

MC12018

520 MHz Dual Modulus Prescaler

The MC12018 is a dual modulus prescaler which divides by 128 and 129. An internal regulator is provided to allow this device to be used over a wide range of power supply voltages. The devices may be operated by applying a supply voltage of 5.0 Vdc $\pm 10\%$ at Pin 7, or by applying an unregulated voltage source from 5.5 Vdc to 9.5 Vdc to Pin 8.

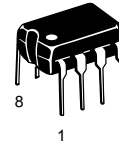
- 520 MHz Toggle Frequency
- Low-Power 8.0 mA Typical
- Control Input Is Compatible With Standard CMOS and TTL
- Supply Voltage 4.5 V to 9.5 V
- On-Chip 10 k Ω Resistor from Positive Edge to Ground

MECL PLL COMPONENTS $\div 128/129$ DUAL MODULUS PRESCALER

SEMICONDUCTOR TECHNICAL DATA

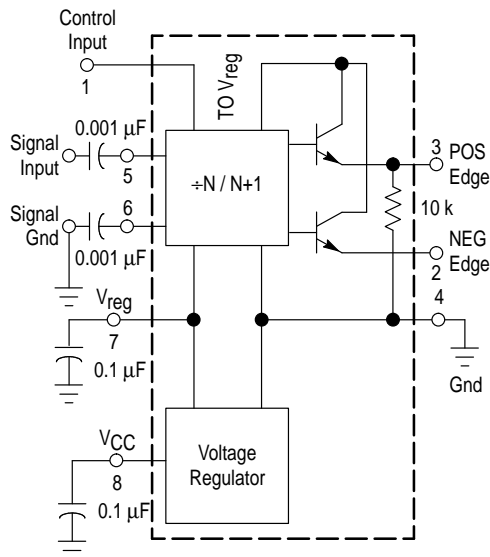


D SUFFIX
PLASTIC PACKAGE
CASE 751
(SO-8)



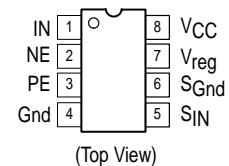
P SUFFIX
PLASTIC PACKAGE
CASE 626

SIMPLIFIED BLOCK DIAGRAM



1. V_{reg} at Pin 7 is not guaranteed to be between 4.5 and 5.5 V when V_{CC} is being applied to Pin 8
2. Pin 7 is not to be used as a source of regulated output voltage
3. 10 k Ω pulldown recommended with negative edge output (Pin 2)

PIN CONNECTIONS



ORDERING INFORMATION

Device	Operating Temperature Range	Package
MC12018D	$T_A = -40^\circ$ to $+85^\circ\text{C}$	SO-8
MC12018P		Plastic

MC12018

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Regulated Voltage, Pin 7	V_{reg}	8.0	Vdc
Power Supply Voltage, Pin 8	V_{CC}	10	Vdc
Operating Temperature Range	T_A	-40 to +85	°C
Storage Temperature Range	T_{stg}	-65 to +175	°C

NOTE: ESD data available upon request.

ELECTRICAL CHARACTERISTICS ($V_{CC} = 5.5$ to 9.5 V; $V_{reg} = 4.5$ to 5.5 V; $T_A = -40$ to 85°C), unless otherwise noted.)

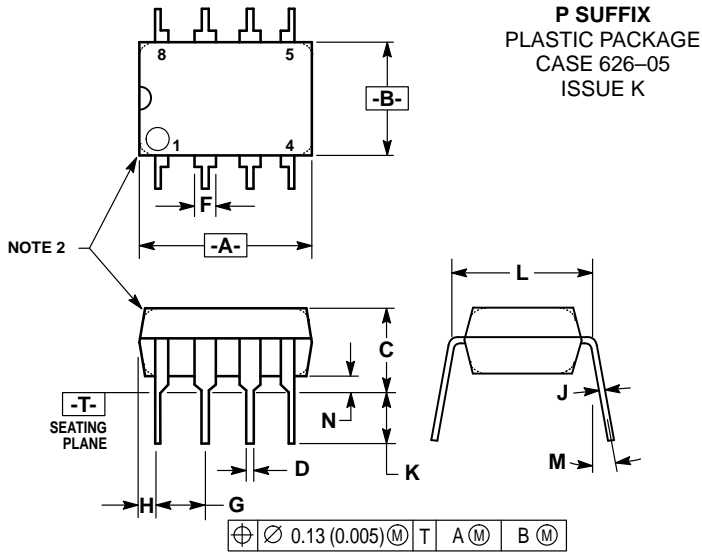
Characteristic	Symbol	Min	Typ	Max	Unit
Toggle Frequency (Sine Wave Input)	f_{max}	520	–	–	MHz
	f_{min}	–	–	75	
Supply Current	I_{CC}	–	8.0	10.7	mA
Control Input HIGH (+128)	V_{IH}	2.0	–	–	V
Control Input LOW (+129)	V_{IL}	–	–	0.8	V
Differential Output Voltage ($I_{source} = -200\mu\text{A}$)	V_{out}	0.8	1.0	–	V
Input Voltage Sensitivity	V_{in}	400	–	800	mVpp
		200	–	800	
PLL Response Time (Notes 1 and 2)	t_{PLL}	–	–	t_{out-50}	ns

NOTES: 1. t_{PLL} = the period of time the PLL has from the prescaler rising output transition (50%) to the modulus control input edge transition (50%) to ensure proper modulus selection.

2. t_{out} = period of output waveform.

MC12018

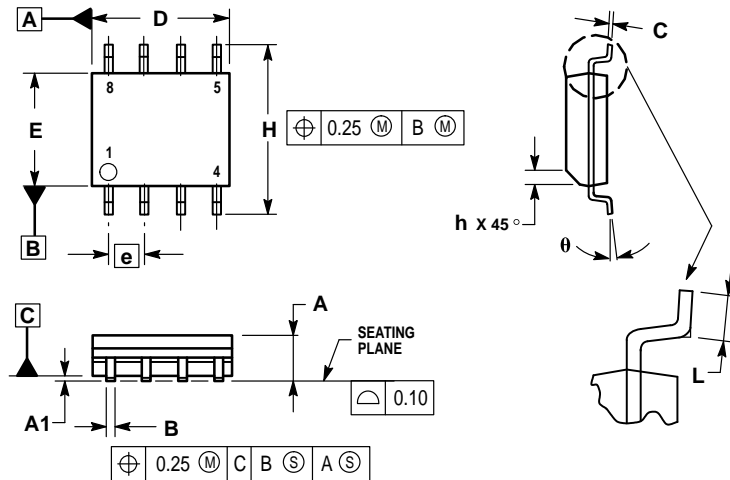
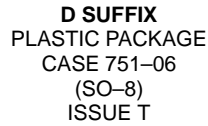
OUTLINE DIMENSIONS



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



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°	

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters which may be provided in Motorola data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part. Motorola and  are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

Mfax is a trademark of Motorola, Inc.

How to reach us:

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

JAPAN: Nippon Motorola Ltd.: SPD, Strategic Planning Office, 141,
4-32-1 Nishi-Gotanda, Shagawa-ku, Tokyo, Japan. 03-5487-8488

Customer Focus Center: 1-800-521-6274

Mfax™: RMFAX0@email.sps.mot.com – TOUCHTONE 1-602-244-6609
Motorola Fax Back System – US & Canada ONLY 1-800-774-1848
– http://sps.motorola.com/mfax/

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

HOME PAGE: <http://motorola.com/sps/>



MOTOROLA

