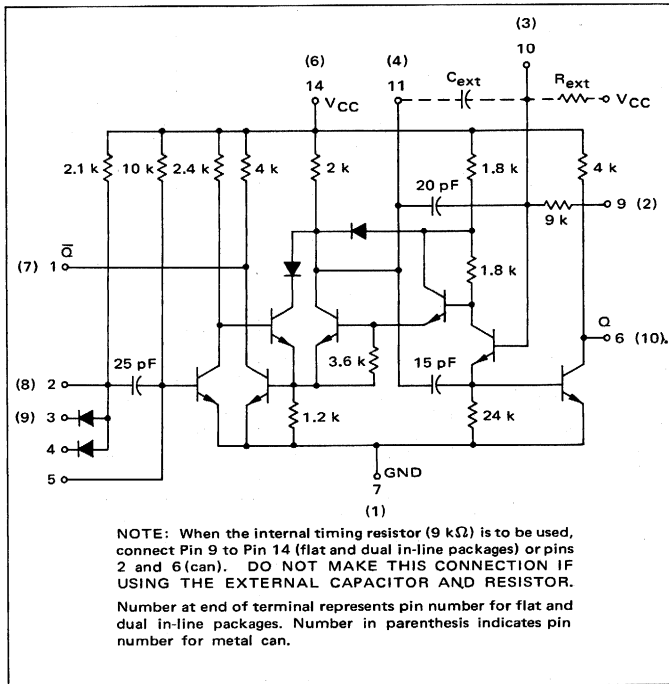


MONOSTABLE MULTIVIBRATOR

MDTL MC930/830 series

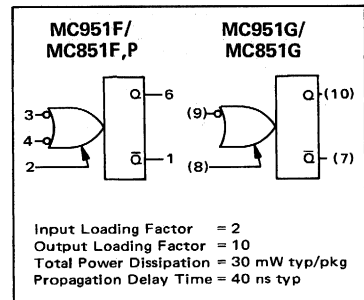
MC951F, G • MC851F, P, G



The MC951/MC851 is a monolithic monostable multivibrator circuit which gives complementary output pulses upon the dynamic zero transition of the input waveform. The output pulse width is determined by an R-C timing circuit and, due to differentiation of the input, is essentially independent of the input pulse width. With internal components, nominal pulse width is 100 ns.

Provisions are available to increase the pulse width by adding external capacitance and to increase pulse width stability by utilizing a precision external resistor in place of the internal charging resistor.

Typical applications include analog comparators, elimination of transients on pulse waveforms, and provision for delays to insure the proper sequence of digital operations in computer applications.



Maximum permissible current into Pin 9 (2) = 10 mA_{dc}.

APPLICATIONS INFORMATION

OUTPUT PULSE WIDTH

EXTERNAL COMPONENTS USED	INTERNAL RESISTOR CONNECTION	PULSE WIDTH ns (APPROX)
None	Pin 9 to V _{CC}	100
C _{ext} (between Pins 10 & 11)	Pin 9 to V _{CC}	4.5 (C _{ext} + 20)
R _{ext} (between Pin 10 & V _{CC}) (9 kΩ min, 15 kΩ max)	Pin 9 open	0.5 R _{ext} (C _{ext} + 20)

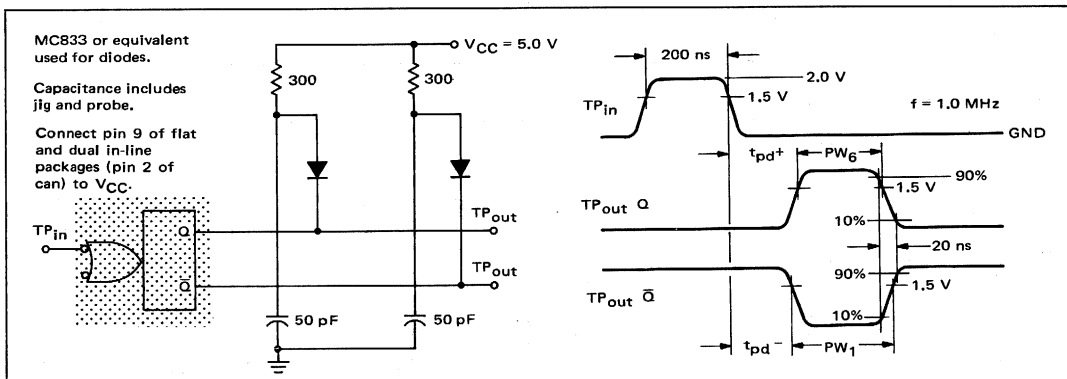
Capacitance values in pF, Resistance values in kΩ
Pin numbers shown for devices in flat and dual in-line packages.

MAXIMUM INPUT FALL TIME TO TRIGGER

t _f ns	VOLTAGE SWING VOLTS
25	1.0
50	2.0
100	4.0

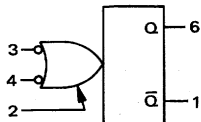
Output duty cycle ≤ 40%. Higher duty cycles obtainable at a possible decrease of performance.

SWITCHING TIME TEST CIRCUIT AND WAVEFORMS



ELECTRICAL CHARACTERISTICS

NOTE: Although the test conditions and test limits are the same for devices in ALL available packages, the table shows pin connections for testing only the flat and dual in-line packaged devices. To test devices in the metal can, substitute pin numbers shown in the conversion table below.



@ Test Temperature

MC951 { -55°C
+25°C
+125°C

MC851 { 0°C
+25°C
+75°C

TEST CURRENT / VOLTAGE VALUES							
mA		Volts					
I_{OL}	I_{OH}	V_F	V_R	V_{CC}	V_{CCL}	V_{CCH}	V_{max}
15.0	-0.18	0	4.00	-	4.50	5.50	-
15.0	-0.18	0	4.00	5.00	4.50	5.50	8.00
14.0	-0.18	0	4.00	-	4.50	5.50	-
15.0	-0.18	0.45	4.00	-	5.00	5.00	-
15.0	-0.18	0.45	4.00	5.00	5.00	5.00	8.00
14.0	-0.18	0.50	4.00	-	5.00	5.00	-

PACKAGE	PIN NUMBER													
Flat/Dual In-Line	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Metal Can	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Characteristic	Symbol	Pin Under Test	MC951 Test Limits						MC851 Test Limits						TEST CURRENT / VOLTAGE APPLIED TO PINS LISTED BELOW:								Gnd			
			-55°C		+25°C		+125°C		0°C		+25°C		+75°C		I_{OL}	I_{OH}	V_F	V_R	V_{CC}	V_{CCL}	V_{CCH}	V_{max}				
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max										Unit		
Output Voltage	V_{OL}	1 1 6	-	0.40	-	0.40	-	0.45	Vdc	-	0.45	-	0.45	-	0.50	Vdc	1 6	-	-	-	-	14 14 9,14	-	-	-	7,10 5,7 7
	V_{OH}	1 6	2.50 2.50	-	2.60 2.60	-	2.50 2.50	-	-	-	2.60 2.60	-	2.50 2.50	-	-	-	-	1 6	-	-	-	9,14 14	-	-	7 7,10	
Reverse Current	I_R	3 4	-	2.0	-	2.0	-	5.0	μ Adc	-	5.0	-	5.0	-	10	μ Adc	-	-	-	3	-	-	14	-	2,7 2,7	
Forward Current	$0.5 I_F$	2 11	-0.80 -0.80	-	-0.80 -0.80	-	-0.75 -0.75	-	mAdc	-0.70 -0.70	-	-0.70 -0.70	-	-0.67 -0.67	-	mAdc	-	-	2 10	-	-	-	14	-	7	
	$0.5 I_F / 2 I_F$	3 4	-0.80 -0.80	-3.20 -3.20	-0.80 -0.80	-3.20 -3.20	-0.75 -0.75	-3.00 -3.00	-	-0.70 -0.70	-2.80 -2.80	-0.70 -0.70	-2.80 -2.80	-0.67 -0.67	-2.67 -2.67	-	-	-	3 4	4 3	-	-	-	-	-	
	I_g	9	-	-	0.50	0.75	-	-	-	-	-	0.40	0.80	-	-	-	-	-	-	-	-	-	9,14	-	7,10	
Power Drain Current	I_{PDL}	9,14†	-	-	-	9.0	-	-	mAdc	-	-	-	12	-	-	mAdc	-	-	-	-	9,14	-	-	-	3,4,7	
	I_{max}	14	-	-	-	22	-	-	mAdc	-	-	-	25	-	-	mAdc	-	-	-	-	-	-	14	3,4,7		
Switching Times																										
	t_{pd+}	3, 6	-	-	-	50	-	-	ns	-	-	-	50	-	-	ns	Pulse In	Pulse Out	-	-	9,14	-	-	-	7	
	t_{pd-}	3, 1	-	-	-	50	-	-	-	-	-	50	-	-	-	-			-	-	-	-	-	-		
	PW_1	3, 1	-	-	90	220	-	-	-	-	-	90	220	-	-	-			-	-	-	-	-	-	-	
PW_6	3, 6	-	-	70	160	-	-	-	-	-	70	160	-	-	-			-	-	-	-	-	-	-		

Pins not listed are left open.

† I_{PDL} is measured at pins 9 and 14 simultaneously.