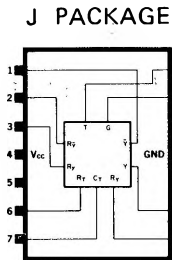
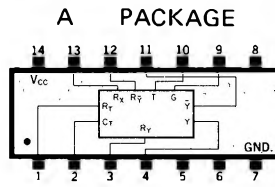


# 8162 MONOSTABLE MULTIVIBRATOR



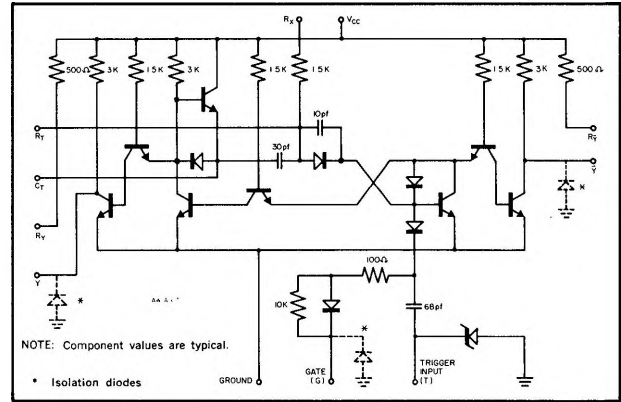
8162

The 8162 Monostable Multivibrator is intended for use in high-speed, low-power digital systems.

Among the features of this device are complementary buffered outputs, high noise immunity, excellent pulse width tolerance capability and high duty cycle (to 75%). The unit is very versatile in pulse-shaping and delay applications, and provides delays over the range of 80ns to 2 seconds by using appropriate external components. Complete isolation of the timing stage and the output stage allows very fast fall times, even at wide pulse widths. If the internal timing resistor ( $R_x$ ) is used, pulse width is approximately 1ms per microfarad of external capacitance.

Applications and usage information is provided in Section 4 of this handbook.

## BASIC CIRCUIT SCHEMATIC



## ELECTRICAL CHARACTERISTICS (NOTES: 1,2,3,4,5) STANDARD CONDITIONS: $R_x = V_{cc}$ , GATE = GROUND

ACCEPTANCE TEST SUB-GROUP	CHARACTERISTIC	LIMITS				TEST CONDITIONS							
		MIN.	TYP.	MAX.	UNITS	TEMP. S8162	TEMP. N8162	$V_{cc}$	$R_T$	TOGGLE INPUT	OUTPUT	NOTES	
A-5	"1" OUTPUT VOLTAGE (Y)	3.4			V	-55°C	0°C	4.75V	0V		-300µA	6	
A-3		3.6			V	+25°C	+25°C	5.00V	0V		-300µA	6	
A-4		3.4			V	+125°C	+75°C	4.75V	0V		-300µA	6	
A-5	"1" OUTPUT VOLTAGE ( $\bar{Y}$ )	3.4			V	-55°C	0°C	4.75V			-300µA	6	
A-3		3.6			V	+25°C	+25°C	5.00V			-300µA	6	
A-4		3.4			V	+125°C	+75°C	4.75V			-300µA	6	
A-5	"0" OUTPUT VOLTAGE (Y)		0.35		V	-55°C	0°C	4.75V			9.6mA	8	
A-3			0.35		V	+25°C	+25°C	5.00V			9.6mA	8	
A-4			0.40		V	+125°C	+75°C	4.75V			9.6mA	8	
C-1			0.35		V	-55°C	0°C	4.75V			1.6mA	8, 13	
A-5	"0" OUTPUT VOLTAGE ( $\bar{Y}$ )		0.35		V	-55°C	0°C	4.75V	0V		9.6mA	8	
A-3			0.35		V	+25°C	+25°C	5.00V	0V		9.6mA	8	
A-4			0.40		V	+125°C	+75°C	4.75V	0V		9.6mA	8	
C-1			0.35		V	-55°C	0°C	4.75V	0V		1.6mA	8, 13	
A-3	CLOCK INPUT "1" CURRENT			150	nA	+25°C	+25°C	5.00V		5.0V			
A-4				15	µA	+125°C	+75°C	5.25V		5.25V			
A-3	LOAD RESISTOR CURRENT ( $R_y$ )	-7.8		-12.3	mA	+25°C	+25°C	5.00V				12	
A-3	LOAD RESISTOR CURRENT ( $R_{\bar{y}}$ )	-7.8		-12.3	mA	+25°C	+25°C	5.00V				12	
A-3	TIMING RESISTOR CURRENT	-2.75		-4.2	mA	+25°C	+25°C	5.00V	0V				
A-2	OUTPUT "1" POWER DISSIPATION (Y)		100		mW	+25°C	+25°C	5.25V	0V				
A-2	OUTPUT "0" POWER DISSIPATION ( $\bar{Y}$ )		85		mW	+25°C	+25°C	5.25V					
C-2	EFFECTIVE TRIGGER INPUT CAPACITANCE		75		pf	+25°C	+25°C	5.00V		2.0V		7, 11	
A-6	TURN-OFF DELAY (Y)		60		ns	+25°C	+25°C	5.00V			D. C. F. O. = 1	9, 14	
A-6	TURN-ON DELAY ( $\bar{Y}$ )		45		ns	+25°C	+25°C	5.00V			D. C. F. O. = 12	9, 14	
A-6	OUTPUT PULSE WIDTH (Y)	25		80	ns	+25°C	+25°C	5.00V			D. C. F. O. = 12	9, 14	
A-6	OUTPUT PULSE WIDTH ( $\bar{Y}$ )	25		80	ns	+25°C	+25°C	5.00V			D. C. F. O. = 12	9, 14	
A-6	OUTPUT PULSE WIDTH (Y) WITH C EXTERNAL = 250pf	175			ns	+25°C	+25°C	5.00V			D. C. F. O. = 12	9, 14	
C-2	OUTPUT FALL TIME ( $\bar{Y}$ )		50		ns	-55°C	0°C	4.75V			A. C. F. O. = 3	10, 14	
A-2	OUTPUT SHORT CIRCUIT CURRENT (Y)	-1.25		-2.25	mA	+25°C	+25°C	5.00V	0V				
A-2	OUTPUT SHORT CIRCUIT CURRENT ( $\bar{Y}$ )	-1.25		-2.25	mA	+25°C	+25°C	5.00V					

### Notes:

- All voltage and capacitance measurements are referenced to the ground terminal. Terminals not specifically referenced are left electrically open.
- All measurements are taken with ground pin tied to zero volts.
- Positive current flow is defined as into the terminal referenced.
- Positive NAND Logic Definition: "UP" Level = "1", "DOWN" Level = "0".
- Precautionary measures should be taken to ensure current limiting in accordance with maximum ratings should the isolation diodes become forward biased.
- Output source current is supplied through a resistor to ground.
- Capacitance as measured on Bonton Electronic Corporation Model 75A-S8 Capacitance Bridge or equivalent.  $f = 1\text{MHz}$ ,  $V_{ac} = 25\text{mV}_{rms}$ . All pins not specifically referenced are tied to guard for capacitance tests. Output pins are left open.
- Output sink current is supplied through a resistor to  $V_{cc}$ .
- One DC fan-out is defined as 0.8mA.
- One AC fan-out is defined as 50pf.
- Due to input falling rate requirements, the trigger input represents two standard AC loads or 100pf.
- Tie resistor pins  $R_y$  and  $R_{\bar{y}}$  to zero volts.
- Tie resistor  $R_y$  and  $R_{\bar{y}}$  to Y and  $\bar{Y}$  respectively.
- Detailed test conditions for AC testing are in Section 3.