

1.1GHz Dual Modulus Prescaler

The MC12026 is a high frequency, low voltage dual modulus prescaler used in phase-locked loop (PLL) applications.

The MC12026A can be used with CMOS synthesizers requiring positive edges to trigger internal counters such as Motorola's MC145xxx series in a PLL to provide tuning signals up to 1.1GHz in programmable frequency steps.

The MC12026B can be used with CMOS synthesizers requiring negative edges to trigger internal counters.

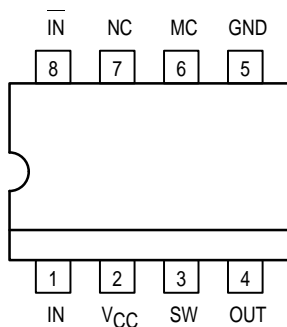
A Divide Ratio Control (SW) permits selection of an 8/9 or 16/17 divide ratio as desired.

The Modulus Control (MC) selects the proper divide number after SW has been biased to select the desired divide ratio.

NOTE: The "B" Version Is Not Recommended for New Designs

- 1.1GHz Toggle Frequency
- Supply Voltage 4.5V to 5.5V
- Low Power 4.0mA Typical
- Operating Temperature Range of -40°C to +85°C
- The MC12026 is Pin Compatible With the MC12022
- Short Setup Time (t_{set}) 6ns Typical @ 1.1GHz
- Modulus Control Input Level is Compatible With Standard CMOS and TTL

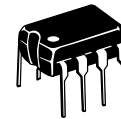
Pinout: 8-Lead Plastic (Top View)



MC12026A MC12026B

MECL PLL COMPONENTS

$\div 8/9, \div 16/17$
DUAL MODULUS PRESCALER



P SUFFIX
8-LEAD PLASTIC PACKAGE
CASE 626-05



D SUFFIX
8-LEAD PLASTIC SOIC PACKAGE
CASE 751-05

FUNCTION TABLE

SW	MC	Divide Ratio
H	H	8
H	L	9
L	H	16
L	L	17

Note: SW: H = V_{CC} , L = OPEN
MC: H = 2.0V to V_{CC} ; L = GND to 0.8V

MAXIMUM RATINGS

Symbol	Characteristic	Range	Unit
V_{CC}	Power Supply Voltage, Pin 2	-0.5 to +7.0	Vdc
T_A	Operating Temperature Range	-40 to +85	°C
T_{stg}	Storage Temperature Range	-65 to +150	°C
MC	Modulus Control Input, Pin 6	-0.5 to +6.5	Vdc
I_O	Maximum Output Current, Pin 4	10.0	mA



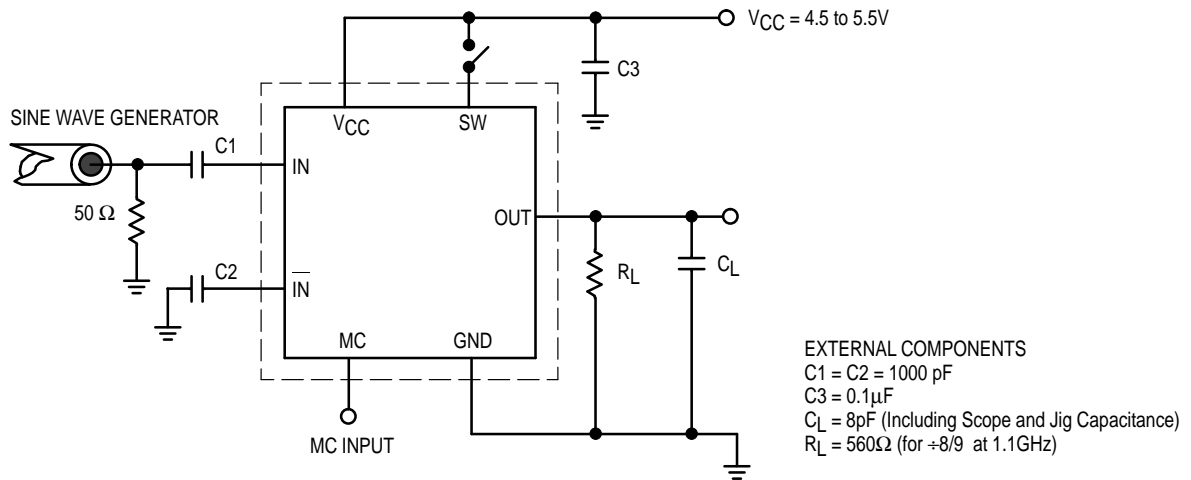


Figure 3. AC Test Circuit

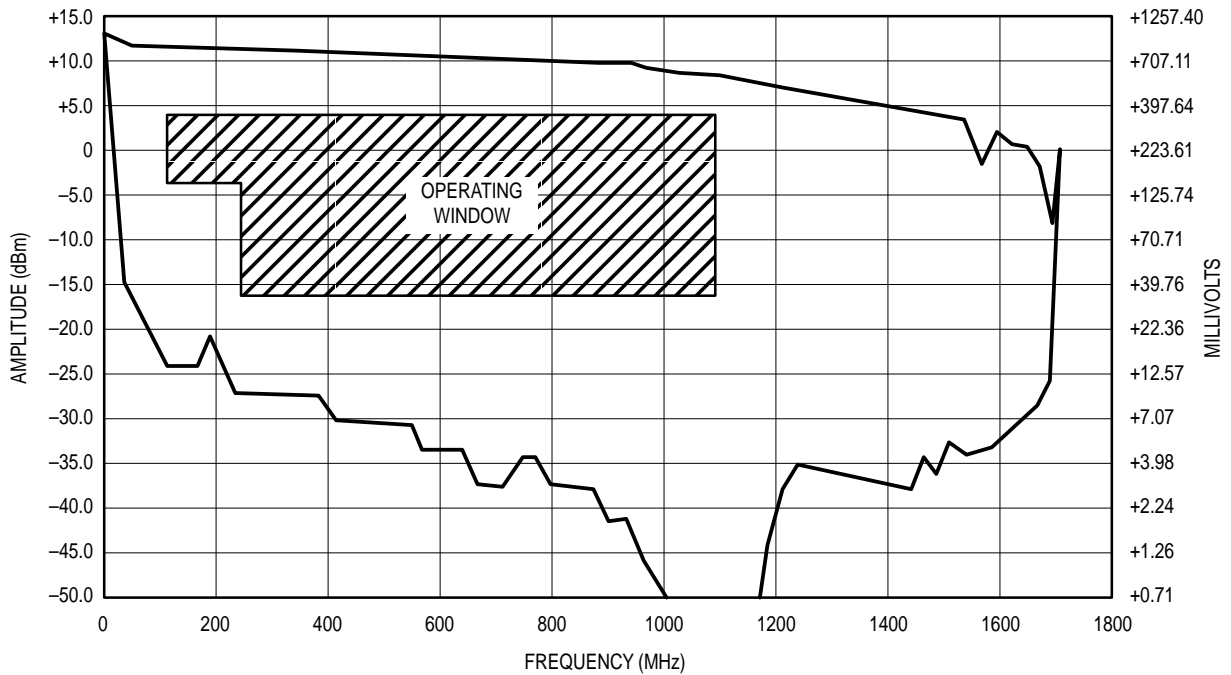


Figure 4. Input Signal Amplitude versus Input Frequency
 Divide Ratio = 8; VCC = 5.0V; TA = 25°C

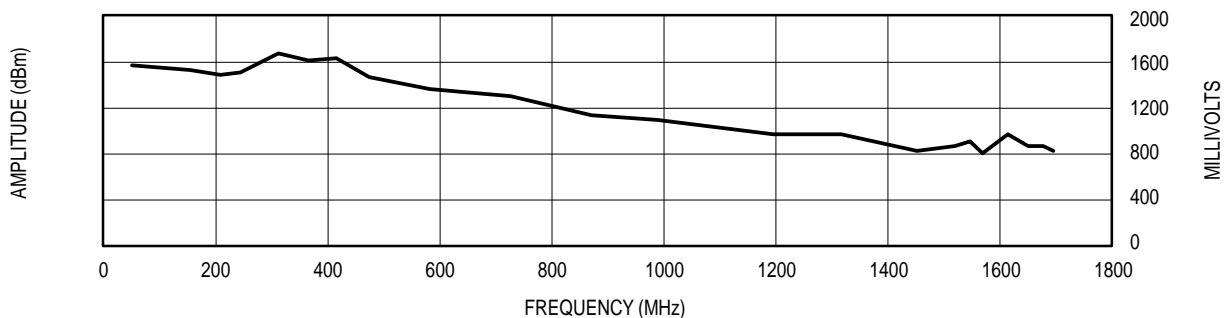


Figure 5. Output Amplitude versus Input Frequency

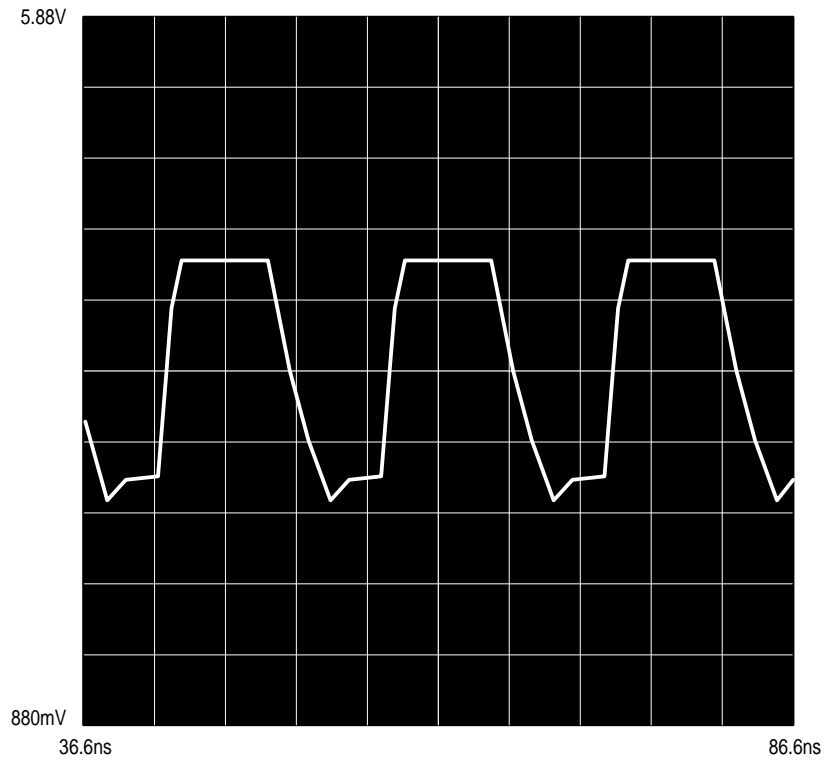


Figure 6. Typical Output Waveform
(±8, 1.1GHz Input Frequency, $V_{CC} = 5.0$, $T_A = 25^\circ\text{C}$, Output Loaded With 8pF)

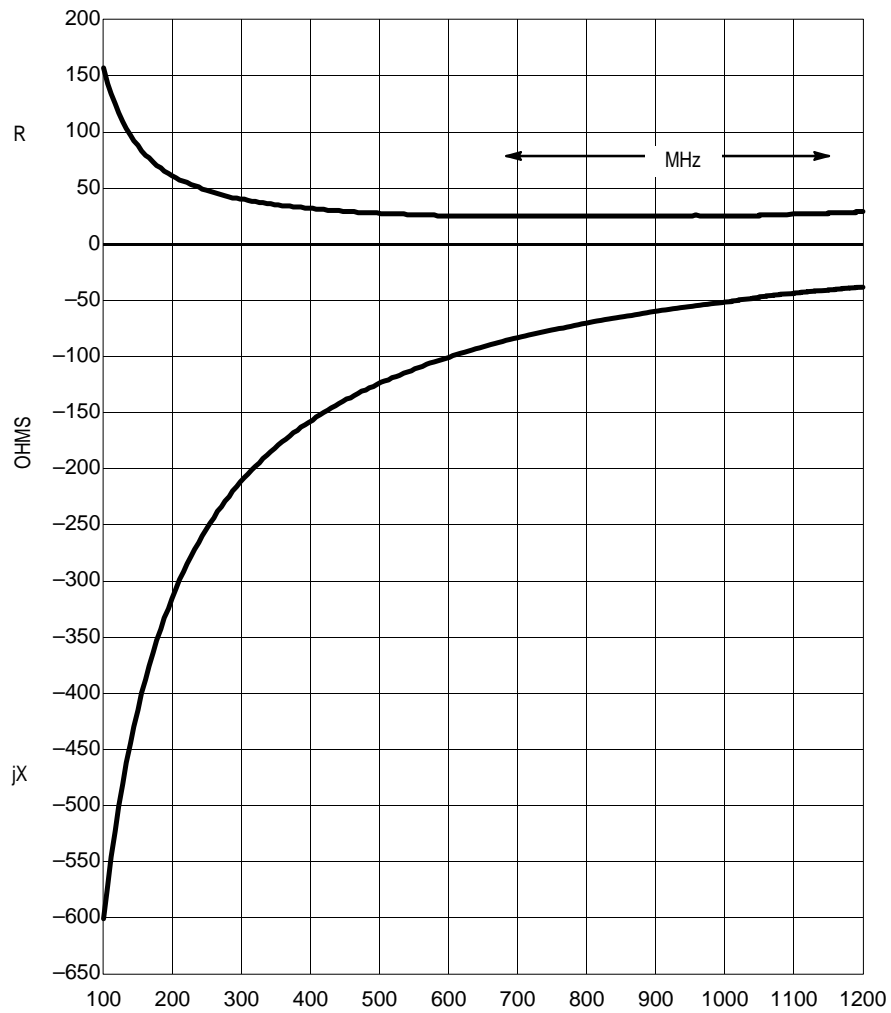


Figure 7. Typical Input Impedance versus Input Frequency

OUTLINE DIMENSIONS

P SUFFIX
PLASTIC PACKAGE
CASE 626-05
ISSUE K

NOTE 2

SEATING PLANE

⊕ ∅ 0.13 (0.005) Ⓜ T A Ⓜ B Ⓜ

NOTES:
1. DIMENSION L TO CENTER OF LEAD WHEN FORMED PARALLEL.
2. PACKAGE CONTOUR OPTIONAL (ROUND OR SQUARE CORNERS).
3. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.

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	1.78	0.040	0.070
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	0.76	1.01	0.030	0.040

D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751-05
ISSUE R

⊕ 0.25 Ⓜ B Ⓜ

SEATING PLANE

⊕ 0.10

⊕ 0.25 Ⓜ C B Ⓢ A Ⓢ

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. DIMENSIONS ARE IN MILLIMETERS.
3. DIMENSION D AND E DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15 PER SIDE.
5. DIMENSION B DOES NOT INCLUDE MOLD PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 TOTAL IN EXCESS OF THE B DIMENSION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS	
	MIN	MAX
A	1.35	1.75
A1	0.10	0.25
B	0.35	0.49
C	0.18	0.25
D	4.80	5.00
E	3.80	4.00
e	1.27 BSC	
H	5.80	6.20
h	0.25	0.50
L	0.40	1.25
θ	0° 7°	

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