

1.3GHz Prescaler

The MC12076 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 PECL outputs are provided.

- 1.3GHz Toggle Frequency
- Operating Supply Voltage of 4.5 to 5.5V
- Low-Power 36mA Typical at $V_{CC} = 5.0V$
- Operating Temperature Range of 0°C to +85°C
- High Input Sensitivity
- 800mV Minimum Peak-to-Peak Output Swing
- Differential PECL Outputs

DESIGN GUIDE

Criteria	Value	Unit
Internal Gate Count*	62	ea
Internal Gate Propagation Delay	250	ps
Internal Gate Power Dissipation	10	mW
Speed Power Product	2.5	pJ

* Equivalent to a two-input NAND gate

MAXIMUM RATINGS

Symbol	Characteristic	Range	Unit
V_{CC}	Power Supply Voltage	7.0	Vdc
T_A	Operating Temperature Range	0 to +85	°C
T_{stg}	Storage Temperature Range	-65 to +175	°C

ELECTRICAL CHARACTERISTICS ($V_{CC} = 4.5$ to $5.5V$; $T_A = 0$ to $+85^\circ C$)

Symbol	Characteristic	Min	Typ*	Max	Unit
f_{max}^1	Toggle Frequency	1.3	1.6		GHz
f_{min}	(Sine Wave Input)			70	MHz
I_{CC}	Supply Current at 5.5V		36	50	mA
V_{out}	Output Voltage (Load = 10pF)	0.8	1.2		V_{PP}
$V_{in min}$	Input Voltage		10	20	mV_{rms}
	Sensitivity		1.0	4.0	
	70MHz		1.5	15	
	150-1100MHz		3.0	20	
	1.2GHz				
	1.3GHz				
$V_{in max}$	Input Overload	400			mV_{rms}

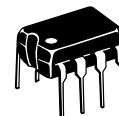
* Typical measured at +25°C, 5.0V

1. See Figure 1

MC12076

MECL PLL COMPONENTS

÷256
PRESCALER

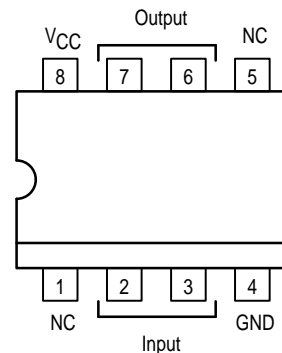


P SUFFIX
8-LEAD PLASTIC PACKAGE
CASE 626-05



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

Pinout: 8-Lead Plastic (Top View)



PRESCALER BLOCK DIAGRAM

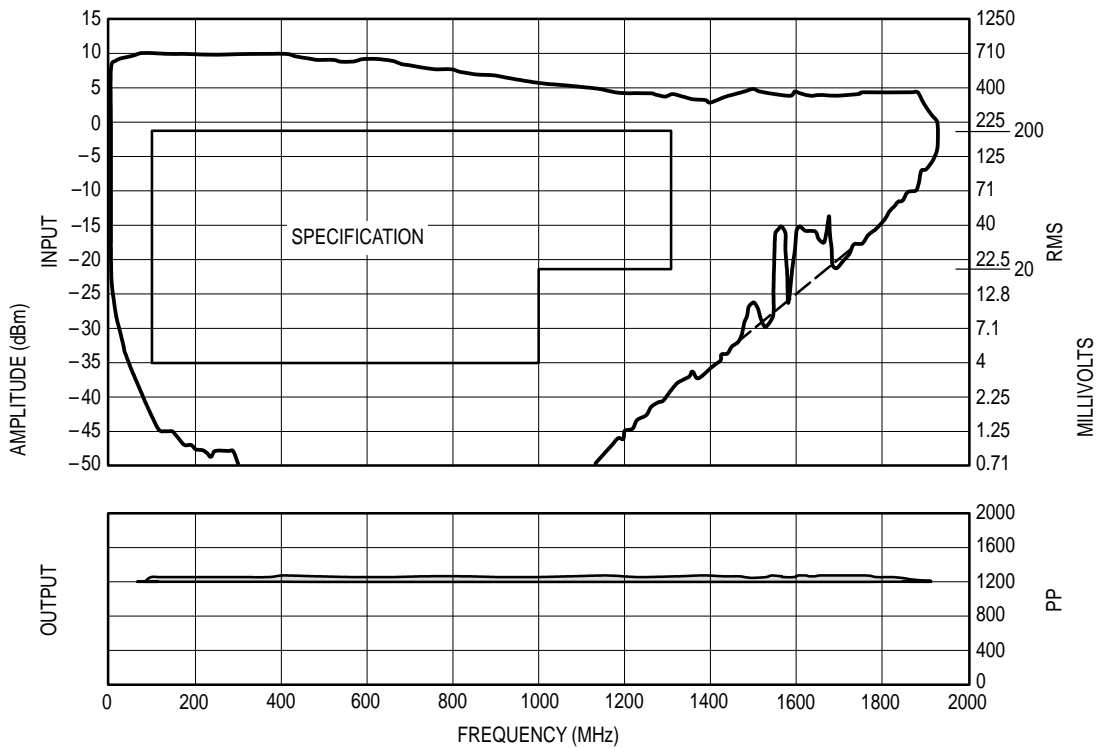
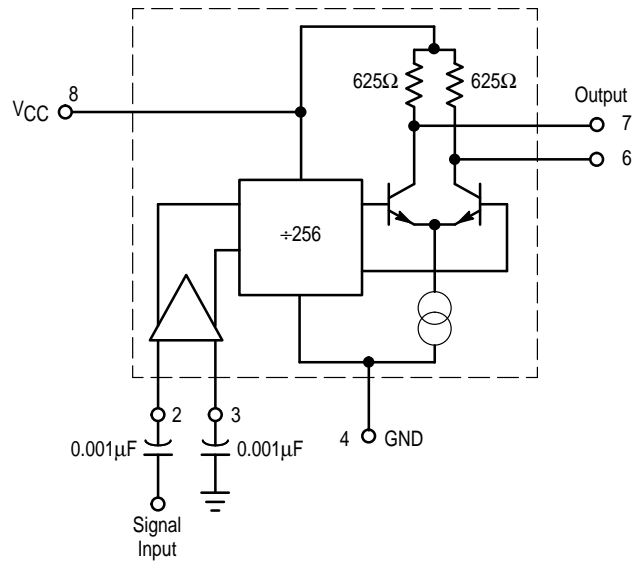


Figure 1. MC12076 Input Signal Amplitude versus Input Frequency

