

1.1GHz Prescaler

The MC12074 is a divide by 256 prescaler. Typical frequency synthesis applications include electronically tuned TV/CATV and communication systems as well as instrumentation.

An internal preamplifier is included which isolates the differential inputs and provides gain for the input signal. Differential ECL outputs are provided.

- 1.1GHz Toggle Frequency
- Operating Supply Voltage of 4.5 to 5.5V
- Low-Power 23mA Typical at $V_{CC} = 5.0V$
- High Input Sensitivity, $20mV_{rms}$ at $V_{CC} = 5.0 \pm 10\%$, $T_A = 0^\circ C$ to $+70^\circ C$
- 800mV Minimum Peak-to-Peak Output Swing
- Differential ECL Outputs

MAXIMUM RATINGS

Symbol	Characteristic	Range	Unit
V_{CC}	Power Supply Voltage	7.0	Vdc
T_A	Operating Temperature Range	0 to +70	$^\circ C$
T_{stg}	Storage Temperature Range	-65 to +175	$^\circ C$

ELECTRICAL CHARACTERISTICS ($V_{CC} = 4.5$ to $5.5V$; $T_A = 0$ to $+70^\circ C$)

Symbol	Characteristic	Min	Typ*	Max	Unit
f_{max}^1 f_{min}	Toggle Frequency (Sine Wave Input)	1.1	1.3	90	GHz MHz
I_{CC}	Supply Current at 5.5V		23	30	mA
V_{out}	Output Voltage (Load = 10pF)	0.8	1.2		V_{pp}
$V_{in min}$	Input Voltage Sensitivity 150–1100MHz 90MHz		10	20 30	mV_{rms}
$V_{in max}$	Input Overload	200	400		mV_{rms}

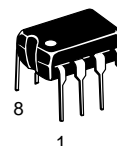
* Typical measured at $+25^\circ C$, 5.0V

¹ See Figure 1

MC12074

MECL PLL COMPONENTS

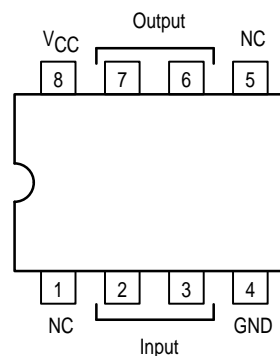
**$\div 256$
PRESCALER**



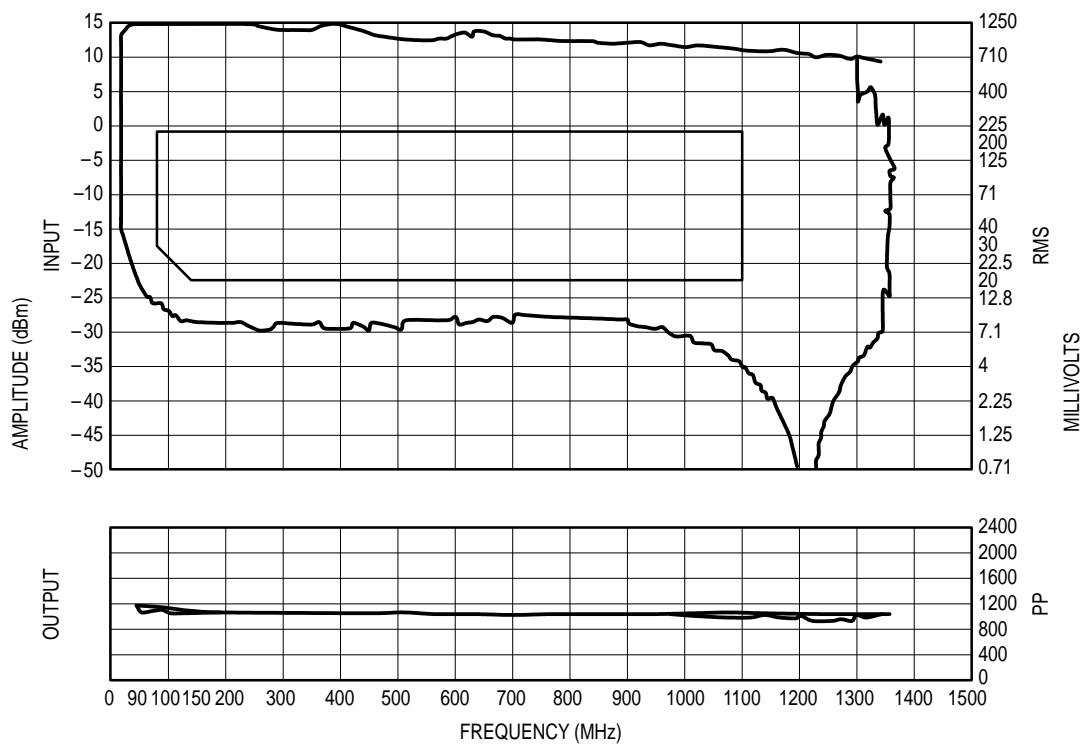
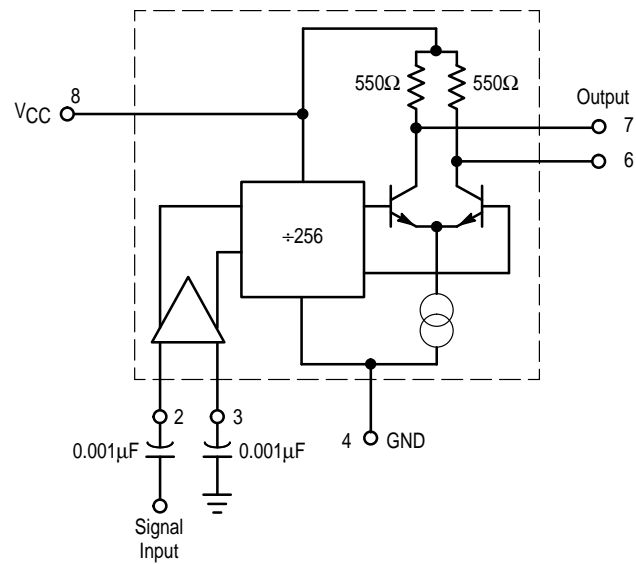
P SUFFIX
PLASTIC PACKAGE
CASE 626-05

D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751-04

Pinout: 8-Lead Plastic (Top View)

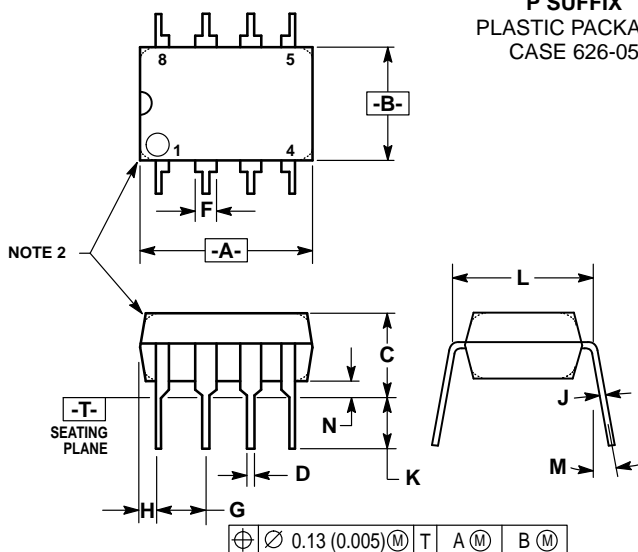


PRESCALER BLOCK DIAGRAM

**Figure 1. Divide Ratio = 256**

(Maximum Toggle Frequency: Min = 1357, Mean = 1357, Max = 1357
 Temp = 25°C, V_{CC} = 5.0V, Number of Devices = 1)

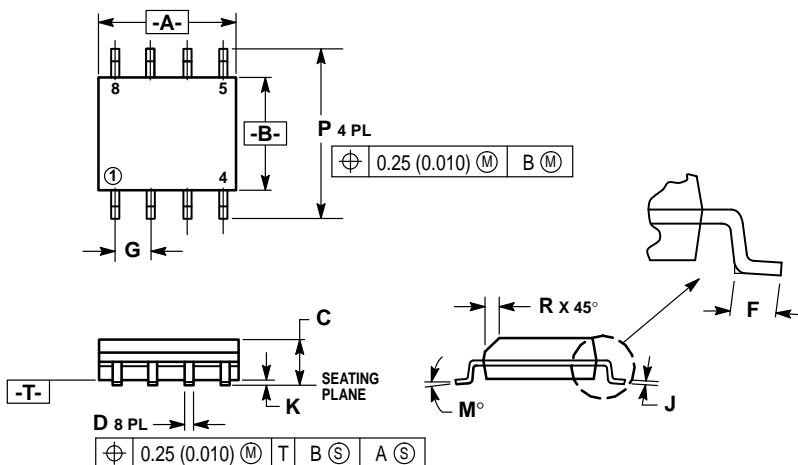
OUTLINE DIMENSIONS

P SUFFIX
 PLASTIC PACKAGE
 CASE 626-05


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 751-04


NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIM: MILLIMETER.
3. DIMENSIONS A AND B ARE DATUMS AND T IS A DATUM SURFACE.
4. DIMENSION A AND B DO NOT INCLUDE MOLD PROTRUSION.
5. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
6. 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.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.80	5.00	0.189	0.196
B	3.80	4.00	0.150	0.157
C	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
M	0°	7°	0°	7°
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019

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