


MOTOROLA

MC12015 MC12016 MC12017

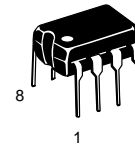
Dual Modulus Prescaler

The MC12015, MC12016 and MC12017 are dual modulus prescalers which will drive divide by 32 and 33, 40 and 41, and 64 and 65, respectively. An internal regulator is provided to allow these devices 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 5.5Vdc to 9.5 Vdc to Pin 8.

- 225 MHz Toggle Frequency
- Low-Power 7.5 mA Maximum at 6.8 V
- Control Input and Output Are Compatible With Standard CMOS
- Connecting Pins 2 and 3 Allows Driving One TTL Load
- Supply Voltage 4.5 V to 9.5 V

MECL PLL COMPONENTS DUAL MODULUS PRESCALER

SEMICONDUCTOR TECHNICAL DATA

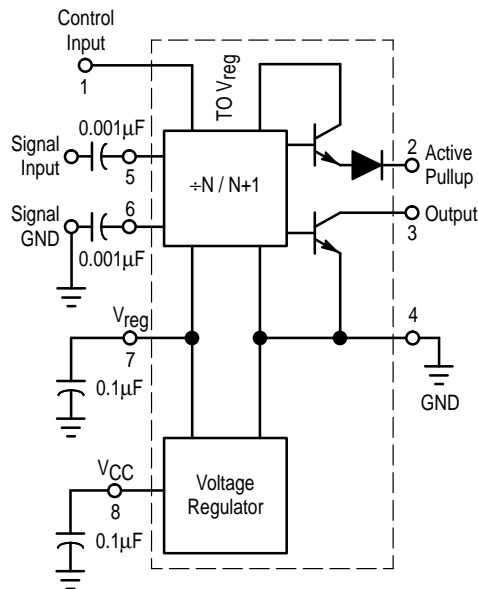


P SUFFIX
PLASTIC PACKAGE
CASE 626



D SUFFIX
PLASTIC PACKAGE
CASE 751
(SO-8)

SIMPLIFIED 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

ORDERING INFORMATION

Device	Operating Temperature Range	Package
MC12015D	$T_A = -40^\circ \text{ to } +85^\circ \text{C}$	SO-8
MC12016D		
MC12017D		
MC12015P		Plastic
MC12016P		
MC12017P		

MC12015 MC12016 MC12017

MAXIMUM RATINGS [tblhead]

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.)

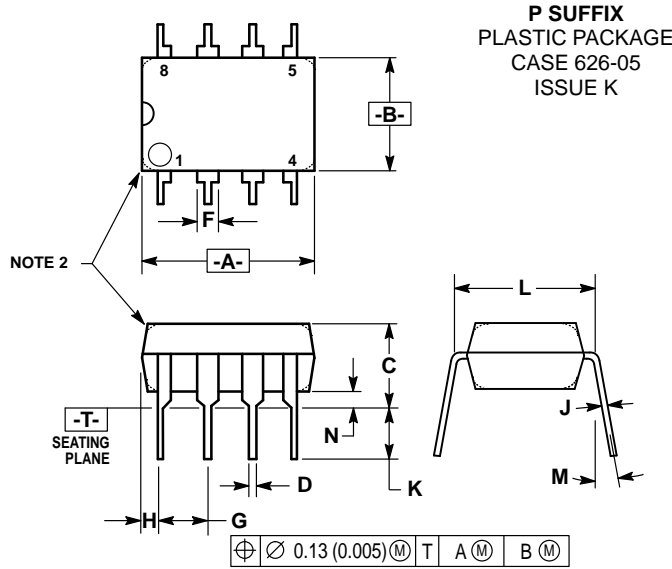
Characteristic	Symbol	Min	Typ	Max	Unit
Toggle Frequency (Sine Wave Input)	f_{max}	225	–	–	MHz
	f_{min}	–	–	35	
Supply Current	I_{CC}	–	6.0	7.8	mA
Control Input HIGH (+32, 40 or 64)	V_{IH}	2.0	–	–	V
Control Input LOW (+33, 41 or 65)	V_{IL}	–	–	0.8	V
Output Voltage HIGH ($I_{source} = 50\mu\text{A}$) [Nofe 1]	V_{OH}	2.5	–	–	V
Output Voltage LOW ($I_{sink} = 2\text{mA}$) [Note 1]	V_{OL}	–	–	0.5	V
Input Voltage Sensitivity	V_{in}				mVpp
		400	–	800	
		200	–	800	
PLL Response Time [Notes 2 and 3]	t_{PLL}	–	–	t_{out} to 70	ns

NOTES: 1. Pin 2 connected to Pin 3.

2. 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.

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

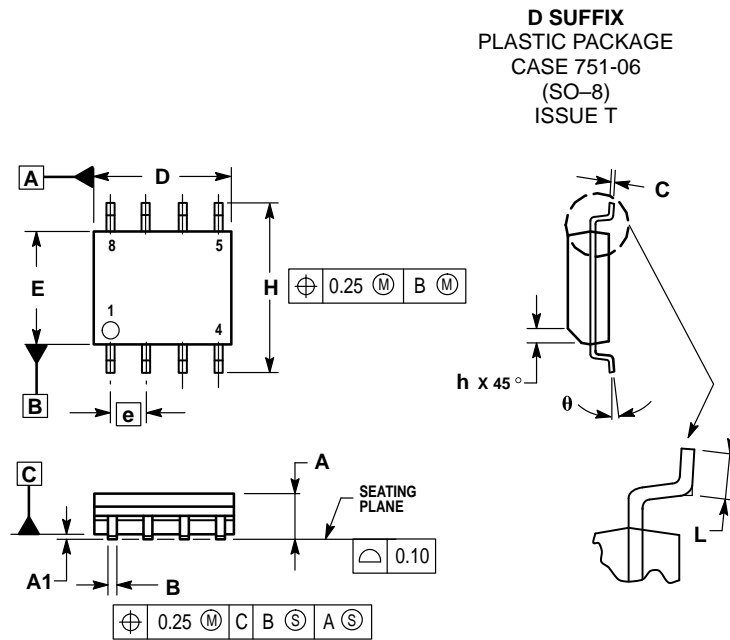
OUTLINE DIMENSIONS



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°

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