



**MOTOROLA**

**SEMICONDUCTORS**

P.O. BOX 20912 • PHOENIX, ARIZONA 85036

**MC3396P**

## Advance Information

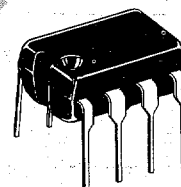
### DIVIDE BY 20 PRESCALER

The MC3396P is a fixed  $\div 20$  prescaler for use in frequency synthesizers and similar applications.

- 200 MHz (typ) Toggle Frequency
- Single 5.0 Volt Supply
- Buffered Clock Input
- 100 mV — 400 mV RMS Input Sensitivity
- Open Collector Saturating Output is Capable of Driving TTL and CMOS.

### DIVIDE BY 20 PRESCALER

SILICON MONOLITHIC  
INTEGRATED CIRCUIT



P SUFFIX  
PLASTIC PACKAGE  
CASE 626

FIGURE 1 — LOGIC DIAGRAM

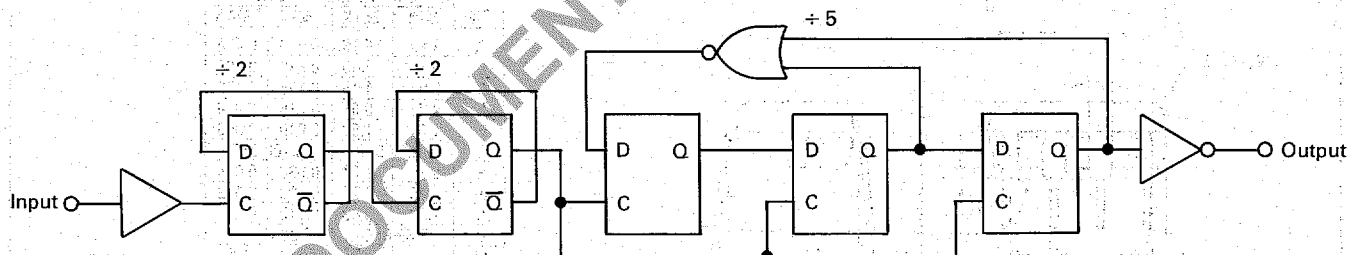
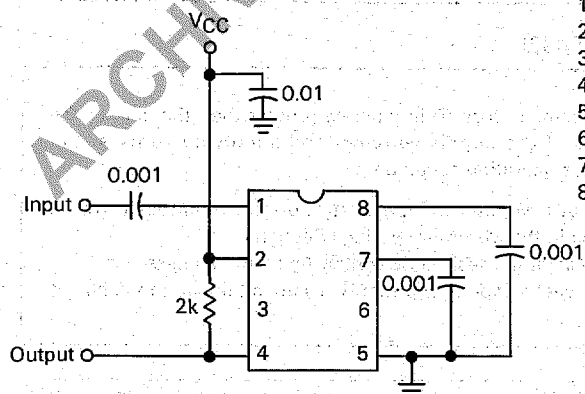


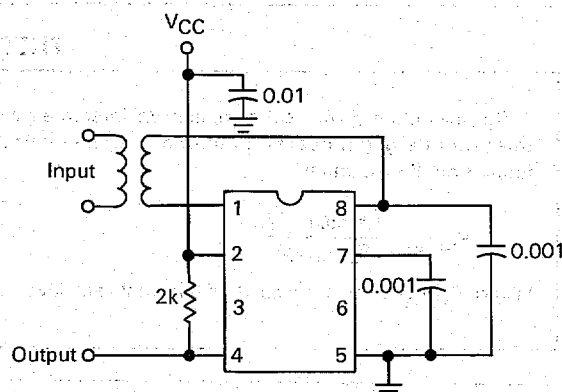
FIGURE 2 — CAPACITOR-COUPLED INPUT



PIN CONNECTIONS

1. Input
2. VCC
3. NC
4. Output
5. Ground
6. NC
7. Bias Decouple
8. Bias Decouple

FIGURE 3 — LINK-COUPLED INPUT



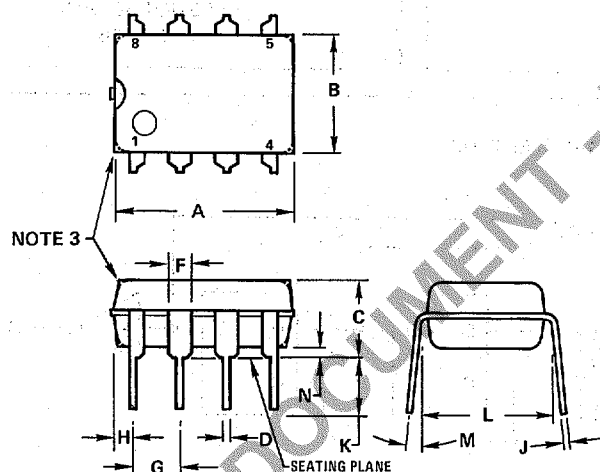
## MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Power Supply Voltage	$V_{CC}$	8.0	Vdc
Junction Temperature	$T_J$	150	°C
Operating Temperature Range	$T_A$	-40 to +85	°C
Storage Temperature Range	$T_{stg}$	-65 to +150	°C

ELECTRICAL CHARACTERISTICS (Unless otherwise noted  $V_{CC}=5$  Vdc,  $T_A=25^\circ\text{C}$ ,  $f_{in}=125$  MHz measured in the circuit of Figure 2)

Characteristic	Min	Typ	Max	Unit
Operating Power Supply Voltage Range	4.5	—	5.5	Vdc
Current Drain	—	30	—	mA
Operating Input Voltage Range	100	—	400	mV(rms)
Input Impedance: Real Part	—	600	—	Ohms
Capacitance	—	6.0	—	pF
Output Voltage	3.0	4.5	—	V <sub>p-p</sub>
Thermal Resistance — $\theta_{JA}$	—	100	—	°C/W

## OUTLINE DIMENSIONS



NOTES:  
1. LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.

2. DIM "L" TO CENTER OF LEADS WHEN FORMED PARALLEL.  
3. PACKAGE CONTOUR OPTIONAL (ROUND OR SQUARE CORNERS)

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.40	10.16	0.370	0.400
B	6.10	6.60	0.240	0.260
C	3.94	4.45	0.155	0.175
D	0.38	0.51	0.015	0.020
F	1.02	1.52	0.040	0.060
G	2.54 BSC		0.100 BSC	
H	0.76	1.27	0.030	0.050
J	0.20	0.30	0.008	0.012
K	2.92	3.43	0.115	0.135
L	7.62 BSC		0.300 BSC	
M	10°		10°	
N	0.51	0.76	0.020	0.030

CASE 626

## THERMAL INFORMATION

The maximum power consumption an integrated circuit can tolerate at a given operating ambient temperature, can be found from the equation:

$$P_{D(T_A)} = \frac{T_{J(max)} - T_A}{R_{\theta JA(Typ)}}$$

Where  $P_{D(T_A)}$  = Power Dissipation allowable at a given operating

ambient temperature. This must be greater than the sum of the products of the supply voltages and supply currents at the worst case operating condition.

$T_{J(max)}$  = Maximum Operating Junction Temperature as listed in the Maximum Ratings Section

$T_A$  = Maximum Desired Operating Ambient Temperature

$R_{\theta JA(Typ)}$  = Typical Thermal Resistance Junction to Ambient

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