

FREQUENCY STABILITY

OVER:

OPERATING TEMP. RANGE: See note 1
OVERALL STABILITY: $< \pm 300\text{ppm}^*$

INCLUDING:

- OVER OPERATING TEMPERATURE RANGE
- ADJUSTMENT @ 25°C
- AGING (24 HOURS @ 175°C)
- STABILITY OVER SUPPLY VOLTAGE $\pm 10\%$
- STABILITY OVER LOAD (MIN. TO MAX.)

POWER SUPPLY

SUPPLY VOLTAGE: $V_{dd} = 2.4\text{V} \pm 5\%$
INPUT CURRENT: $< 300\mu\text{A}$

OUTPUT

OUTPUT SIGNAL: HC-MOS compatible

SYMMETRY: 40 / 60% (min.) @ $V_{dd} / 2^*$
RISE & FALL TIME: $t_r < 15\text{ns}$ $t_f < 15\text{ns}^*$

LEVEL "0" & "1": $< 0.4\text{V}$ $> V_{dd} - 0.5\text{V}$
START-UP TIME: $< 5\text{ms}$
FAN OUT (LOAD): 25pF max^*

ENVIRONMENT

OPERABLE TEMP. RANGE: -55 to $+175^\circ\text{C}$ (during 72 hours)
STORAGE TEMP. RANGE: -65 to $+125^\circ\text{C}$
VIBRATIONS: 10 to 2000Hz / 10g
SHOCKS: 5000g, 0.3ms, $\frac{1}{2}$ sine
PACKAGE: Ceramic
PACKAGE DIMENSIONS: $8.0 \times 3.7 \times 2.0\text{mm}$
(see packaging info)
PROCESSING: Reflow soldering $260^\circ\text{C} / 10\text{s max}$.
(see packaging info)

MISCELLANEOUS

Supply voltage 3.3 and 5V available

Note 1: Operating Temperature Range

MCSO1-D: -55 to $+175^\circ\text{C}$

Option 1: Enable / Disable (on request)

See application circuit on page 2 for details

Pin 1:	Pin 3 (Fout)::
Open	Clock
H	Clock
L	High Z

Marking Example

Micro Crystal		Micro Crystal	
MCSO1EL-D	E/D	Type	Option 1
33.000 MHz	09.12	Frequency	Date Code
O		O (PIN 1)	

Ordering Information Example

MCSO1 EL - D 33MHz E/D xxx			
Oscillator Type	MCSO1 = Miniature Surface Mount Clock Crystal Oscillator		Customer spec N°
Oscillator Version	E = Extensive Temp. range V = Low Power Voltage 2.4V		Option 1: E/D = Enable / Disable
Temperature Range	D = -55 to $+175^\circ\text{C}$ X = Custom spec.		Oscillator Output Frequency

PRELIMINARY

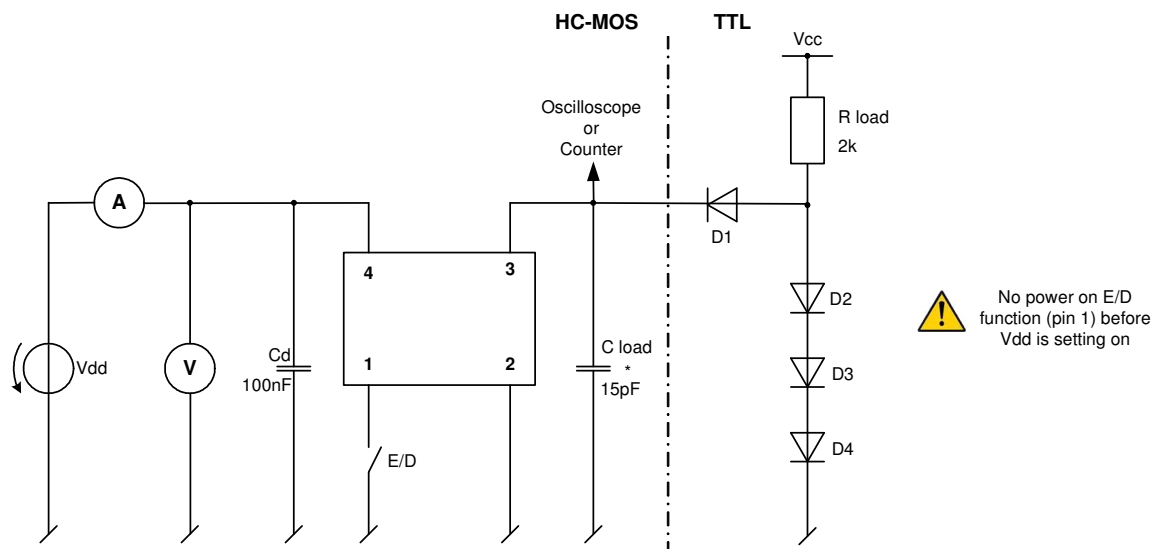
Date :	May 2007	Revision No. : 1	Revision Date : 10.09
--------	----------	------------------	-----------------------

Page 1 / 2

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.

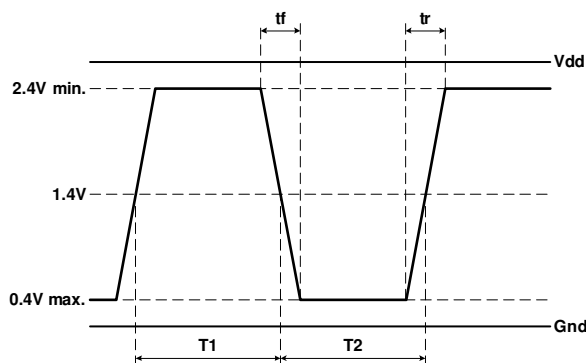
Headquarters:	Micro Crystal AG Mühlestrasse 14 CH-2540 Grenchen Switzerland	Tel.	+41 32 655 82 82
		Fax	+41 32 655 80 90
		Internet	www.microcrystal.ch
		Email	sales@microcrystal.ch

Application and Test Circuit:

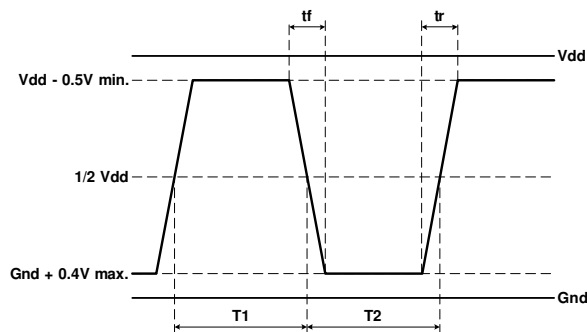


Waveform Output:

Waveshape TTL



Waveshape HC-MOS



$$\text{Duty Cycle} = 100 \times \frac{T_1}{T_1 + T_2} [\%]$$

Date :	May 2007	Revision No. : 1	Revision Date : 10.09
--------	----------	------------------	-----------------------

Page 2 / 2

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.

Headquarters: Micro Crystal AG
 Mühlestrasse 14
 CH-2540 Grenchen
 Switzerland

Tel. +41 32 655 82 82
 Fax +41 32 655 80 90
 Internet www.microcrystal.ch
 Email sales@microcrystal.ch