



SSI

DM54/DM74LS122, 123, L123A, LS123 Dual One Shots

Electrical Characteristics over recommended operating free-air temperature range (unless otherwise noted)

Parameter		Conditions	DM54/74			DM54/74			DM54/74			Units
			123			L123A			LS122, LS123			
			Min	Typ (1)	Max	Min	Typ (1)	Max	Min	Typ (1)	Max	
V _{IH}	High Level Input Voltage		2			2			2			V
V _{IL}	Low Level Input Voltage				0.8			0.7			0.8	V
		DM54			0.8			0.8			0.8	V
		DM74			-1.5			N/A				V
V _I	Input Clamp Voltage	I _I = -12 mA						N/A			-1.5	V
		I _I = -18 mA						N/A			-400	μA
I _{OH}	High Level Output Current				-800			-200				μA
V _{OH}	High Level Output Voltage	V _{CC} = Min, I _{OH} = Max (3)	2.4	3.4		2.4	3.4		2.5	3.4		V
		DM54	2.4	3.4		2.4	3.4		2.7	3.4		V
		DM74										V
I _{OL}	Low Level Output Current				16			2.0			4	mA
		DM54			16			3.6			8	mA
		DM74										mA
V _{OL}	Low Level Output Voltage	I _{OL} = Max		0.2	0.4		0.22	0.3		0.25	0.4	V
		DM54		0.2	0.4			0.4		0.35	0.5	V
		DM74								0.25	0.4	V
I _I	Input Current at Maximum Input Voltage	V _{CC} = Max			1			0.1				mA
		V _I = 5.5 V										mA
		V _I = 7 V								0.1		mA
I _{IH}	High Level Input Current	V _I = 2.4 V			40			10				μA
	Data Inputs	V _I = 2.7 V									20	μA
	Clear Input	V _I = 2.4 V			80			10				μA
		V _I = 2.7 V									20	μA
I _{IL}	Low Level Input Current	V _{CC} = Max, V _I = 0.4 V			-1.6			-0.18			-0.4	mA
	Clear Input	V _{CC} = Max			-1.6			-0.18			-0.4	mA
I _{OS}	Short Circuit Output Current	V _{CC} = Max (2) (3)	-10		-40	-2.5		-12	-20		-100	mA
I _{CC}	Supply Current (Quiescent or Triggered)	V _{CC} = Max (4) (5) (6)								6	11	mA
		LS122		46	66		5	7.5		12	20	mA
		Others										mA

Switching Characteristics

 $V_{CC} = 5\text{ V}, T_A = 25^\circ\text{C}$

Parameter		From (Input)	To (Output)	DM54 / 74				DM54 / 74				DM54 / 74				Units	
				123				L 123A				LS122, LS123					
				Conditions	Min	Type	Max	Conditions	Min	Type	Max	Conditions	Min	Type	Max		
t _{PLH}	Propagation Delay Time, Low-to-High Level Output	A	Q			22	33	120	175			22	33	ns			
		B				19	28	86	135			29	44				
t _{PHL}	Propagation Delay Time, High-to-Low Level Output	A	$\bar{Q}$			30	40	120	180			30	45	ns			
		B				27	36	86	135			37	56				
t _{PHL}	Propagation Delay Time, High-to-Low Level Output	Clear	Q			18	27	45	65			18	27	ns			
t _{PLH}	Propagation Delay Time, Low-to-High Level Output		$\bar{Q}$				30	40	95	140			30	45			
t _{WQ(MIN)}	Minimum Width of Pulse at Output Q	A or B	Q			45	65	220	330			116	200	ns			
t _{WO}	Width of Pulse at Output Q	A or B	Q			3.08	3.42	3.76				CEXT = 1000 pF REXT = 10 k Ω C _L = 50 pF R _L = 4 k Ω	4	4.5	5	μ s	
t _W	Pulse Width	A or B Inputs High A or B Inputs Low Clear Low				40				130			40			ns	
							40				130			40			
							40				130			40			
R _{EXT}	External Timing Resistance					5		25		5		200	5		180	k Ω	
						5		50		5		400	5		260	k Ω	
C _{EXT}	External Capacitance					No Restriction						No Restriction					
C _{WIRE}	Wiring Capacitance at R _{EXT} / C _{EXT} Terminal							40							50	pF	
								50							50	pF	

Note 1: All typical values are at $V_{CC} = 5\text{ V}$, $T_A = 25^\circ\text{C}$.

Note 2: Not more than one output should be shorted at a time, and for DM54LS/74LS duration of short circuit should not exceed one second.

Note 2: Not more than one output should be shorted at a time, and for 0.0345/1425 duration of short circuit should not exceed one second.

Note 3: Ground R_{EXT}/C_{EXT} and Input A, apply 2.4 V to the B input to measure the following: V_{OH} or I_{QS} at the Q output or V_{OL} at the $\bar{Q}$ output.

Note 3: Ground $H_{EXT}^{(C)}$ and input A, apply 2.4 V to the B input to measure the following. V_{OH} at the Q output or V_{OL} at the Q output.

Note 4: Quiescent I_{CC} is measured (after clearing) with 2.4 V applied to all clear and A inputs, B inputs grounded, all outputs open, $C_{EXT} = 0.02 \mu F$, and $R_{EXT} = 25 k\Omega$.

Note 5: t_{CC} is measured in the triggered state with 2.4 V applied to all clear and B inputs. A inputs grounded, all outputs open, $C_{EXT} = 0.02 \mu F$, and $H_{EXT} = 25 k\Omega$.