



Consider MC12093 for New Designs

1.1 GHz Prescaler With Stand-By Mode

The MC12083 is a ± 2 prescaler for low power frequency division of a 1.1 GHz high frequency input signal. On-chip output termination provides output current to drive a 2.0 pF (typical) high impedance load. If additional drive is required for the prescaler output, an external resistor can be added parallel from the OUT Pin to Gnd to increase the output power. Care must be taken not to exceed the maximum allowable current through the output.

Stand-By mode is featured to reduce current drain to 250 μ A typical when the stand-by pin SB is switched LOW disabling the prescaler.

- 1.1 GHz Toggle Frequency
- Supply Voltage 2.7 to 5.5 V
- Low Power 4.5 mA Typical at $V_{CC} = 2.7$ V
- Operating Temperature -40 to 85°C
- On-Chip Termination

MAXIMUM RATINGS

Characteristic	Symbol	Range	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

NOTE: ESD data available upon request.

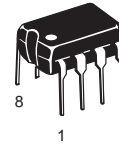
MC12083

MECL PLL COMPONENTS ± 2 PRESCALER WITH STAND-BY MODE

SEMICONDUCTOR TECHNICAL DATA

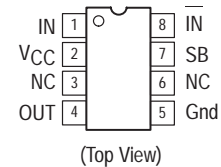


D SUFFIX
PLASTIC PACKAGE
CASE 751
(SO-8)



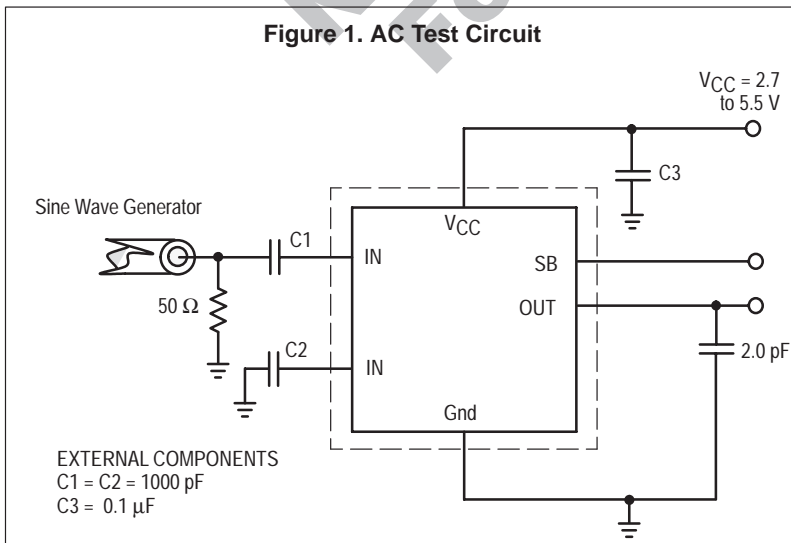
P SUFFIX
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CASE 626

PIN CONNECTIONS



A LOW on the Stand-By Pin 7 disables the device.

Figure 1. AC Test Circuit



ORDERING INFORMATION

Device	Operating Temperature Range	Package
MC12083D	$T_A = -40^{\circ}$ to $+85^{\circ}\text{C}$	SO-8
MC12083P		Plastic

LIFETIME BUY

Not Recommended For New Designs

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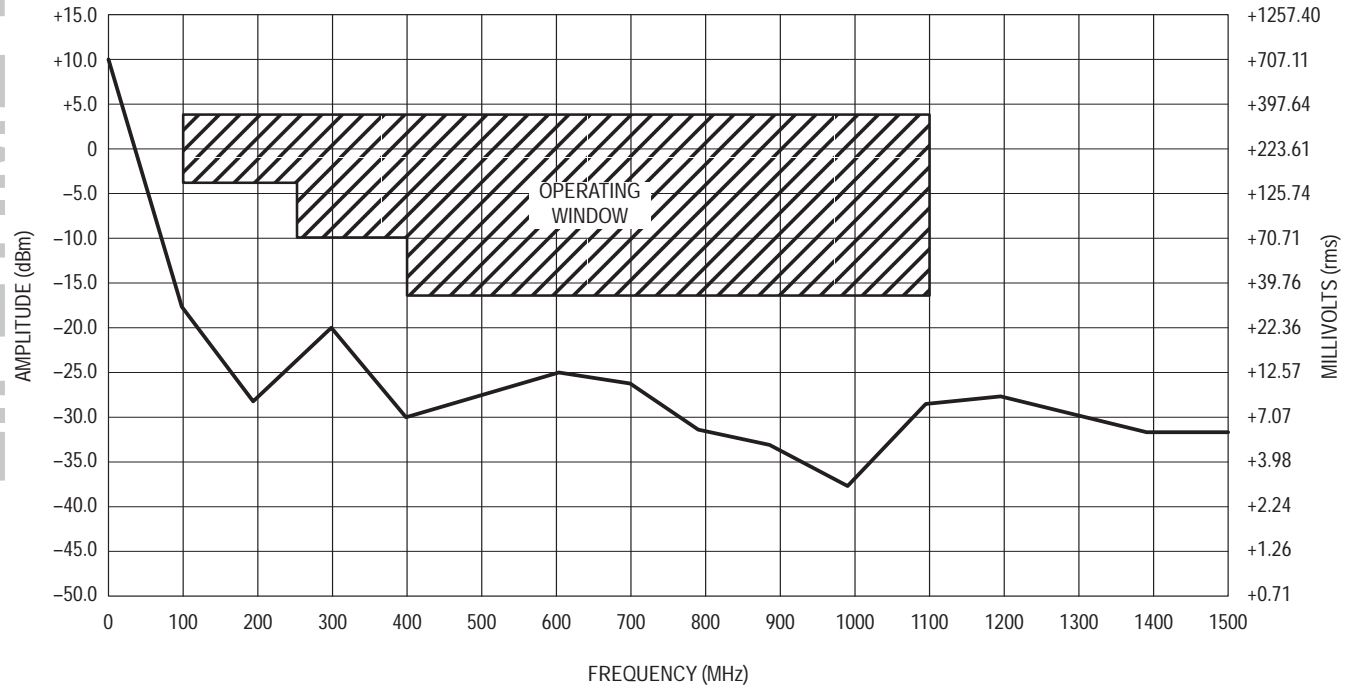
MC12083

ELECTRICAL CHARACTERISTICS ($V_{CC} = 2.7$ to 5.5 V; $T_A = -40$ to 85°C , unless otherwise noted.)

Parameter	Symbol	Min	Typ	Max	Unit
Toggle Frequency (Sine Wave)	ft	0.1	1.4	1.1	GHz
Supply Current Output (Pin 2)	I_{CC}	–	4.4	6.5	mA
			$V_{CC} = 3.0$ V		
			$V_{CC} = 5.5$ V		
Standby Current	ISB	–	250	350	μA
			$V_{CC} = 3.0$ V		
			$V_{CC} = 5.5$ V		
Standby Input HIGH (SB)	V_{IH}	2.0	–	V_{CC}	V
Standby Input LOW (SB)	V_{IL}	Gnd	–	0.8	V
Output Voltage Swing (Note 1)	V_{OUT}				mVpp
		2.0 pF Load @ 500 MHz Input	700	800	–
		2.0 pF Load @ 750 MHz Input	600	700	–
		2.0 pF Load @ 1100 MHz Input	400	450	–
Input Voltage Sensitivity	V_{IN}				mVpp
		100–250 MHz	400		1000
		250–400 MHz	200		1000
		400–1100 MHz	100		1000

NOTE: 1. Assume 2.0 pF load, $V_{CC} = 2.7$ V, V_{IN} = minimum specification for each frequency band, $T_A = 85^\circ\text{C}$

Figure 2. Input Signal Amplitude versus Input Frequency



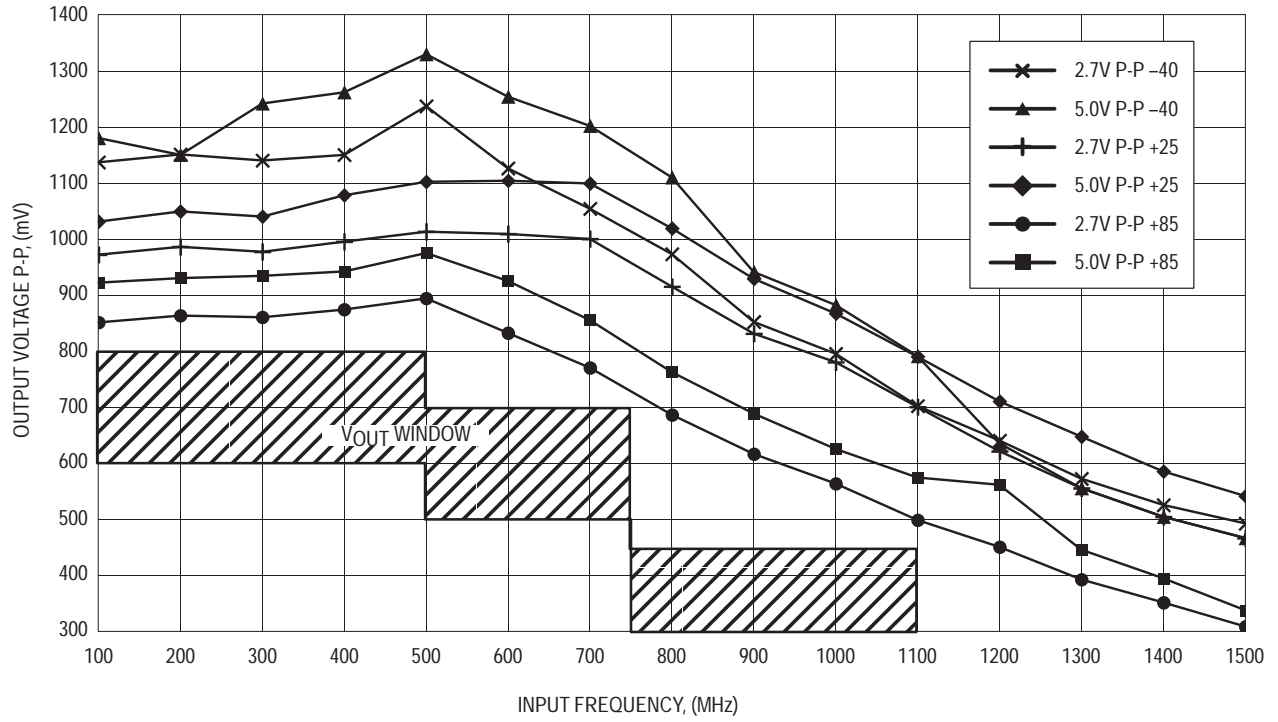
Divide Ratio = 2; $V_{CC} = 2.7$ V; $T_A = 25^\circ\text{C}$; Output Loaded With 2.0 pF

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Figure 3. 12083 Output Peak-to-Peak at 2.0 pF Load



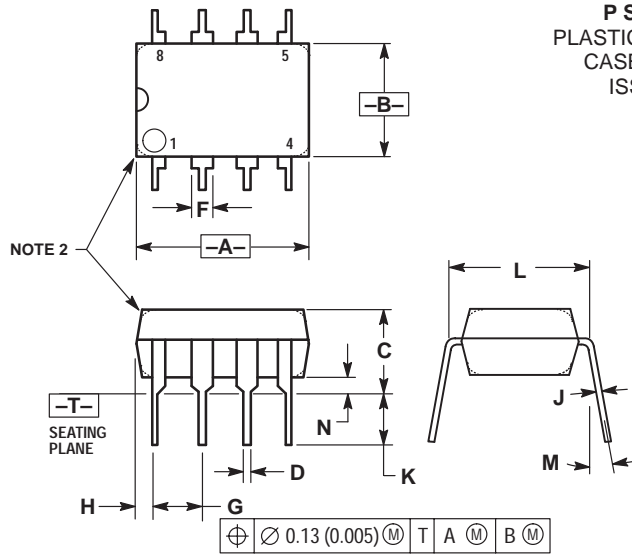
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OUTLINE DIMENSIONS

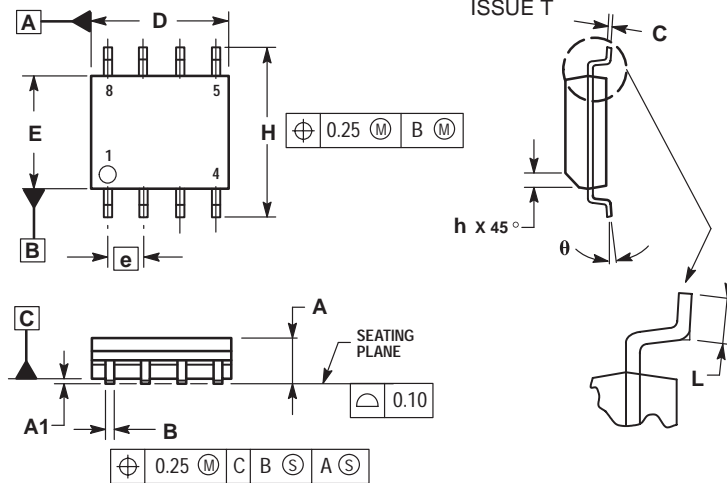
P SUFFIX
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CASE 626-05
ISSUE K



- 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 PACKAGE
CASE 751-06
(SO-8)
ISSUE T



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
 2. DIMENSIONS ARE IN MILLIMETER.
 3. DIMENSION D AND E DO NOT INCLUDE MOLD PROTRUSION.
 4. MAXIMUM MOLD PROTRUSION 0.15 PER SIDE.
 5. DIMENSION B DOES NOT INCLUDE DAMBAR 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	0.19	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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