



# XR-8038A

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## ELECTRICAL CHARACTERISTICS

Test Conditions:  $V_S = \pm 5V$  to  $\pm 15V$ ,  $T_A = 25^\circ C$ ,  $R_L = 1M\Omega$ ,  $R_A = R_B = 10k\Omega$ ,  $C_1 = 3300pF$ ,  $S_1$  closed, unless otherwise specified.

PARAMETERS	8038AM/8038A			8038AC			UNITS	CONDITIONS
	MIN	TYP	MAX	MIN	TYP	MAX		
<b>GENERAL CHARACTERISTICS</b>								
Supply Voltage, $V_S$	10		30	10		30	V	$V_S = \pm 10V$ (Note 1)
Single Supply	$\pm 5$		$\pm 15$	$\pm 5$		$\pm 15$	V	
Dual Supplies		12	15		12	20	mA	
Supply Current								
<b>FREQUENCY CHARACTERISTICS (Measured at Pin 9)</b>								
Range of Adjustment	200			200			KHz	$R_A = R_B = 1.5k\Omega$ , $C_1 = 680pF$ $R_L = 10k\Omega$
Max. Operating Frequency							Hz	
Lowest Practical Frequency		0.001			0.001		Hz	$R_A = R_B = 1M\Omega$ , $C_1 = 500\mu F$ (Low Leakage Capacitor)
Max. Sweep Frequency of FM Input		100			100		kHz	
FM Sweep Range		1000:1			1000:1		%	$S_1$ Open (Notes 2 & 3)
FM Linearity 10:1 Ratio		0.1			0.2		%	$S_1$ Open (Note 3)
Range of Timing Resistors	0.5		1000	0.5		1000	$k\Omega$	Values of $R_A$ and $R_B$
Temperature Stability							ppm/ $^\circ C$	$T_A = -55^\circ C$ to $+125^\circ C$
XR-8038AM		50		—	—	—		
XR-8038A		50	100					
XR-8038AC					50			$T_A = 0^\circ C$ to $+70^\circ C$
Power Supply Stability		0.05			0.05		%/V	(Note 4)
<b>OUTPUT CHARACTERISTICS</b>								
Square-Wave								Measured at Pin 9
Amplitude (Peak-to-Peak)	0.9	0.98		0.9	0.98		$\times V_{SPLY}$	$R_L = 100k\Omega$
Saturation Voltage		0.2	0.4		0.2	0.5	V	$I_{sink} = 2mA$
Rise Time		100			100		nsec	$R_L = 4.7k\Omega$
Fall Time		40			40		nsec	$R_L = 4.7k\Omega$
Duty Cycle Adjustment	2		98	2		98	%	
Triangle/Sawtooth/Ramp								Measured at Pin 3.
Amplitude (Peak-to-Peak)	0.3	0.33		0.3	0.33		$\times V_{SPLY}$	$R_L = 100k\Omega$
Linearity		0.05			0.1		%	
Output Impedance		200			200		$\Omega$	$I_{OUT} = 5mA$
Sine-Wave Amplitude (Peak-to-Peak)	0.2	0.22		0.2	0.22		$\times V_{SPLY}$	$R_L = 100k\Omega$
Distortion		0.7	1.5		0.8	3	%	$R_L = 1M\Omega$ (Notes 5, 6 & 7)
Unadjusted		0.5			0.5		%	$R_L = 1M\Omega$ (Notes 5, 6 & 7)
Adjusted		0.5			0.3		%	
$\Delta THD/\Delta T$								

Note 1: Currents through  $R_A$  and  $R_B$  not included.

Note 2:  $V_{SUPPLY} = 20V$ .

Note 3: Apply sweep voltage at Pin 8.

$$V_{CC} - (1/3 V_{SUPPLY} - 2) \leq V_{PIN 8} \leq V_{CC}$$

$$V_{SUPPLY} = \text{Total Supply Voltage across the IC}$$

Note 4:  $10V \leq V_S \leq 30V$  or  $\pm 5V \leq V_S \leq 15V$ .

Note 5: Pin 12 open circuited (No. 82k $\Omega$  resistor as standard 8038).

Note 6: Triangle duty cycle set at 50%, use  $R_A$  and  $R_B$ .

Note 7: As  $R_L$  is decreased distortion will increase,  $R_L$  min = 50k $\Omega$ .