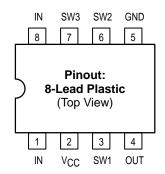
1.1GHz Prescaler

The MC12080 is a single modulus divide by 10, 20, 40, 80 prescaler for low power frequency division of a 1.1GHz high frequency input signal. Divide ratio control inputs SW1, SW2 and SW3 select the required divide ratio of \div 10, \div 20, \div 40, or \div 80.

An external load resistor is required to terminate the output. A 820Ω resistor is recommended to achieve a $1.2V_{pp}$ output swing, when dividing a 1.1GHz input signal by the minimum divide by ratio of 10, assuming a 8pF load. Output current can be minimized dependent on conditions such as output frequency, capacitive load being driven, and output voltage swing required. Typical values for load resistors are included in the V_{out} specification for various divide ratios at 1.1GHz input frequency.

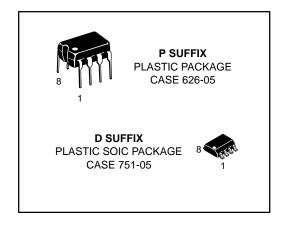
- 1.1GHz Toggle Frequency
- Supply Voltage 4.5V to 5.5V
- Low Power 3.7mA Typical at V_{CC} = 5.0V
- Operating Temperature Range of –40°C to +85°C



MC12080

MECL PLL COMPONENTS

÷10/20/40/80 PRESCALER



MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
VCC	Power Supply Voltage, Pin 2	−0.5 to +7.0	VDC
TA	Operating Temperature Range	-40 to +85	°C
T _{stg}	Storage Temperature Range	-65 to +150	°C
IO	Maximum Output Current, Pin 4	10	mA

ELECTRICAL CHARACTERISTICS ($V_{CC} = 4.5 \text{ to } 5.5 \text{V}$; $T_A = -40 \text{ to } +85 ^{\circ}\text{C}$)

Symbol	Parameter	Min	Тур	Max	Unit
ft	Toggle Frequency (Sine Wave)	0.1	1.4	1.1	GHz
Icc	Supply Current Output (Pin 2)	_	3.7	5.0	mA
V _{in}	Input Voltage Sensitivity 100–250MHz 250–1100MHz	400 100	_ _	1000 1000	mV _{PP}
VIH	Divide Ratio Control Input High (SW1, SW2, SW3)	V _{CC} – 0.5V	VCC	V _{CC} + 0.5V	V
V _{IL}	Divide Ratio Control Input Low (SW1, SW2, SW3)	Open	Open	Open	_
V _{out}	Output Voltage Swing $R_L = 820\Omega, I_O = 4.0 \text{mA for } \div 10$ $R_L = 1.6 \text{k}\Omega, I_O = 2.1 \text{mA for } \div 20$ $R_L = 3.3 \text{k}\Omega, I_O = 1.1 \text{mA for } \div 40$ $R_L = 6.2 \text{k}\Omega, I_O = 0.57 \text{mA for } \div 80$	0.8	1.2	-	VPP

¹ Assumes 8pF load and 1.1GHz input frequency (typical), I_O at V_{CC} = 5.0V and T_A = 25°C

MOTOROLA

REV 1

FUNCTION TABLE

SW1	SW2	SW3	Divide Ratio
L	L	L	80
L	L	Н	40
L	Н	L	40
L	Н	Н	20
Н	L	L	40
Н	L	Н	20
Н	Н	L	20
Н	Н	Н	10

NOTE: For SW1, SW2 and SW3: $H = V_{CC}$; L = Open

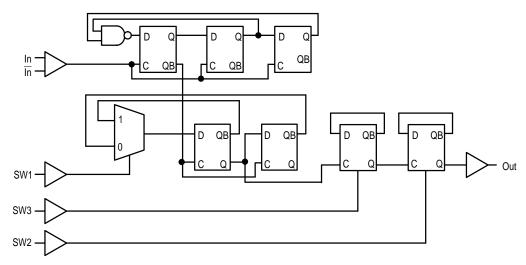


Figure 1. Logic Diagram (MC12080)

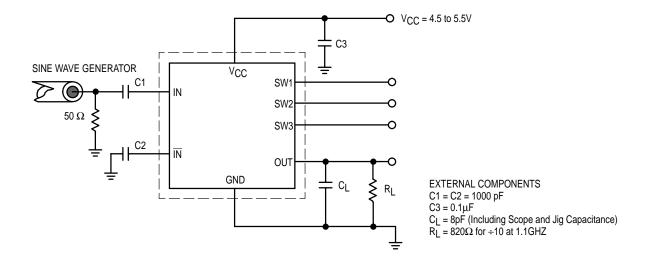


Figure 2. AC Test Circuit

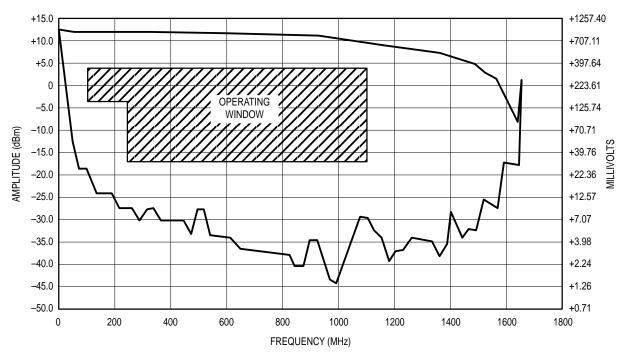


Figure 3. Input Signal Amplitude versus Input Frequency Divide Ratio = 10; V_{CC} = 5.0V; T_A = 25°C

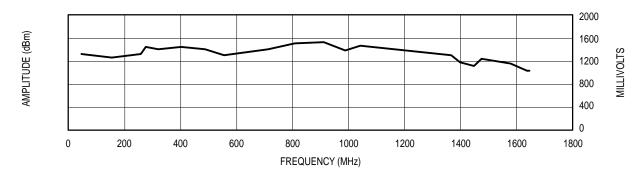
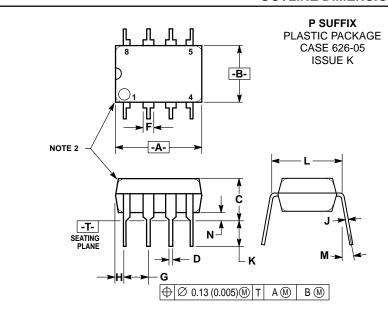


Figure 4. Output Amplitude versus Input Frequency

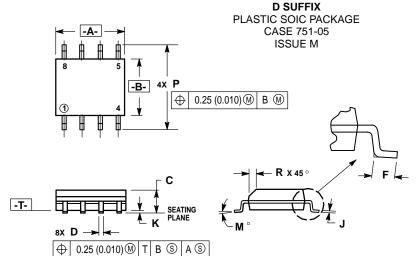
OUTLINE DIMENSIONS



NOTES:

- 1. DIMENSION L TO CENTER OF LEAD WHEN FORMED PARALLEL
- PACKAGE CONTOUR OPTIONAL (ROUND OR
- SQUARE CORNERS).
 DIMENSIONING AND TOLERANCING PER ANSI

	MILLIMETERS		INCHES		
DIM	MIN	MAX	MIN	MAX	
Α	9.40	10.16	0.370	0.400	
В	6.10	6.60	0.240	0.260	
С	3.94	4.45	0.155	0.175	
D	0.38	0.51	0.015	0.020	
F	1.02	1.78	0.040	0.070	
G	2.54 BSC		0.100 BSC		
Н	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	0.76	1.01	0.030	0.040	



NOTES:

- 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- CONTROLLING DIMENSION: MILLIMETER
- DIMENSIONS A AND B DO NOT INCLUDE MOLD PROTRUSION. 4. MAXIMUM MOLD PROTRUSION 0.15 (0.006)
- 5. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 (0.005) TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION

	MILLIMETERS		INCHES		
DIM	MIN	MAX	MIN	MAX	
Α	4.80	5.00	0.189	0.196	
В	3.80	4.00	0.150	0.157	
С	1.35	1.75	0.054	0.068	
D	0.35	0.49	0.014	0.019	
F	0.40	1.25	0.016	0.049	
G	1.27 BSC		0.050 BSC		
J	0.18	0.25	0.007	0.009	
K	0.10	0.25	0.004	0.009	
М	0°	7°	0°	7°	
Р	5.80	6.20	0.229	0.244	
R	0.25	0.50	0.010	0.019	

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