



ON Semiconductor

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- Supply Voltage 4.5 to 5.5 V
- Low Power 3.7 mA Typical at  $V_{CC} = 5.0$  V
- Operating Temperature Range of  $-40$  to  $85^{\circ}\text{C}$
- These Devices are Pb-Free and are RoHS Compliant

**Table 1. MAXIMUM RATINGS**

Rating	Symbol	Value	Unit
Power Supply Voltage, Pin 2	$V_{CC}$	0.5 to 7.0	Vdc
Operating Temperature Range	$T_A$	40 to 85	$^{\circ}\text{C}$
Storage Temperature Range	$T_{stg}$	65 to 150	$^{\circ}\text{C}$
Maximum Output Current, Pin 4	$I_O$	10	mA

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

**Table 2. ATTRIBUTES**

Characteristics	Value
ESD Protection	Human Body Model Machine Model > 1500 V > 100 V
Moisture Sensitivity, Indefinite Time Out of Drypack (Note 1)	Level 1
Flammability Rating	Oxygen Index: 28 to 34 UL 94 V 0 @ 0.125 in
Meets or exceeds JEDEC Spec EIA/JESD78 IC Latchup Test	

1. For additional information, see Application Note AND8003/D.

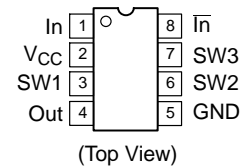
**MARKING DIAGRAM**



- A = Assembly Location
- L = Wafer Lot
- Y = Year
- W = Work Week
- = Pb Free Package

on page 3 of th

**PIN CONNECTIONS**



**FUNCTION TABLE**

SW1	SW2	SW3	Divide Ratio
L	L	L	80
L	L	H	40
L	H	L	40
L			20

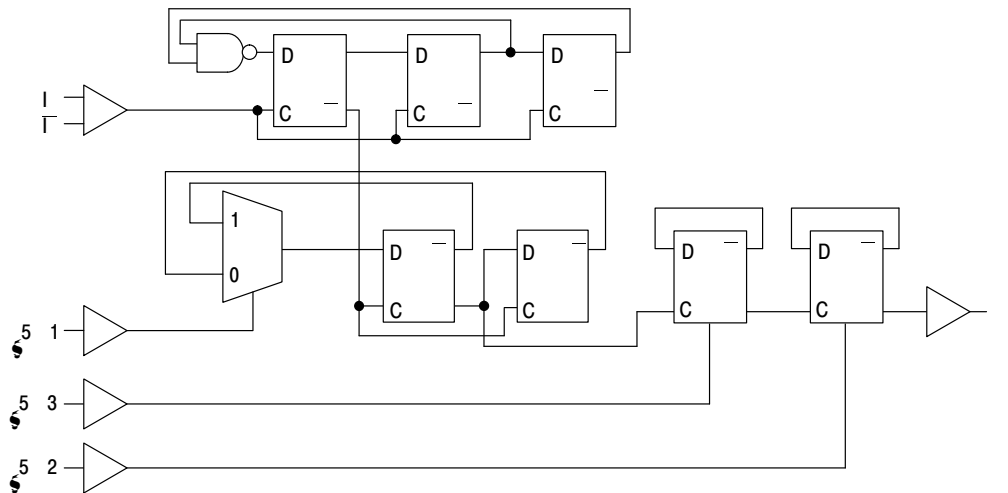
**ORDERING INFORMATION**

# MC12080

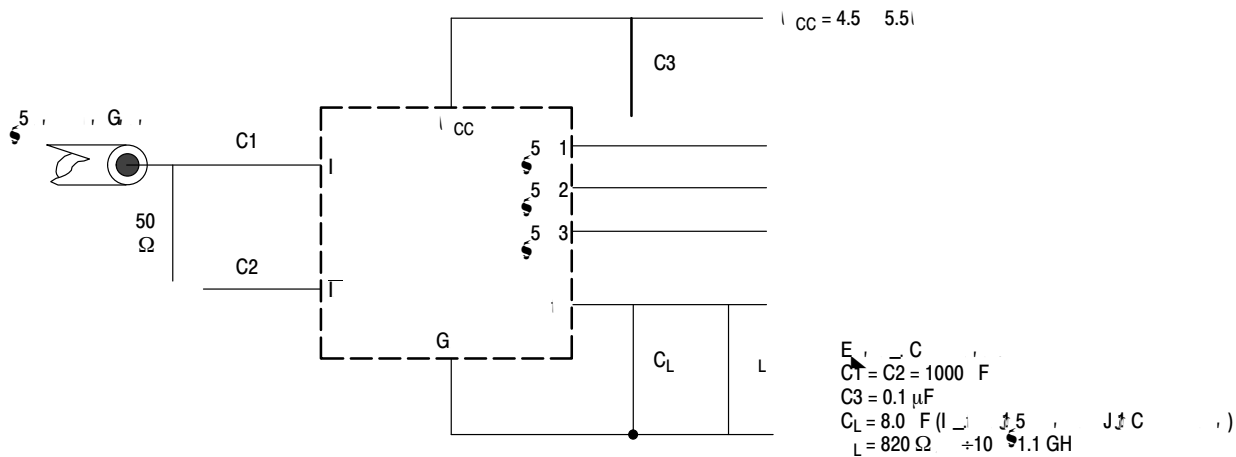
**Table 3. ELECTRICAL CHARACTERISTICS** ( $V_{CC} = 4.5$  to  $5.5$  V;  $T_A = 40$  to  $85^\circ\text{C}$ , unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
Toggle Frequency (Sine Wave)	ft	0.1	1.4	1.1	GHz
Supply Current Output (Pin 2)	$I_{CC}$		3.7	5.0	mA
Input Voltage Sensitivity 100 to 250 MHz 250 to 1100 MHz	$V_{in}$	400 100		1000 1000	mVpp
Divide Ratio Control Input High (SW1, SW2, SW3)	$V_{IH}$	$V_{CC} - 0.5$ V	$V_{CC}$	$V_{CC} + 0.5$ V	V
Divide Ratio Control Input Low (SW1, SW2, SW3)	$V_{IL}$	Open	Open	Open	
Output Voltage Swing (Note 1) $R_L = 820 \Omega$ , $I_O = 4.0$ mA for $\pm 10$ $R_L = 1.6$ k $\Omega$ , $I_O = 2.1$ mA for $\pm 20$ $R_L = 3.3$ k $\Omega$ , $I_O = 1.1$ mA for $\pm 40$ $R_L = 6.2$ k $\Omega$ , $I_O = 0.57$ mA for $\pm 80$	$V_{out}$	0.8	1.2		$V_{pp}$

1. Assumes 8.0 pF load and 1.1 GHz input frequency (typical),  $I_O$  at  $V_{CC} = 5.0$  V and  $T_A = 25^\circ\text{C}$ .



**Figure 1. Logic Diagram**



**Figure 2. AC Test Circuit**



-X-

- - - -

⊕ 0. (0.010) ○ ○

-Y-

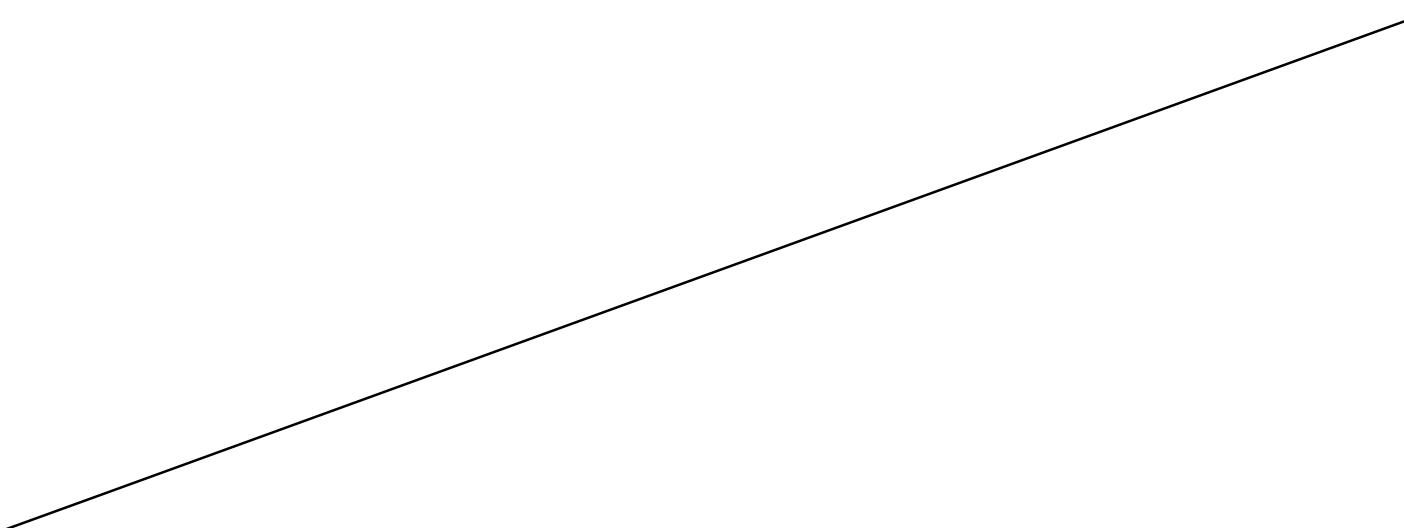
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G

-Z-

C	1.35	1.75	0.053	0.069
D	0.33	0.51	0.013	0.020
G	1.27 BSC		0.050 BSC	
H	0.10	0.25	0.004	0.010
J	0.19	0.25	0.007	0.010
K	0.40	1.27	0.016	0.050
M	0	8	0	8
N	0.25	0.50	0.010	0.020
S	5.80	6.20	0.228	0.244

0. (0.010) ○ 101100 1.000 0.1 1011. 100 0001.1 1001 1 0( )01.1 100111.1.100000 5.80 6.20 0.228 0.244 1.0 0 1000 0. )





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