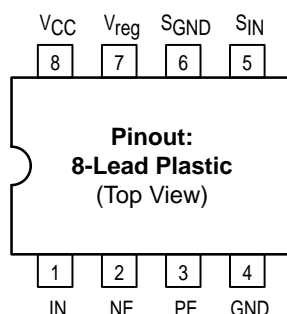


520MHz Two-Modulus Prescaler

The MC12018 is a two-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 5.0Vdc \pm 10% at Pin 7, or by applying an unregulated voltage source from 5.5Vdc to 9.5Vdc to Pin 8.

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



MAXIMUM RATINGS

Symbol	Characteristic	Range	Unit
V _{reg}	Regulated Voltage, Pin 7	8.0	Vdc
V _{CC}	Power Supply Voltage, Pin 8	10.0	Vdc
T _A	Operating Temperature Range	-40 to +85	°C
T _{stg}	Storage Temperature Range	-65 to +175	°C

ELECTRICAL CHARACTERISTICS

(V_{CC} = 5.5 to 9.5V; V_{reg} = 4.5 to 5.5V; T_A = -40 to +85°C)

Symbol	Characteristic	Min	Typ	Max	Unit
f _{max} f _{min}	Toggle Frequency (Sine Wave Input)	520		75	MHz
I _{CC}	Supply Current		8.0	10.7	mA
V _{IH}	Control Input HIGH (÷128)	2.0			V
V _{IL}	Control Input LOW (÷129)			0.8	V
V _{out}	Differential Output Voltage (I _{sink} = 200 μ A)	0.8	1.0		V
V _{in}	Input Voltage Sensitivity 75MHz 125-520MHz	400 200		800 800	mV _{pp}
t _{PLL}	PLL Response Time (Notes 1 and 2)			t _{out} -50	ns

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

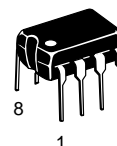
2 t_{out} = period of output waveform

MC12018

MECL PLL COMPONENTS

÷128/129

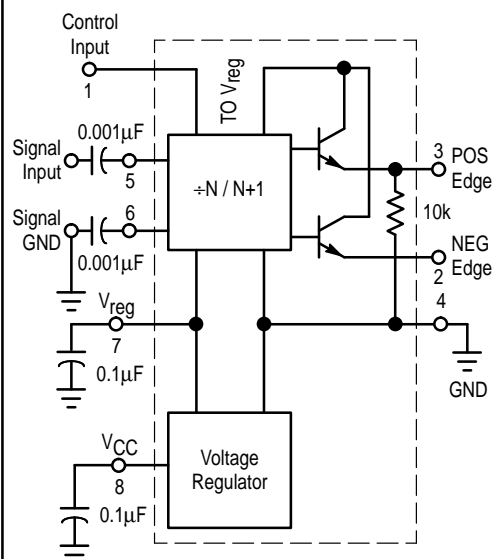
TWO-MODULUS PRESCALER



P SUFFIX
PLASTIC PACKAGE
CASE 626-05

D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751-05

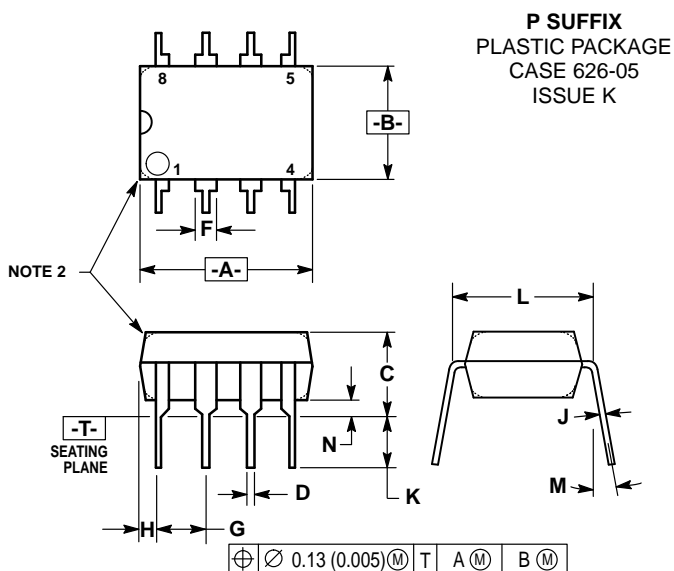
PRESCALER BLOCK DIAGRAM



1. V_{reg} at Pin 7 is not guaranteed to be between 4.5 and 5.5V 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. 10K Ω pull-down recommended with negative edge output (Pin 2)



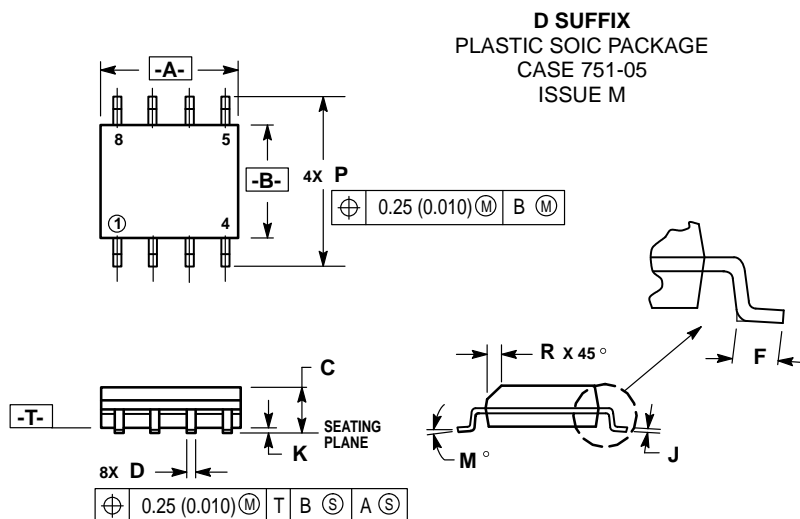
OUTLINE DIMENSIONS



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 ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSIONS A AND B DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
5. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 (0.005) TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.80	5.00	0.189	0.196
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27 BSC	0.050 BSC		
J	0.18	0.25	0.007	0.009
K	0.10	0.25	0.004	0.009
M	0°	7°	0°	7°
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019

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 can and do vary in different applications. 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.

Literature Distribution Centers:

USA: Motorola Literature Distribution; P.O. Box 20912; Phoenix, Arizona 85036.

EUROPE: Motorola Ltd.; European Literature Centre; 88 Tanners Drive, Blakelands, Milton Keynes, MK14 5BP, England.

JAPAN: Nippon Motorola Ltd.; 4-32-1, Nishi-Gotanda, Shinagawa-ku, Tokyo 141 Japan.

ASIA-PACIFIC: Motorola Semiconductors H.K. Ltd.; Silicon Harbour Center, No. 2 Dai King Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong.



MOTOROLA

◇ CODELINE TO BE PLACED HERE

MC12018/D

