

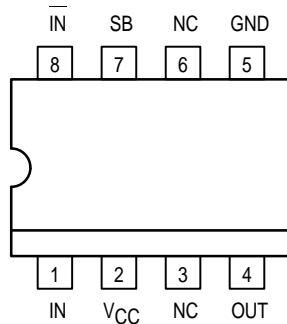
1.1GHz Prescaler With Stand-By Mode

The MC12083 is a ÷2 prescaler for low power frequency division of a 1.1GHz high frequency input signal. On-chip output termination provides output current to drive a 2pF (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 250µA typical when the stand-by pin SB is switched LOW disabling the prescaler.

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

Pinout: 8-Lead Plastic (Top View)

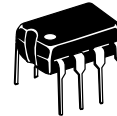


A LOW on the Stand-By Pin 7 disables the device.

MC12083

MECL PLL COMPONENTS

÷2
PRESCALER
WITH STAND-BY MODE



P SUFFIX
8-LEAD PLASTIC PACKAGE
CASE 626-05



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

MAXIMUM RATINGS

Symbol	Parameter	Value	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
I_O	Maximum Output Current, Pin 4	10.0	mA



ELECTRICAL CHARACTERISTICS ($V_{CC} = 2.7$ to $5.5V$; $T_A = -40$ to $+85^\circ C$)

Symbol	Parameter	Min	Typ	Max	Unit
f_t	Toggle Frequency (Sine Wave)	0.1	1.4	1.1	GHz
I_{CC}	Supply Current Output (Pin 2) $V_{CC} = 3.0V$ $V_{CC} = 5.5V$		4.4 4.8	6.5 6.5	mA
I_{SB}	Standby Current $V_{CC} = 3.0V$ $V_{CC} = 5.5V$		250 500	350 600	μA
V_{IH}	Standby Input HIGH (SB)	2.0		V_{CC}	V
V_{IL}	Standby Input LOW (SB)	GND		0.8	V
V_{OUT}	Output Voltage Swing (Note 1.) 2pF Load @ 500MHz Input 2pF Load @ 750MHz Input 2pF Load @ 1100MHz Input	700 600 400	800 700 450		mV _{PP}
V_{IN}	Input Voltage Sensitivity 100–250MHz 250–400MHz 400–1100MHz	400 200 100		1000 1000 1000	mV _{PP}

1. Assume 2pF load, $V_{CC} = 2.7V$, V_{IN} = minimum specification for each frequency band, $T_A = 85^\circ C$

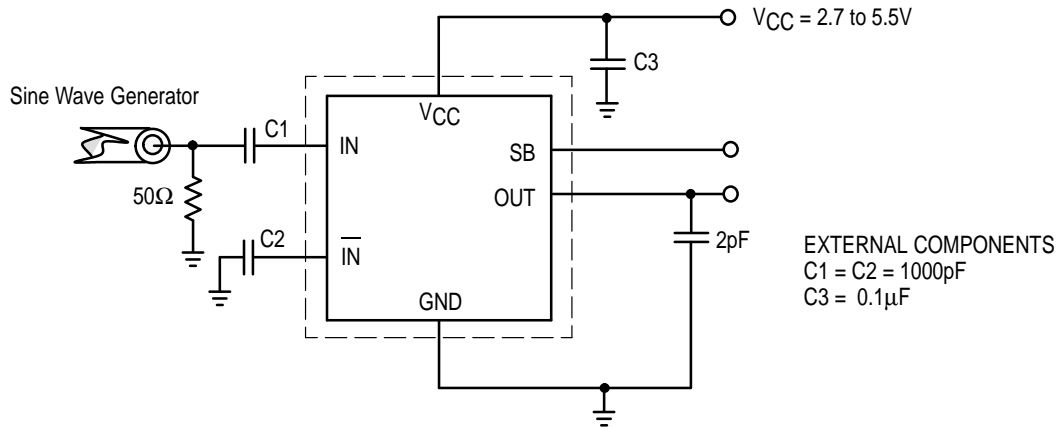


Figure 1. AC Test Circuit

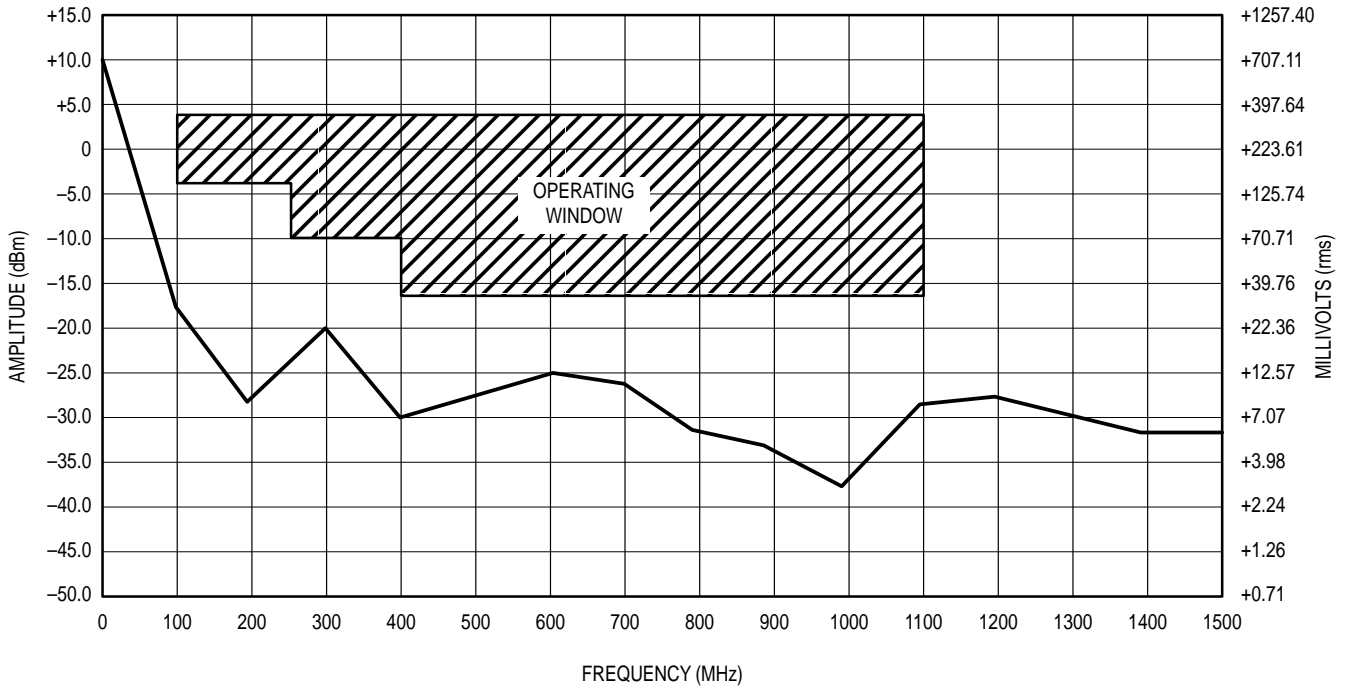


Figure 2. Input Signal Amplitude versus Input Frequency
 Divide Ratio = 2; VCC = 2.7V; TA = 25°C; Output Loaded With 2pF

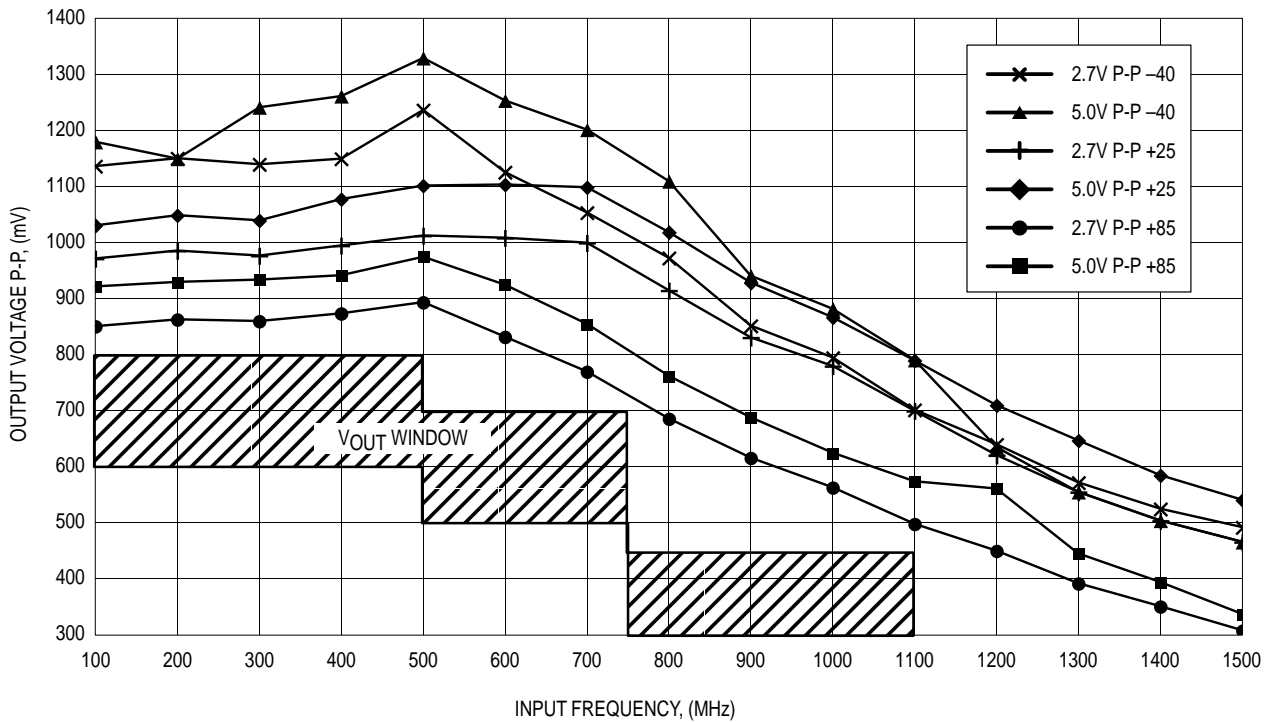


Figure 3. 12083 Output Peak-to-Peak at 2pF Load

OUTLINE DIMENSIONS

**P SUFFIX
PLASTIC PACKAGE
CASE 626-05
ISSUE K**

NOTE 2: [Points to lead dimensions]

SEATING PLANE: [Points to lead base]

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

$\oplus \text{ } \ominus \text{ } 0.13 \text{ (} 0.005 \text{)} \text{ } \textcircled{M} \text{ } T \text{ } A \text{ } \textcircled{M} \text{ } B \text{ } \textcircled{M}$

**D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751-05
ISSUE R**

SEATING PLANE: [Points to lead base]

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°	

$\oplus \text{ } \ominus \text{ } 0.25 \text{ } \textcircled{M} \text{ } C \text{ } B \text{ } \textcircled{S} \text{ } A \text{ } \textcircled{S}$

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How to reach us:
USA/EUROPE/Locations Not Listed: Motorola Literature Distribution;
 P.O. Box 5405; Denver, Colorado 80217. 303-675-2140 or 1-800-441-2447

JAPAN: Nippon Motorola Ltd.; Tatsumi-SPD-JLDC, 6F Seibu-Butsuryu-Center,
 3-14-2 Tatsumi Koto-Ku, Tokyo 135, Japan. 81-3-3521-8315

Mfax™: RMFAX0@email.sps.mot.com – TOUCHTONE 602-244-6609
INTERNET: http://Design-NET.com

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
 51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298