

FREQUENCY STABILITY	
OVER:	
OPERATING TEMP. RANGE:	See note 1
OVERALL STABILITY:	$< \pm 100\text{ppm}^*$
INCLUDING:	
•	OVER OPERATING TEMPERATURE RANGE
•	ADJUSTMENT @ 25°C
•	LONG TERM AGING (10 YEARS)
•	STABILITY OVER SUPPLY VOLTAGE $\pm 5\%$
•	STABILITY OVER LOAD (MIN. TO MAX.)
POWER SUPPLY	
SUPPLY VOLTAGE:	$V_{dd} = 3.3V \pm 10\%^*$
INPUT CURRENT:	$< 10\text{mA}^*$
OUTPUT	
OUTPUT SIGNAL:	HC-MOS compatible *
SYMMETRY:	40 / 60% (min.) @ $V_{dd} / 2^*$
RISE & FALL TIME:	$t_r < 7\text{ns}$ $t_f < 7\text{ns}^*$
LEVEL "0" & "1":	$< 0.4V$ $> V_{dd} - 0.5V$
START-UP TIME:	$< 5\text{ms}$
FAN OUT (LOAD):	10 TTL / LS *
ENVIRONMENT	
OPERABLE TEMP. RANGE:	-55 to +125°C
STORAGE TEMP. RANGE:	-65 to +125°C
VIBRATIONS:	10 to 2000Hz / 10g
SHOCKS:	5000g, 0.3ms, 1/2 sine
PACKAGE:	Ceramic
PACKAGE DIMENSIONS:	8.0 x 3.7 x 2.0mm (see packaging info)
PROCESSING:	Reflow soldering 260°C / 10s max. (see packaging info)
MISCELLANEOUS	
* Customer's specification on request	

Note 1: Operating Temperature Range	
MCSO1V-A:	0 to +70 °C
MCSO1V-B:	-40 to +85 °C
MCSO1V-C:	-55 to +125 °C

Option 1: Enable / Disable (on request)	
See application circuit on page 2 for details	
Pin 1:	Pin 3 (Foot):
Open	Clock
H	Clock
L	High Z
Not available for $f < 500\text{kHz}$	

Marking Example			
Micro Crystal		Micro Crystal	
MCSO1V-B	E/D	Type	Option 1
20.000 MHz	09.44	Frequency	Date Code
○		○ (PIN 1)	

Ordering Information Example			
MCSO1 V - B 20MHz E/D xxx			
Oscillator Type	MCSO1 = Miniature Surface Mount Clock Crystal Oscillator		Customer spec N°
Oscillator Version	V = Low Power Voltage		Option 1: E/D = Enable / Disable
Temperature Range	A = 0 to +70°C B = -40 to 85°C C = -55 to 125°C X = Custom spec.		Oscillator Output Frequency

STANDARD FREQUENCIES [MHz]					
10.0000	10.1500	10.2300	10.2400	11.0592	12.0000
12.2880	12.8000	13.0000	14.7456	16.0000	16.3840
18.4320	19.2000	19.6608	20.0000	& sub multiple	

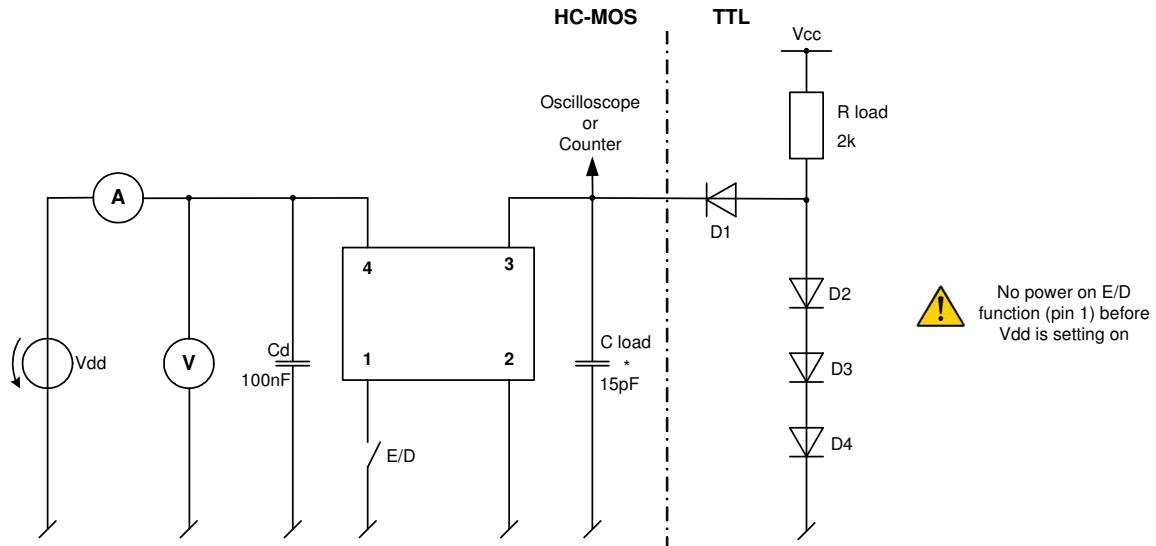
Date :	June 2003	Revision No. :	8	Revision Date :	10-09
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In accordance with our policy of continuous development and improvement, we reserve the right to modify the design or the specifications of our products without prior notice.

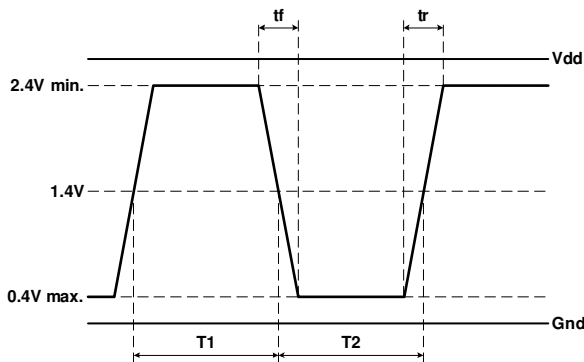
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Application and Test Circuit:

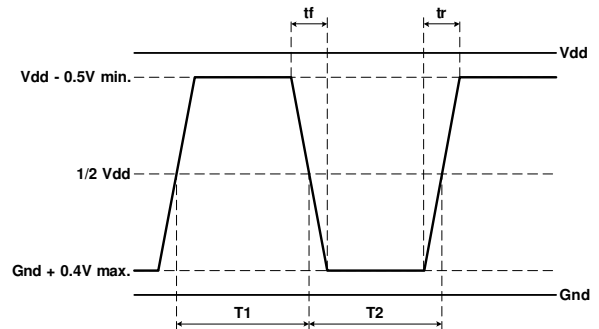


Waveform Output:

Waveshape TTL



Waveshape HC-MOS



$$Duty\ Cycle = 100 \times \frac{T1}{T1 + T2} [\%]$$

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