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The MC12080 is a single modulus divide by 10, 20, 40, 80 prescaler for low power frequency division of a 1.1 GHz high frequency input signal. Divide ratio control inputs SW1, SW2 and SW3 select the required divide ratio of 10, 20, 40, or 80.

An external load resistor is required to terminate the output. An 820 Ω resistor is recommended to achieve a 1.2 V_{pp} output swing, when dividing a 1.1 GHz input signal by the minimum divide by ratio of 10, assuming a 8.0 pF load. Output current can be minimized dependent on conditions such as output frequency, capacitive load being driven, and output voltage swing required. Typical values for load resistors are included in the V_{out} specification for various divide ratios at 1.1 GHz input frequency.

1.1 GHz Toggle Frequency

Supply Voltage 4.5 to 5.5 V

Low Power 3.7 mA Typical at V_{CC} = 5.0 V

Operating Temperature Range of ĭ40 to 85 C

These Devices are Pbĭ Free and are RoHS Compliant

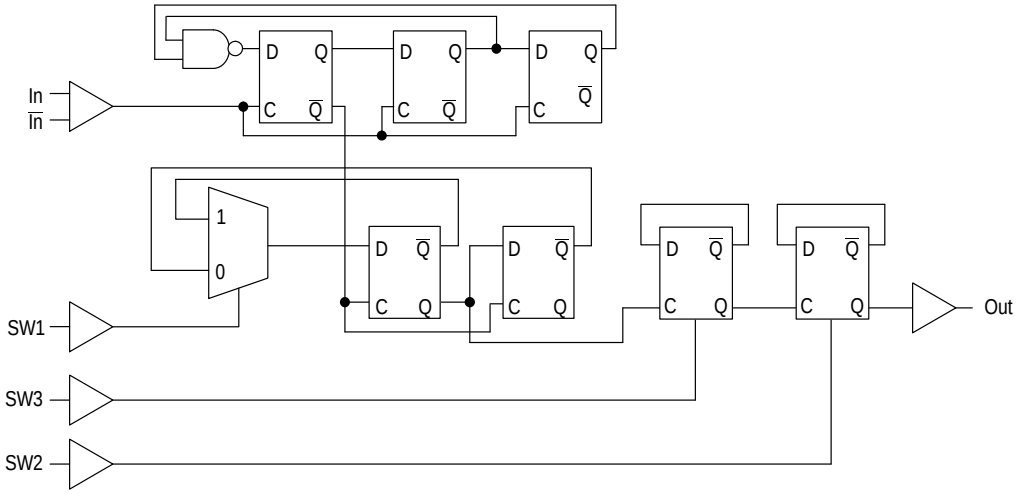
Power Supply Voltage, Pin 2	V_{CC}	−0.5 to 7.0	Vdc
Operating Temperature Range	T_A	−40 to 85	C
Storage Temperature Range	T_{stg}	−65 to 150	C
Maximum Output Current, Pin 4	I_O	10	mA

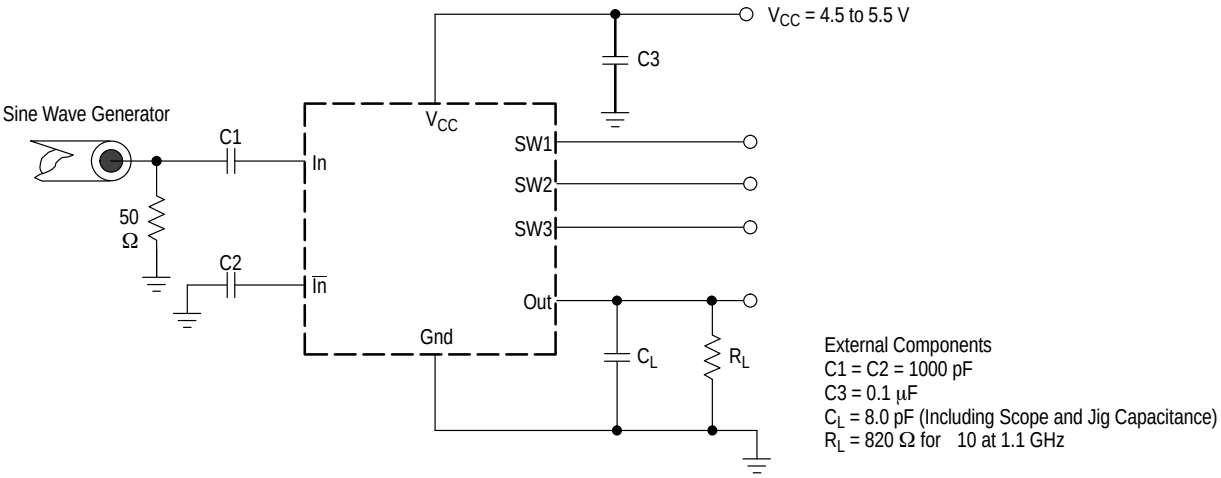
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended

(V_{CC} = 4.5 to 5.5 V; T_A = –40 to 85 C, unless otherwise noted.)

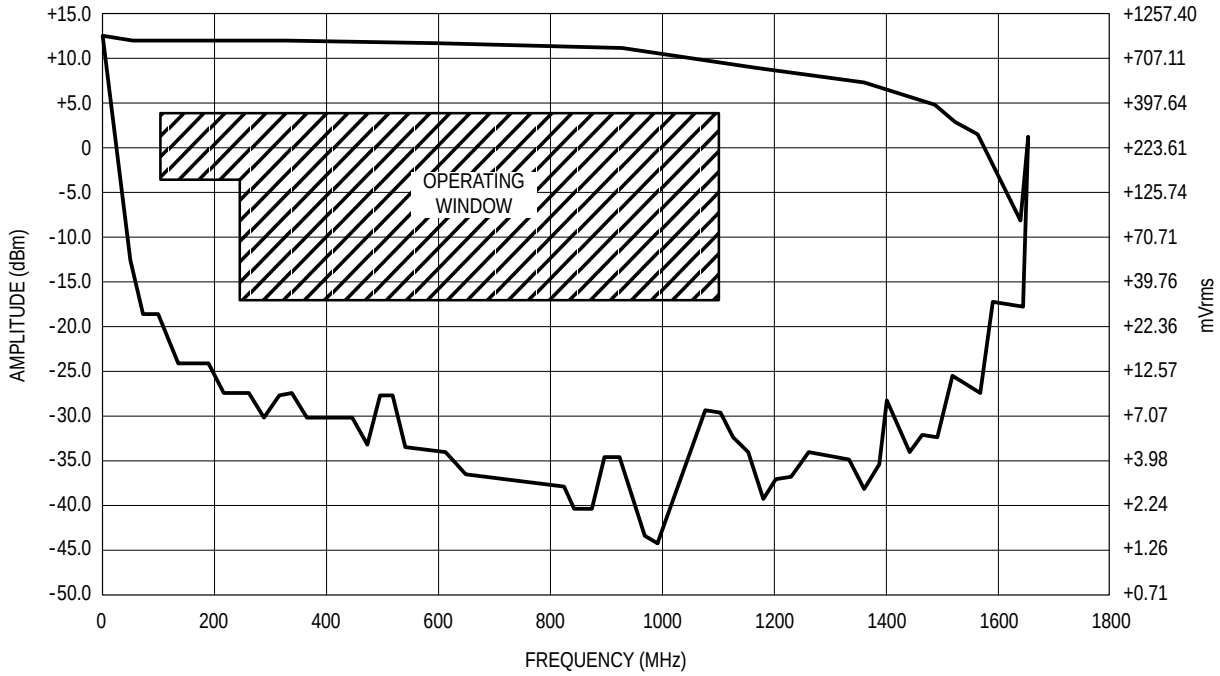
Toggle Frequency (Sine Wave)	ft	0.1	1.4	1.1	GHz
Supply Current Output (Pin 2)	I_{CC}	–	3.7	5.0	mA
Input Voltage Sensitivity 100 to 250 MHz 250 to 1100 MHz	V_{in}	 400 100	 – –	 1000 1000	mVpp
Divide Ratio Control Input High (SW1, SW2, SW3)	V_{IH}	V_{CC} – 0.5 V	V_{CC}	V_{CC} + 0.5 V	V
Divide Ratio Control Input Low (SW1, SW2, SW3)	V_{IL}	Open	Open	Open	–
Output Voltage Swing (Note 1) R_L = 820 Ω, I_O = 4.0 mA for 10 R_L = 1.6 kΩ, I_O = 2.1 mA for 20 R_L = 3.3 kΩ, I_O = 1.1 mA for 40 R_L = 6.2 kΩ, I_O = 0.57 mA for 80	V_{out}	0.8	1.2	–	V_{pp}

1. Assumes 8.0 pF load and 1.1 GHz input frequency (typical), I_O at V_{CC} = 5.0 V and T_A = 25 C.

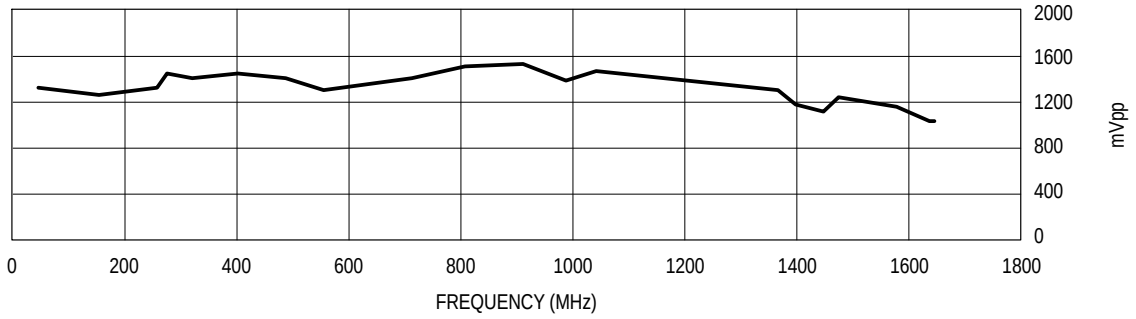




External Components
C1 = C2 = 1000 pF
C3 = 0.1 μF
C_L = 8.0 pF (Including Scope and Jig Capacitance)
R_L = 820 Ω for 10 at 1.1 GHz



Divide Ratio = 10; V_{CC} = 5.0 V; T_A = 25 C



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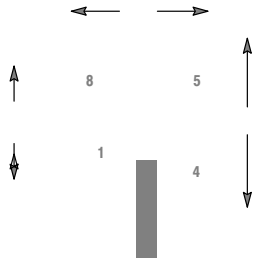

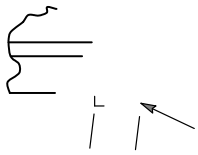

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