MOTOROLA

MC12018

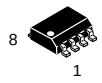
520 MHz Dual Modulus Prescaler

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 ±10% at Pin 7, or by applying an unregulated voltage source from 5.5 Vdc to 9.5 Vdc to Pin 8.

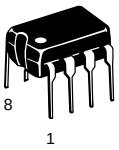
- 520 MHz Toggle Frequency
- Low–Power 8.0 mA Typical
- Control Input Is Compatible With Standard CMOS and TTL
- Supply Voltage 4.5 V to 9.5 V
- On–Chip 10 kΩ Resistor from Positive Edge to Ground

MECL PLL COMPONENTS
÷128/129 DUAL MODULUS PRESCALER

SEMICONDUCTOR TECHNICAL DATA

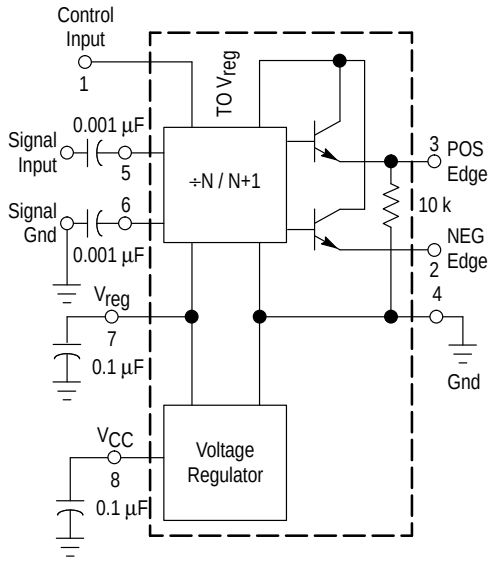


D SUFFIX
PLASTIC PACKAGE
CASE 751
(SO–8)



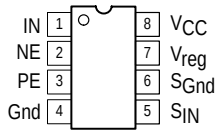
P SUFFIX
PLASTIC PACKAGE
CASE 626

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 kΩ pulldown recommended with negative edge output (Pin 2)

PIN CONNECTIONS



(Top View)

ORDERING INFORMATION

Device	Operating Temperature Range	Package
MC12018D	T_A = – 40° to +85°C	SO–8
MC12018P		Plastic

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.

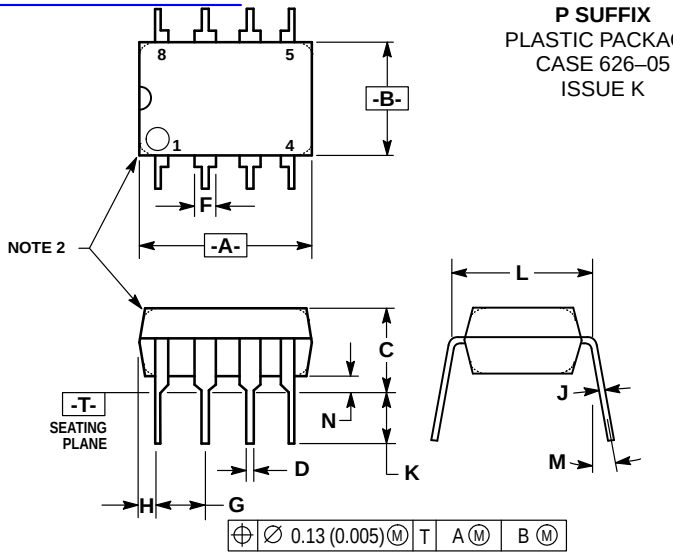
ELECTRICAL CHARACTERISTICS (V_{CC} = 5.5 to 9.5 V; V_{reg} = 4.5 to 5.5 V; T_A = –40 to 85°C), unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
Toggle Frequency (Sine Wave Input)	f_{max} f_{min}	520 –	– –	– 75	MHz
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
Differntial Output Voltage (I_{source} = –200µA)	V_{out}	0.8	1.0	–	V
Input Voltage Sensitivity 75MHz 125–520MHz	V_{in}	 400 200	 – –	 800 800	mV_{PP}
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 tranistion (50%) to the modulus control input edge transition (50%) to ensure proper modulus selection.
2. t_{out} = period of output waveform.

OUTLINE DIMENSIONS

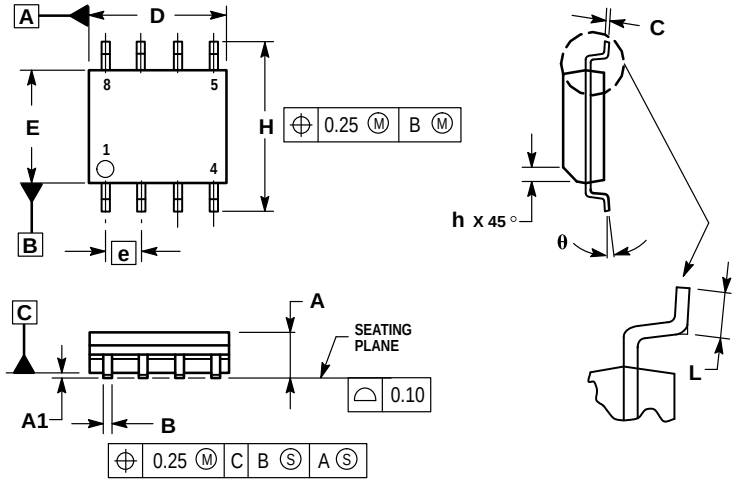
P SUFFIX
PLASTIC PACKAGE
CASE 626–05
ISSUE K



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 PACKAGE
CASE 751–06
(SO–8)
ISSUE T



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.

	MILLIMETERS	
DIM	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°

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