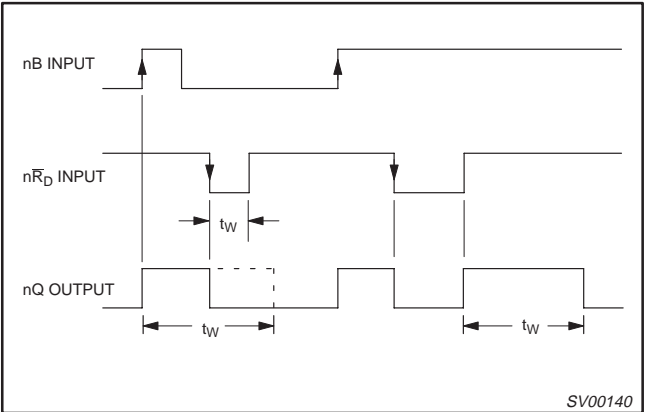


Figure 2. Output pulse control using reset input  $n\overline{R}_D$ ;  
 $n\overline{A} = \text{LOW}$ .



# Dual retriggerable monostable multivibrator with reset

74LV123

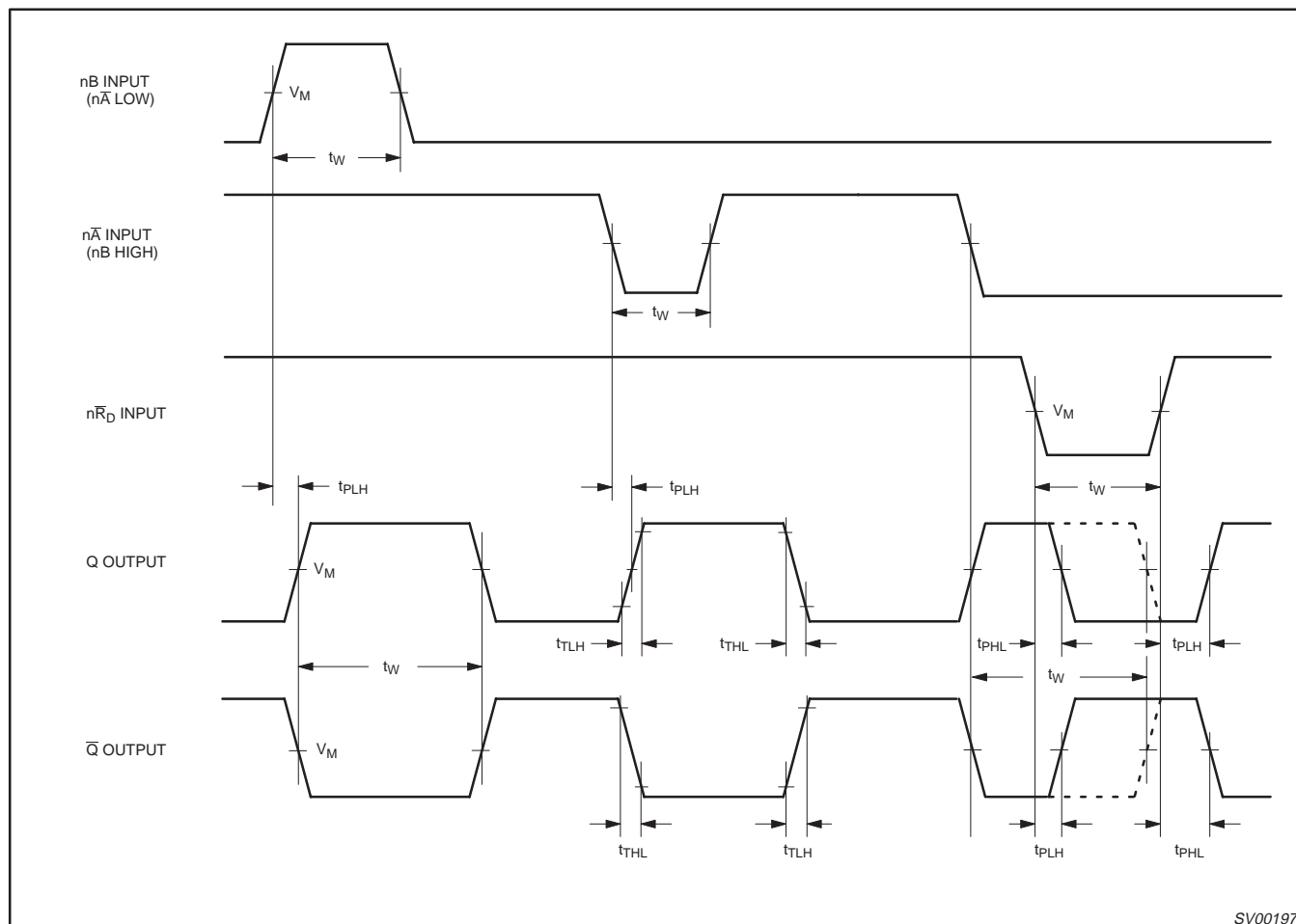


Figure 3. Input ( $n\bar{A}$ ,  $nB$ ,  $n\bar{R}_D$ ) to output ( $nQ$ ,  $n\bar{Q}$ ) propagation delays, the output transition times, and the input and output pulse widths.

# Dual retriggerable monostable multivibrator with reset

74LV123

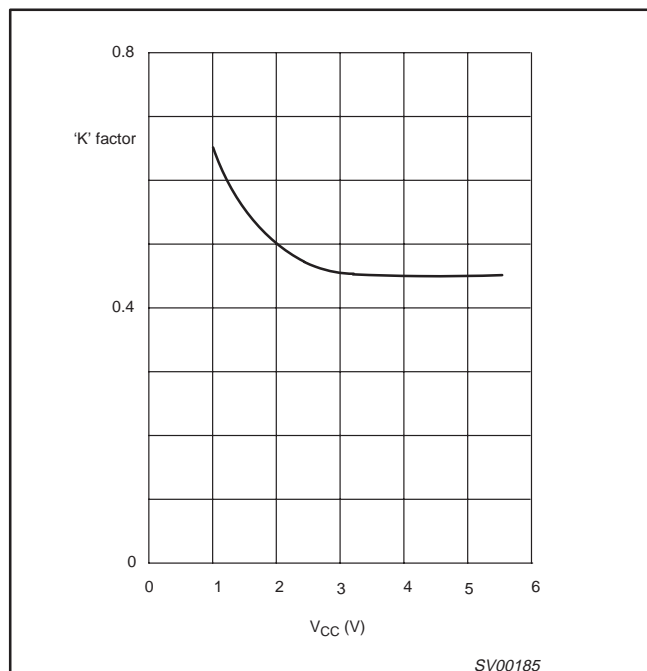


Figure 4. HCT typical "K" factor as a function of  $V_{CC}$ :  
 $C_X = 10$  nF;  $R_X = 10$  k $\Omega$  to 100 k $\Omega$ .

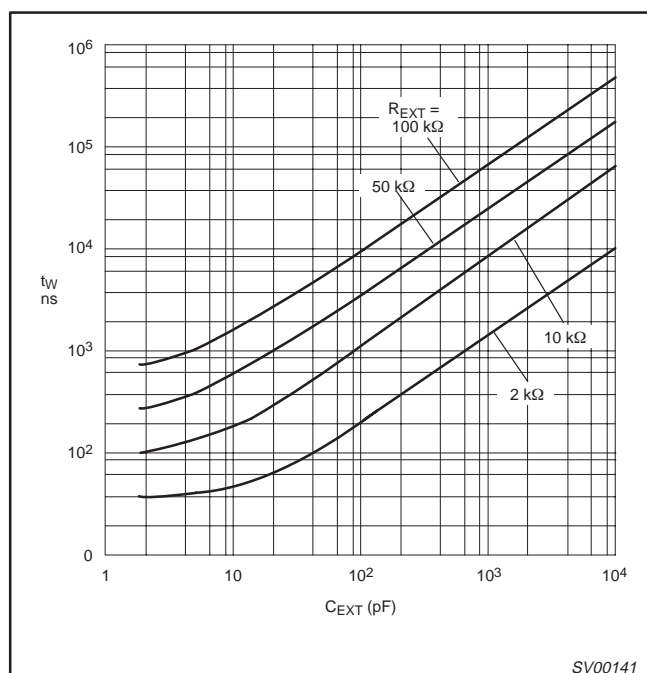


Figure 5. Typical output pulse width as a function of the external capacitor values at  $V_{CC} = 3.3$  V and  $T_{amb} = 25$  °C.

## APPLICATION INFORMATION

### Power-up considerations

When the monostable is powered-up it may produce an output pulse, with a pulse width defined by the values of  $R_X$  and  $C_X$ . This output pulse can be eliminated using the circuit shown in Figure 6.

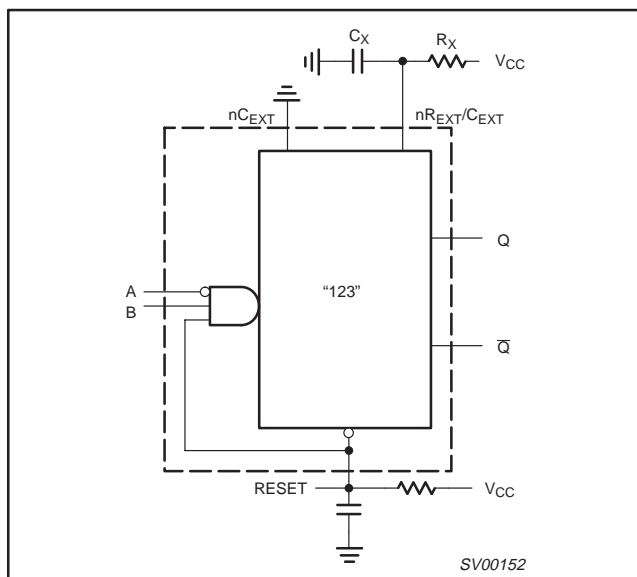


Figure 6. Power-up output pulse elimination circuit

### Power-down considerations

A large capacitor ( $C_X$ ) may cause problems when powering-down the monostable due to the energy stored in this capacitor. When a system containing this device is powered-down or a rapid decrease of  $V_{CC}$  to zero occurs, the monostable may sustain damage, due to the capacitor discharging through the input protection diodes. To avoid this possibility, connect a damping diode ( $D_X$ ) preferably a germanium or Schottky type diode able to withstand large current surges as shown in Figure 7.

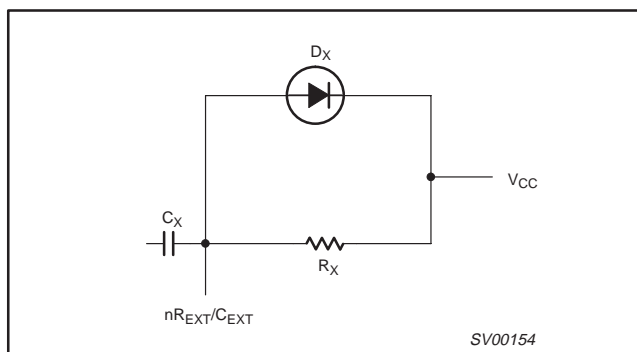


Figure 7. Power-down protection circuit

Dual retriggerable monostable multivibrator  
with reset

74LV123

TEST CIRCUIT

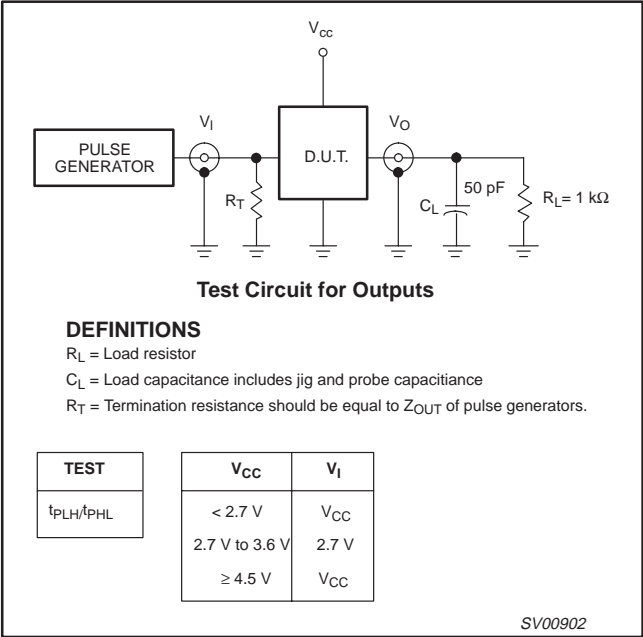


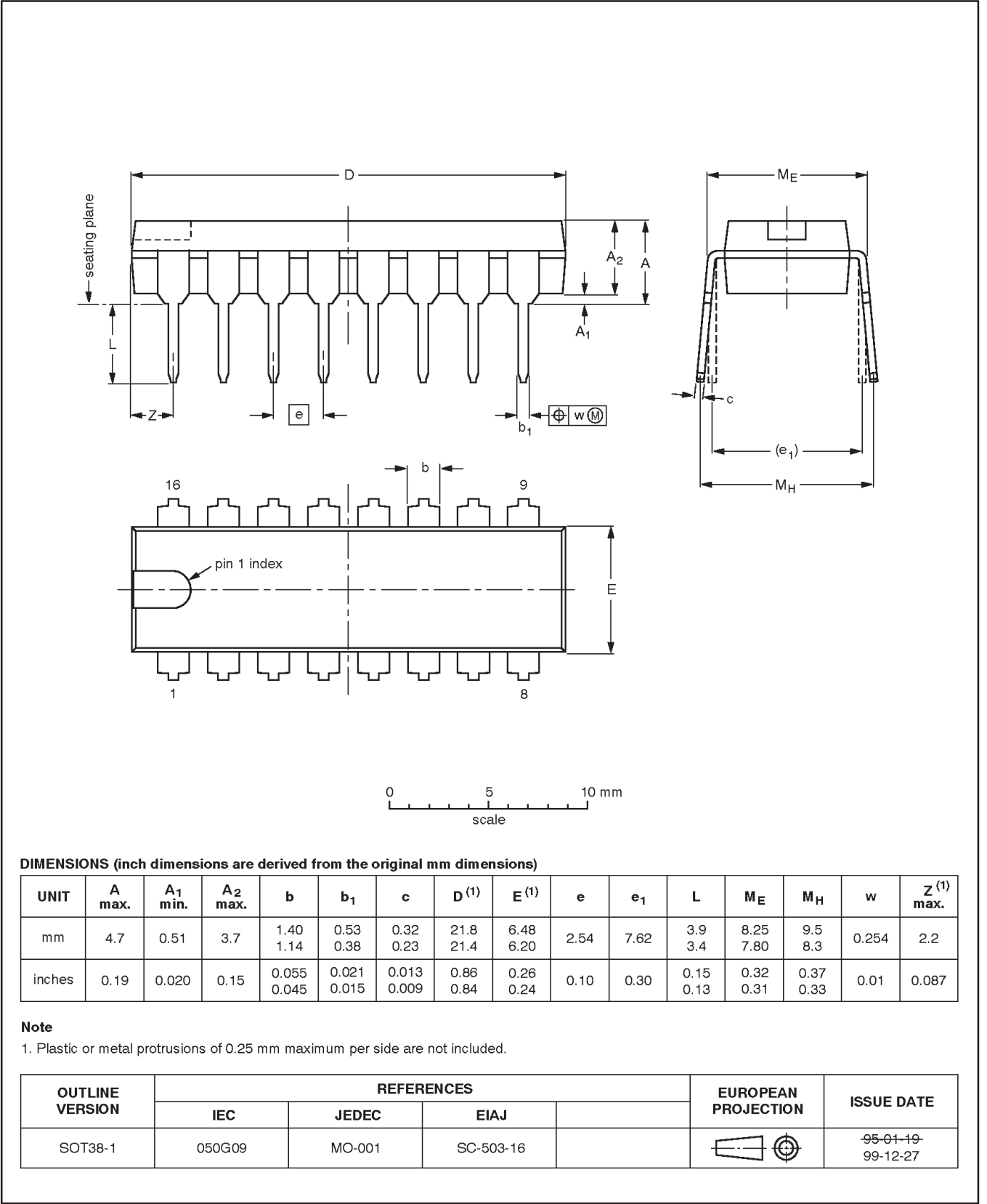
Figure 8. Load circuitry for switching times

Dual retriggerable monostable multivibrator  
with reset

74LV123

DIP16: plastic dual in-line package; 16 leads (300 mil); long body

SOT38-1

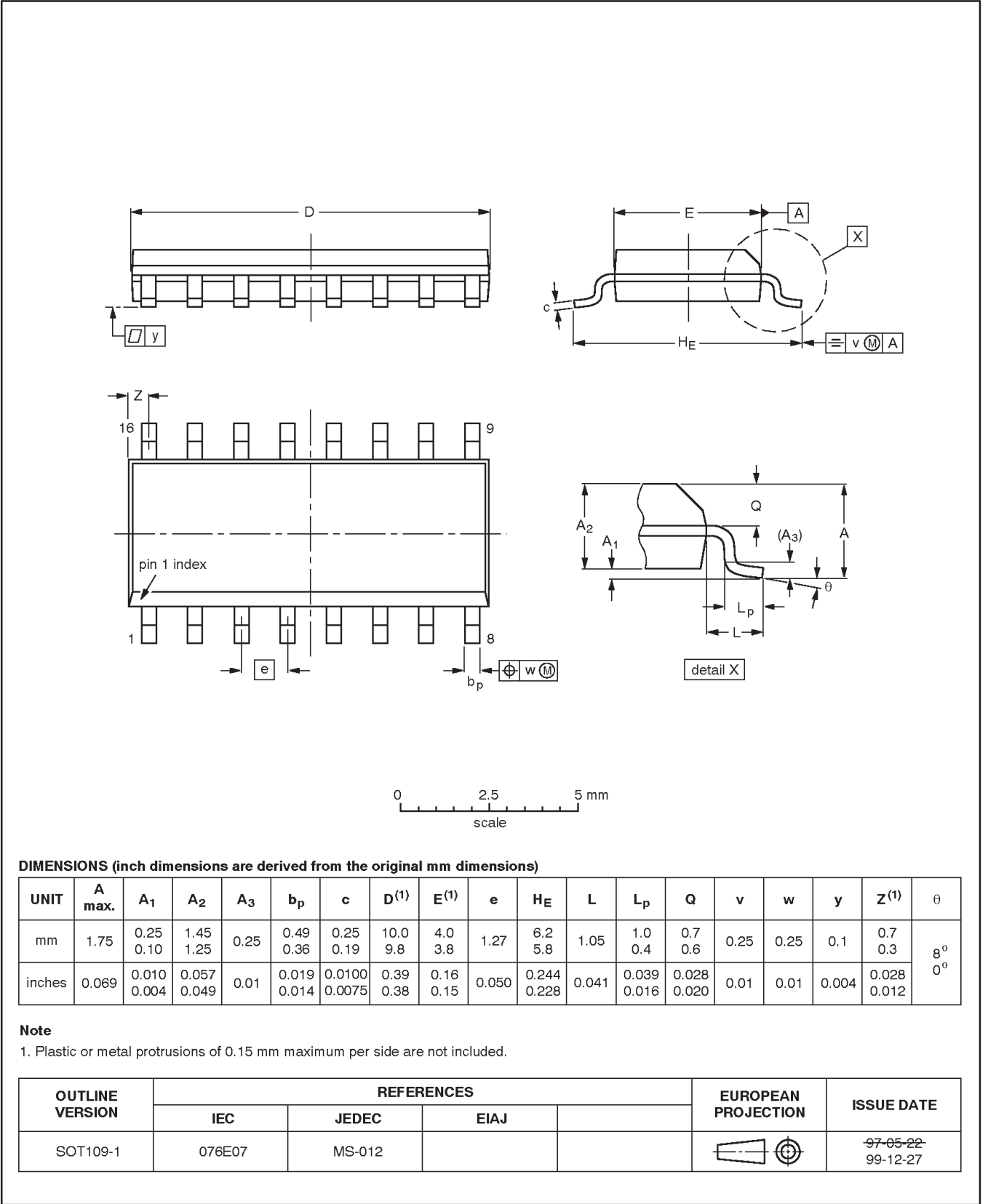


Dual retriggerable monostable multivibrator  
with reset

74LV123

SO16: plastic small outline package; 16 leads; body width 3.9 mm

SOT109-1

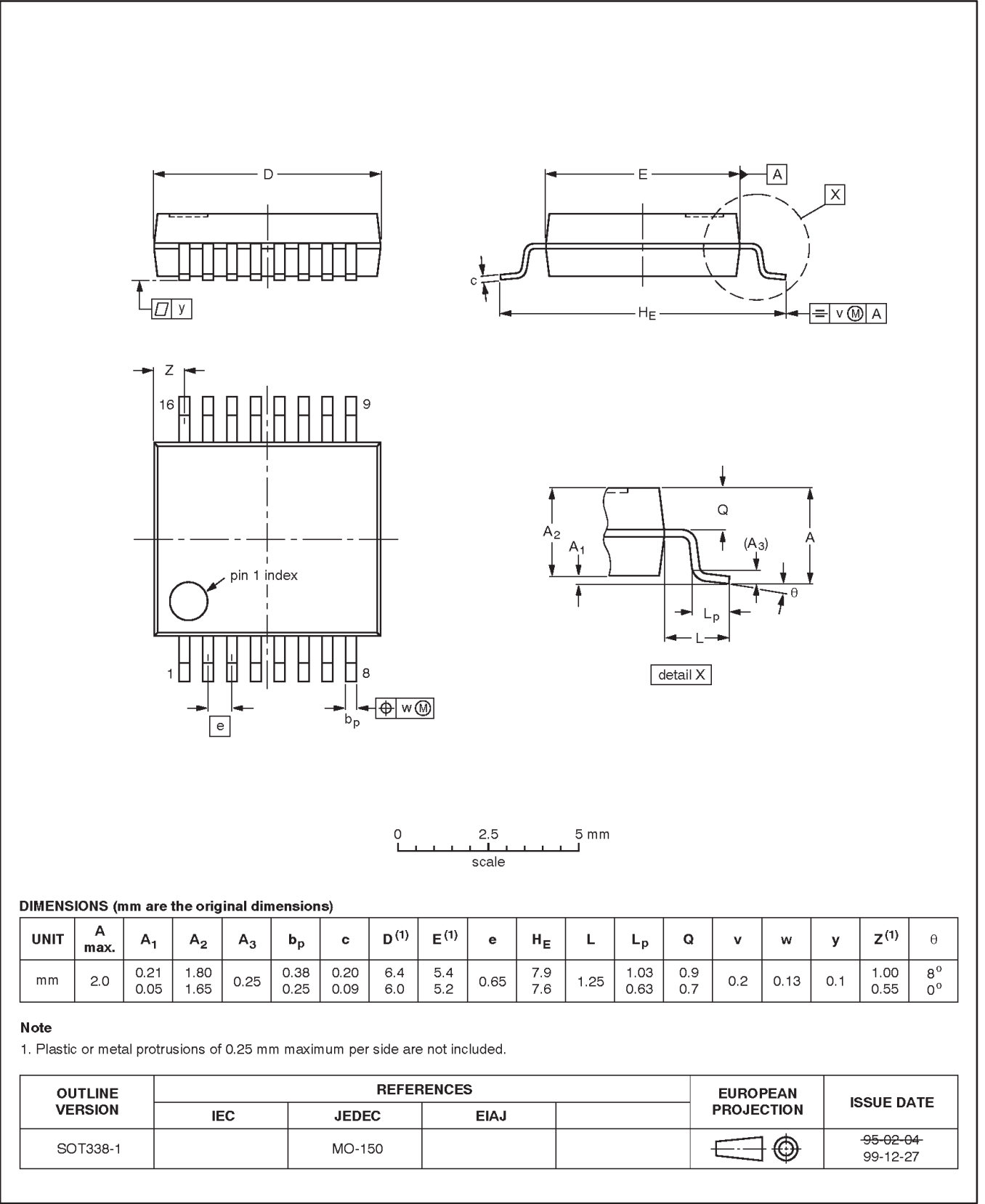


Dual retriggerable monostable multivibrator  
with reset

74LV123

SSOP16: plastic shrink small outline package; 16 leads; body width 5.3 mm

SOT338-1

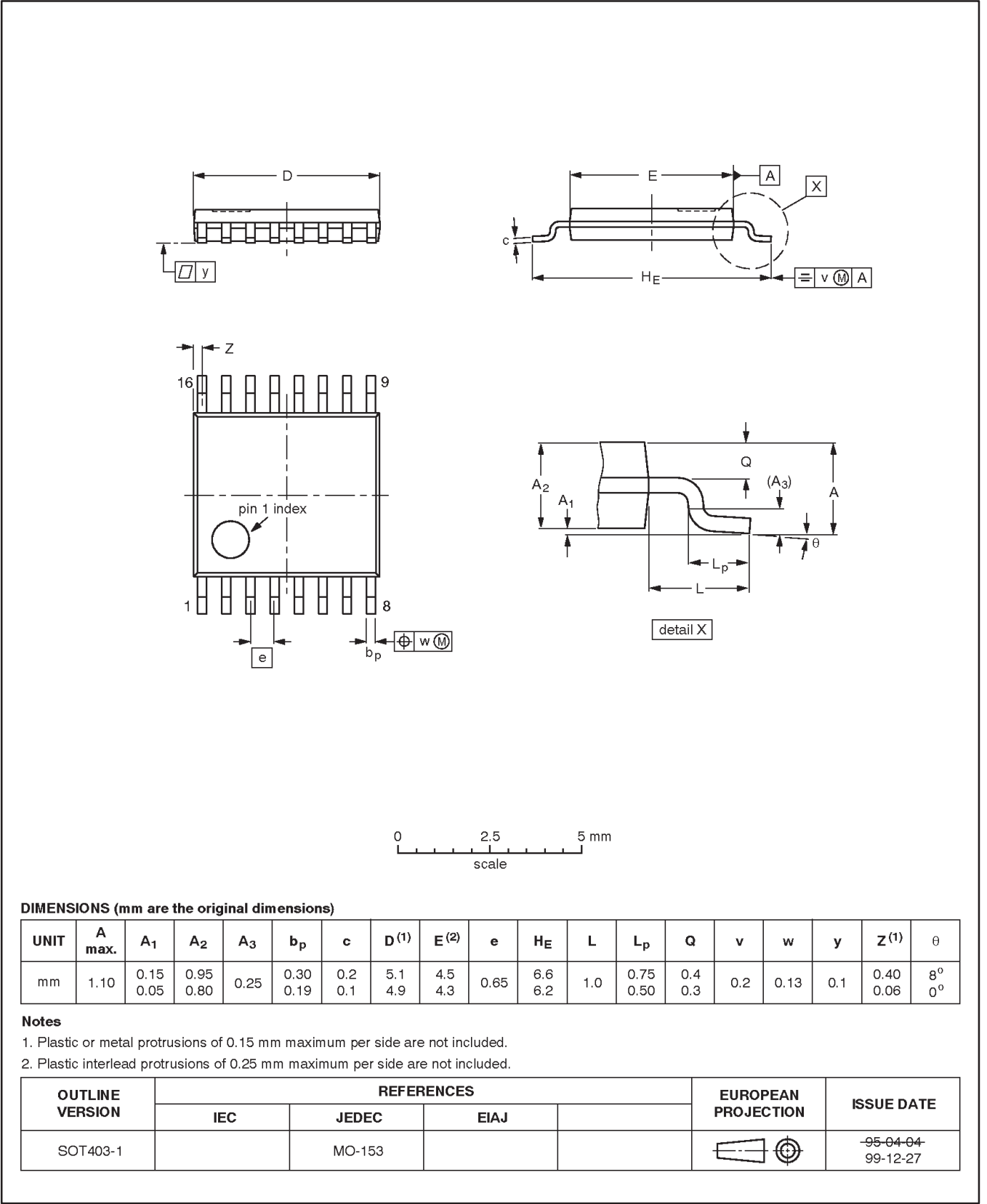


Dual retriggerable monostable multivibrator  
with reset

74LV123

TSSOP16: plastic thin shrink small outline package; 16 leads; body width 4.4 mm

SOT403-1



# Dual retriggerable monostable multivibrator with reset

74LV123

## REVISION HISTORY

Rev	Date	Description
_3	20030313	<b>Product data (9397 750 11244). ECN 853-1911 29490 of 07 February 2003.</b> <b>Supersedes Product specification of 1998 Apr 20 (9397 750 04418).</b> Modifications: <ul style="list-style-type: none"><li>• Quick Reference Data: Correct power dissipation formula in Note 1.</li><li>• Ordering information: delete "North America"column; rename column from "Outside North America" to "Order Code".</li><li>• AC characteristics, Note 5 (on page 8): correct C<sub>EXT</sub> value calculation formula for 5 V operation; add C<sub>EXT</sub> value calculation formula for 3.3 V operation.</li></ul>
_2	19980420	<b>Product specification (9397 750 04418). ECN 853-1911 19290 of 20 April 1998.</b> <b>Supersedes data of 1997 Feb 04.</b>



# Dual retriggerable monostable multivibrator with reset

74LV123

## Data sheet status

Level	Data sheet status <sup>[1]</sup>	Product status <sup>[2] [3]</sup>	Definitions
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
II	Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
III	Product data	Production	This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN).

[1] Please consult the most recently issued data sheet before initiating or completing a design.

[2] The product status of the device(s) described in this data sheet may have changed since this data sheet was published. The latest information is available on the Internet at URL <http://www.semiconductors.philips.com>.

[3] For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

## Definitions

**Short-form specification** — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

**Limiting values definition** — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

**Application information** — Applications that are described herein for any of these products are for illustrative purposes only. Philips Semiconductors make no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

## Disclaimers

**Life support** — These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips Semiconductors customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips Semiconductors for any damages resulting from such application.

**Right to make changes** — Philips Semiconductors reserves the right to make changes in the products—including circuits, standard cells, and/or software—described or contained herein in order to improve design and/or performance. When the product is in full production (status 'Production'), relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN). Philips Semiconductors assumes no responsibility or liability for the use of any of these products, conveys no license or title under any patent, copyright, or mask work right to these products, and makes no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified.

## Contact information

For additional information please visit  
<http://www.semiconductors.philips.com>. Fax: +31 40 27 24825

© Koninklijke Philips Electronics N.V. 2003  
All rights reserved. Printed in U.S.A.

For sales offices addresses send e-mail to:  
[sales.addresses@www.semiconductors.philips.com](mailto:sales.addresses@www.semiconductors.philips.com)

Date of release: 03-03

Document order number: 9397 750 11244

*Let's make things better.*