

TD, FONCTIONS MONOSTABLE ET ASTABLE

1- Travail sur le composant 74123

- Documentation constructeur

DM54123/DM74123 Dual Retriggerable One-Shot with Clear and Complementary Outputs

Triggering Truth Table

Inputs			Response
A	B	CLR	
X	X	L	No Trigger
↘	L	X	No Trigger
↘	H	H	Trigger
H	↗	X	No Trigger
L	↗	H	Trigger
L	H	↗	Trigger

H = HIGH Voltage Level
 L = LOW Voltage Level
 X = Immaterial

3. The output pulse width (T_W) for $C_X > 1000$ pF is defined as follows:

$$T_W = K R_X C_X (1 + 0.7/R_X)$$

where [R_X is in Kilo-ohm]

[C_X is in pico Farad]

[T_W is in nano second]

[$K \approx 0.28$]

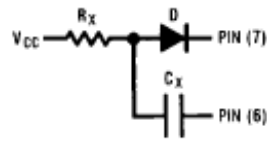
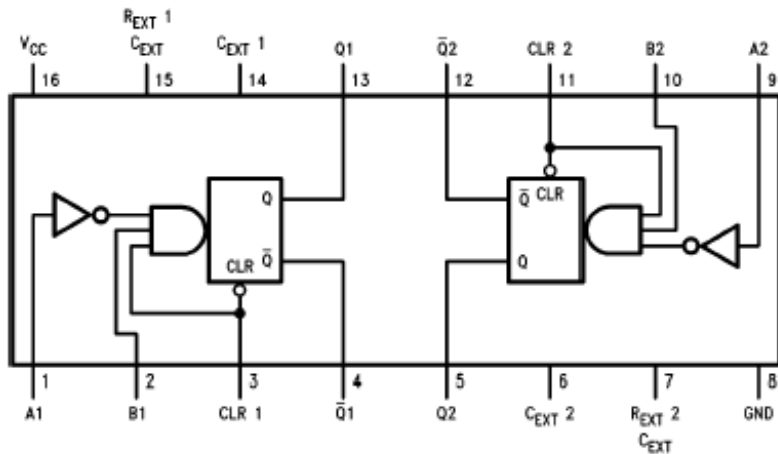


FIGURE 1

TL/F/6539-3

Dual-In-Line Package

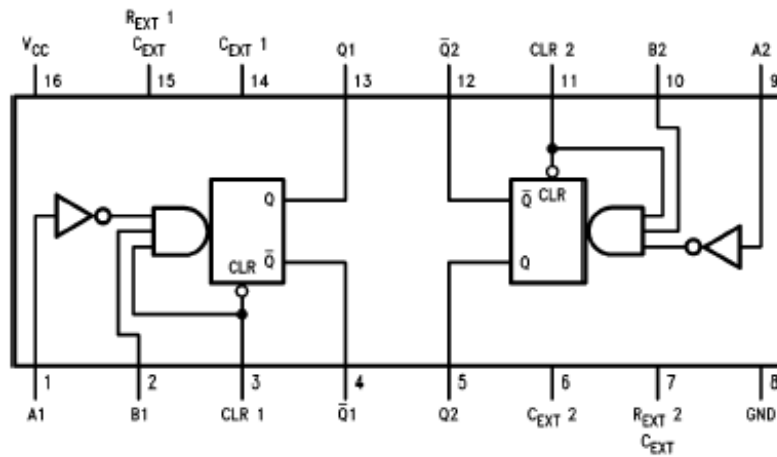


TL/F/6539-1

Order Number DM54123J-MIL, DM54123W-MIL or DM74123N
 See NS Package Number J16A, N16A or W16A

- **Caractériser** ci-dessous ce composant :

- On désire obtenir en sortie de ce composant une durée de l'état instable de 10ms déclenché sur front montant. **Etablir** ci-dessous le câblage complet permettant de valider ce cahier des charges.



2- Travail sur le composant LM555







- Vous avez sur [internet](#) la documentation constructeur du LM555. Le **caractériser** ci-dessous.

3- Travail sur le composant 4538





- Documentation constructeur

HEF4538B MSI Dual precision monostable multivibrator

FUNCTION TABLE

INPUTS			OUTPUTS	
\bar{I}_0	I_1	\bar{C}_D	O	\bar{O}
	L	H		
H		H		
X	X	L	L	H

Notes

- H = HIGH state (the more positive voltage)
L = LOW state (the less positive voltage)
X = state is immaterial
 = positive output pulse
 = negative output pulse
 = positive-going transition
 = negative-going transition

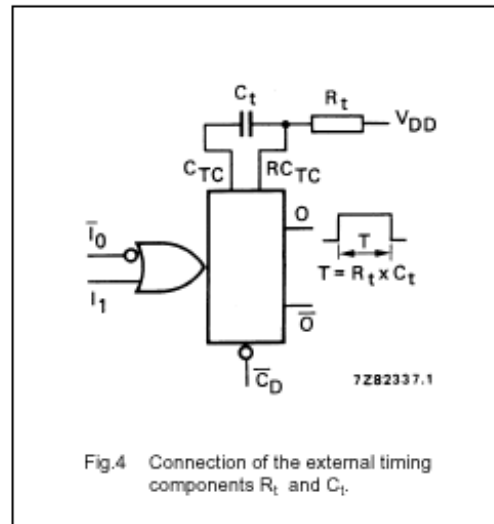
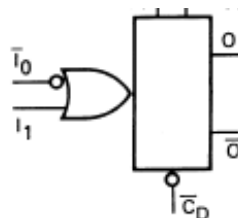


Fig.4 Connection of the external timing components R_t and C_t .

- **Caractériser** ci-dessous ce composant :

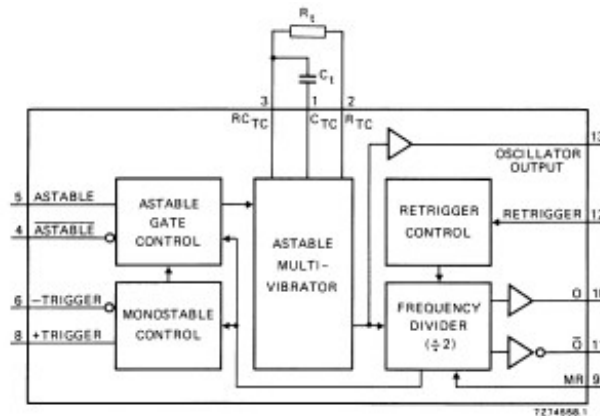
- On désire obtenir en sortie un état instable d'une durée de 0.5s déclenché sur front descendant, **compléter** le schéma ci-dessous :



4- Travail sur le composant 4047

- Documentation constructeur

HEF4047B MSI Monostable/astable multivibrator



FUNCTIONAL CONNECTIONS

FUNCTION	PINS CONNECTED TO			OUTPUT PULSE FROM PINS	OUTPUT PERIOD OR PULSE WIDTH
	V_{DD}	V_{SS}	INPUT PULSE		
astable multivibrator					
free running	4, 5, 6, 14	7, 8, 9, 12	—	10, 11, 13	at pins 10, 11: $t_A = 4,40 R_1 C_1$
true gating	4, 6, 14	7, 8, 9, 12	5	10, 11, 13	
complement gating	6, 14	5, 7, 8, 9, 12	4	10, 11, 13	at pin 13: $t_A = 2,20 R_1 C_1$
monostable multivibrator					
pos. edge-triggering	4, 14	5, 6, 7, 9, 12	8	10, 11	
neg. edge-triggering	4, 8, 14	5, 7, 9, 12	6	10, 11	
retriggerable	4, 14	5, 6, 7, 9	8, 12	10, 11	
external count down ⁽¹⁾	14	5, 6, 7, 8, 9, 12	—	10, 11	$t_M = 2,48 R_1 C_1$

- **Caractériser** ci-dessous ce composant :

- On désire obtenir en sortie de ce composant un signal rectangulaire de fréquence 100Hz, **faire** ci-contre le câblage approprié.

