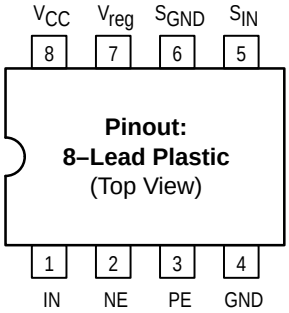
520MHz Dual Modulus Prescaler

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 5.0Vdc ±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 10KΩ 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)

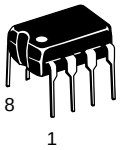
Symbol	Characteristic	Min	Typ	Max	Unit
f_{max} f_{min}	Toggle Frequency (Sine Wave Input)	520		 75	MHz
I_{CC}	Supply Current		8.0	10.7	mA
V_{IH}	Control Input HIGH (÷128)	2.0			V
V_{IL}	Control Input LOW (÷129)			0.8	V
V_{out}	Differntial Output Voltage (I_{sink} = 200μA)	0.8	1.0		V
V_{in}	Input Voltage 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 tranistion (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

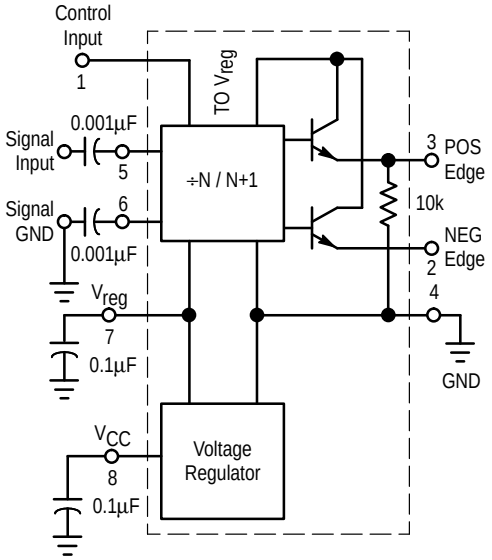
÷128/129 DUAL MODULUS PRESCALER



P SUFFIX
PLASTIC PACKAGE
CASE 626–05

D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751–05

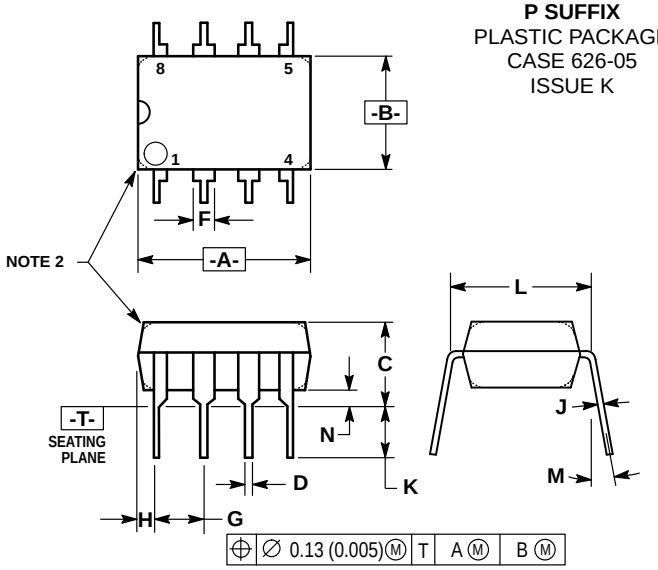
PRESCALER BLOCK DIAGRAM



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. 10KΩ pulldown recommended with negative edge output (Pin 2)

OUTLINE DIMENSIONS

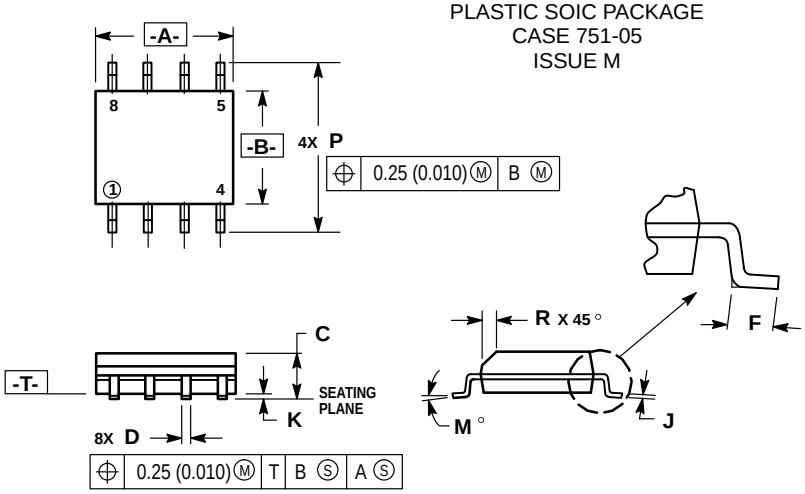
P SUFFIX
PLASTIC PACKAGE
CASE 626-05
ISSUE K



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.

	MILLIMETERS		INCHES	
DIM	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 SOIC PACKAGE
CASE 751-05
ISSUE M



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.

	MILLIMETERS		INCHES	
DIM	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

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